Prehistoric Pile Dwellings around the Alps

World Heritage nomination

Switzerland, Austria, France, Germany, Italy, Slovenia

Volume I

Nomination file chapters 1–9

Volume I

Preface

The prehistoric pile-dweller settlements on lakes and moors afford us vivid insight into the origins and growth of early agrarian societies around the Alps. Thanks to extraordinarily favourable conditions, the organic materials used in prehistoric times to fashion most objects, which under normal circumstances (dry excavation sites) would have disintegrated, are still extant in our day. Modern archaeologists, along with their counterparts in related disciplines like palaeobotany and climatology, can make precise deductions about life in Alpine regions in prehistoric times based on such findings as wood, textiles, plants and discarded foodstuffs. The extraordinarily dense distribution of sites and information across a large area provides data for reliable statements about ancient social development, as well as for the plausible reconstruction of cultural exchange among a variety of cultures.

Because such sites are shared by all Alpine nations, it was clear at the outset that candidacy for inscription in the World Heritage List must be serial and transnational. Switzerland inscribed the sites on its Tentative List in 2004, and experts both academic and administrative have been collaborating closely ever since. The five-year preliminary study has yielded a spectacular result: the first-ever standardized international inventory of sites in all six countries, with indicators providing data on location, preservation and scientific potential. A meticulous process of evaluation determined which sites were capable of inscription as a serial site on the World Heritage List. An international management system has been implemented and common goals and regulations set out for the preservation and study of a phenomenon with unusual archaeological significance. Of equal importance is the fact that this international collaboration in the interest of inscription on the World Heritage List has strengthened ties among experts in all countries involved, refined communication between the relevant administrative authorities, and created a network of amicable contacts.

The range of finds and features of prehistoric villages still extant in situ is impressive. Wood pilings thousands of years old stand in only a few meters of lake water, while thousands of incredibly well-preserved implements of everyday use in prehistoric times are to be found in abundant strata. Such archaeological evidence, however, is fragile. Can we really afford to deny it to posterity, to do future generations out of an opportunity to learn about human history, perhaps with methods undreamt-of today? With their joint candidacy for inscription on the World Heritage List, the Alpine nations undertake to work together for the preservation of the sites selected and for continued communication of their value. I believe that this application is a vital measure in the defence of an extraordinary legacy.

In the name of Switzerland and on behalf of Austria, France, Germany, Italy and Slovenia, I am delighted to announce our nomination and would like to express my gratitude to all those who have helped us come this far, as well as for the exemplary cooperation among the various countries involved. I also want to thank UNESCO and its Advisory Bodies for their attention to this nomination.

Doris Leuthard
President of the Swiss Confederation in 2010

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Executive Summary

Countries

Switzerland (CH)
Austria (AT)
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Germany (DE)
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State, Province or Region

Switzerland

Cantons of Aargau (AG), Berne (BE), Fribourg (FR), Geneva (GE), Lucerne (LU), Neuchâtel (NE), Nidwalden (NW), Schaffhausen (SH), Schwyz (SZ), Solothurn (SO), St. Gall (SG), Thurgau (TG), Vaud (VD), Zug (ZG), Zurich (ZH).

Austria

— Federal state of Carinthia (Kärnten, KT): administrative district (Verwaltungsbezirk) of Klagenfurt-Land;
— Federal state of Upper Austria (Oberösterreich, OÖ): administrative district (Verwaltungsbezirk) of Vöcklabruck.

France

— Region of Rhône-Alpes: Départements of Savoie (73), Haute-Savoie (74);
— Region of Franche-Comté: Département of Jura (39).

Germany

— Federal state of Baden-Württemberg (BW): administrative districts (Landkreise) of Alb-Donau-Kreis (UL), Biberach (BC), Bodenseekreis (FN), Konstanz (KN), Ravensburg (RV);
— Free State of Bavaria (BY): administrative districts (Landkreise) of Landsberg am Lech (LL); Starnberg (STA).

Italy

— Region of Friuli Venezia Giulia (FV): Province of Pordenone (PN);
— Region of Lombardy (LM): Provinces of Varese (VA), Brescia (BS), Mantua (MN), Cremona (CR);
— Region of Piedmont (PM): Provinces of Biella (BI), Torino (TO);
— Trentino-South Tyrol / Autonomous Province of Trento (TN);
— Region of Veneto (VN): Provinces of Verona (VR), Padua (PD).

Slovenia

Municipality of Ig

Name of Property

Prehistoric Pile Dwellings around the Alps
Sites palafittiques préhistoriques autour des Alpes

Geographical coordinates to the nearest second

The geographical coordinates to the nearest second are shown in ÿ Figs. 0.1–0.6.

Switzerland

Component part	Municipality	Place name	Coordinates of Centre Points UTM			Comp. part size (ha)	Buffer zone size (ha)
			Zone	E	N		
CH-AG-01	Beinwil am See	Ägelmoos	32	440,073	5,236,430	0.96	10.50
CH-AG-02	Seengen	Riesi	32	439,842	5,240,864	3.80	16.50
CH-BE-01	Biel	Vingelz / Hafen	32	365,269	5,221,376	0.60	18.40
CH-BE-02	Lüscherz	Dorfstation	32	359,487	5,212,241	3.40	75.10
CH-BE-03	Moosseedorf	Moossee Ost	32	385,033	5,208,532	0.70	18.70
CH-BE-04	Mörigen	Bronzestation	32	363,633	5,216,538	1.10	32.10
CH-BE-05	Seedorf	Lobsigensee	32	370,837	5,210,224	1.10	27.60
CH-BE-06	Sutz-Lattrigen	Rütte	32	364,410	5,218,393	2.80	49.60
CH-BE-07	Twann	Bahnhof	32	360,190	5,217,427	2.50	18.50
CH-BE-08	Vinelz	Strandboden	32	356,367	5,211,253	2.30	28.70
CH-FR-01	Delley-Portalban	Portalban II	32	344,330	5,198,392	1.40	71.10
CH-FR-02	Gletterens	Les Grèves	32	342,317	5,196,722	2.62	2.40
CH-FR-03	Greng	Spitz	32	354,624	5,198,322	7.69	7.30
CH-FR-04	Haut-Vully	Môtier I	32	354,571	5,201,408	1.42	1.30
CH-FR-05	Murten	Segelboothafen	32	356,385	5,199,092	2.83	4.70
CH-FR-06	Muntelier	Baie de Muntelier	32	357,669	5,200,287	5.96	6.10
CH-FR-07	Noréaz	En Praz des Gueux	32	357,779	5,200,284	0.08	2.02
CH-FR-08	Vernay	En Chéseau	32	357,658	5,200,247	3.13	4.80
CH-GE-01	Collonge-Bellerive	Bellerive I	32	357,549	5,200,329	2.40	8.87
CH-GE-02	Corsier	Port	32	350,230	5,184,293	1.94	10.90
CH-GE-03	Versoix	Bourg	32	339,053	5,194,556	3.03	15.93
CH-LU-01	Egolzwil	Egolzwil 3	32	283,524	5,126,176	0.65	56.82
CH-LU-02	Egolzwil	Egolzwil 4	32	285,126	5,127,776	0.58	56.82

Component part	Municipality	Place name	Coordinates of Centre Points UTM			Comp. part size (ha)	Buffer zone size (ha)
			Zone	E	N		
CH-LU-03	Hitzkirch	Seematte	32	282,115	5,129,325	2.81	24.55
CH-LU-04	Schenkon	Trichtermoos-Altstadt	32	425,558	5,226,047	3.17	67.78
CH-LU-05	Sempach	Uferpromenade	32	425,409	5,226,075	1.31	33.03
CH-LU-06	Sursee	Halbinsel	32	443,607	5,229,611	3.55	67.78
CH-NE-01	Saint-Aubin-Sauges	Port-Conty	32	433,981	5,224,754	1.04	7.03
CH-NE-02	Gorgier	Les Argilliez	32	438,547	5,220,563	1.32	1.20
CH-NE- 03	Bevaix	Treytel	32	433,729	5,224,609	2.34	5.51
CH-NE-04	Bevaix	L'Abbaye 2	32	433,873	5,224,331	1.04	5.01
CH-NE-05	Cortaillod	Petit Cortaillod	32	433,754	5,224,633	1.09	3.71
CH-NE-06	Auvernier	La Saunerie	32	330,252	5,195,541	1.51	1.63
CH-NE-07	Auvernier	Les Graviers	32	331,749	5,196,932	0.57	2.13
CH-NE-08	La Tène (Marin-Epagnier)	Les Piécettes	32	333,249	5,198,432	0.93	1.20
CH-NW-01	Stansstad	Kehrsiten	32	334,929	5,199,399	1.26	5.14
CH-SH-01	Thayngen	Weier I - III	32	336,367	5,200,821	0.48	3.44
CH-SZ-01	Freienbach	Hurden Rosshorn	32	338,175	5,204,205	4.32	20.10
CH-SZ-02	Freienbach	Hurden Seefeld	32	338,441	5,204,490	2.40	16.12
CH-SO-01	Aeschi SO	Burgäschisee Ost	32	349,301	5,207,944	0.30	90.69
CH-SO-02	Bolken / Inkwil	Inkwilersee Insel	32	451,900	5,205,750	0.10	45.71
CH-SG-01	Rapperswil-Jona / Hombrechtikon	Feldbach	32	484,644	5,231,867	7.50	15.50
CH-SG-02	Rapperswil-Jona	Technikum	32	484,819	5,231,864	0.92	49.10
CH-TG-01	Arbon	Bleiche 2-3	32	486,123	5,229,843	2.37	5.84
CH-TG-02	Ermatingen	West	32	477,918	5,287,163	6.23	12.33
CH-TG-03	Eschenz	Insel Werd	32	399,459	5,224,913	2.80	44.08
CH-TG-04	Gachnang-Niederwil	Egelsee	32	398,786	5,228,256	2.97	5.49
CH-TG-05	Hüttwilen	Nussbaumersee	32	485,451	5,229,727	3.66	16.86
CH-TG-06	Mammern	Langhorn	32	485,104	5,228,884	4.93	39.45
CH-VD-01	Bonvillars	Morbey	32	532,290	5,261,388	1.53	6.51
CH-VD-02	Chabrey	Pointe de Montbec I	32	532,290	5,261,388	1.78	8.04
CH-VD-03	Chevroux	La Bessime	32	532,345	5,261,636	1.07	22.10
CH-VD-04	Chevroux	Village	32	505,842	5,279,978	1.54	38.40
CH-VD-05	Corcelles-près-Concise	Stations de Concise	32	505,842	5,279,978	6.50	11.50
CH-VD-06	Cudrefin	Champmartin	32	505,489	5,280,115	1.30	6.50
CH-VD-07	Cudrefin	le Broillet I	32	490,089	5,278,138	0.28	20.83
CH-VD-08	Faoug	La Gare	32	489,770	5,267,382	0.40	2.10
CH-VD-09	Faoug	Poudrechat	32	486,196	5,273,652	3.15	6.15
CH-VD-10	Grandson	Corcelettes Les Violes	32	486,196	5,273,652	2.59	17.40
CH-VD-11	Morges	Les Roseaux	32	486,149	5,273,802	0.86	8.10
CH-VD-12	Morges	Stations de Morges	32	495,076	5,277,803	2.12	7.91
CH-VD-13	Mur	Chenevières de Guévaux I	32	323,698	5,188,891	1.04	9.73
CH-VD-14	Rolle	Ile de la Harpe	32	345,592	5,199,992	1.64	6.65
CH-VD-15	Yverdon-les-Bains	Baie de Clendy	32	339,571	5,194,946	1.87	38.70
CH-VD-16	Yvonand	Le Marais	32	340,217	5,195,513	1.95	16.80
CH-ZG-01	Cham	St. Andreas, Strandbad	32	340,327	5,195,476	2.52	25.73
CH-ZG-02	Hünenberg	Strandbad	32	340,217	5,195,513	0.52	33.66
CH-ZG-03	Risch	Oberrisch, Aabach	32	325,953	5,190,636	0.82	21.34
CH-ZG-04	Zug	Oterswil / Insel Eielen	32	325,953	5,190,636	0.45	10.82
CH-ZG-05	Zug	Riedmatt	32	325,909	5,190,917	0.28	2.61
CH-ZG-06	Zug	Sumpf	32	347,721	5,201,455	1.55	7.50
CH-ZH-01	Erlenbach	Winkel	32	350,221	5,203,305	3.01	6.60
CH-ZH-02	Greifensee	Storen-Wildsberg	32	353,484	5,197,050	9.59	11.70
CH-ZH-03	Horgen	Scheller	32	352,731	5,196,420	3.48	9.30

Component part	Municipality	Place name	Coordinates of Centre Points UTM			Comp. part size (ha)	Buffer zone size (ha)
			Zone	E	N		
CH-ZH-04	Maur	Schifflände	32	352,817	5,196,448	1.38	22.62
CH-ZH-05	Meilen	Feldmeilen Vorderfeld	32	352,640	5,196,376	3.89	17.14
CH-ZH-06	Meilen	Rorenhaab	32	322,195	5,187,730	0.70	4.80
CH-ZH-07	Wädenswil	Vorder Au	32	308,944	5,154,435	1.49	22.50
CH-ZH-08	Wetzikon	Robenhausen	32	308,504	5,153,899	0.92	155.00
CH-ZH-09	Zürich	Enge Alpenquai	32	308,503	5,153,854	2.93	17.40
CH-ZH-10	Zürich	Grosse Stadt Kleiner Hafner	32	308,551	5,154,003	0.64	16.56
CH-ZH-11	Zürich	Riesbach Siedlungskammer Seefeld	32	352,021	5,199,919	3.13	14.60

Fig. 0.1 Geographical coordinates and size of the nominated property (ha) and the buffer zone (ha) in Switzerland.

Austria

Component part	Municipality	Place name	Coordinates of Centre Points UTM			Comp. part size (ha)	Buffer zone size (ha)
			Zone	E	N		
AT-KT-01	Keutschach	Keutschacher See	33	435,607	5,159,616	0,21	132,50
AT-OÖ-01	Attersee	Abtsdorf I	33	390,394	5,305,639	1,10	91,43
AT-OÖ-02	Attersee	Abtsdorf II	33	390,296	5,305,780	0,59	91,43
AT-OÖ-03	Attersee	Abtsdorf III	33	390,355	5,305,472	0,22	91,43
AT-OÖ-04	Attersee	Aufham	33	390,095	5,306,779	2,03	91,43
AT-OÖ-05	Seewalchen am Attersee	Litzlberg Süd	33	392,053	5,310,014	0,76	65,26
AT-OÖ-06	Nussdorf am Attersee	Nussdorf	33	389,876	5,303,742	0,90	28,85
AT-OÖ-07	Mondsee	See	33	383,887	5,295,667	1,22	0,97

Fig. 0.2 Geographical coordinates and size of the nominated property (ha) and the buffer zone (ha) in Austria.

France

Component part	Municipality	Place name	Coordinates of Centre Points UTM			Comp. part size (ha)	Buffer zone size (ha)
			Zone	E	N		
FR-39-01	Clairvaux-les-Lacs	Le Grand Lac de Clairvaux	31	710,709	5,161,187	15.20	103.05
FR-39-02	Doucier / Fontenu / Marigny	Lac de Chalain, rive occidentale	31	712,356	5,172,476	50.65	96.83
FR-73-01	Aiguebelette-le-Lac / Saint-Alban-de-Montbel	Lac d'Aiguebelette, zone sud	31	718,951	5,047,138	0.64	42.87
FR-73-02	Novalaise	Lac d'Aiguebelette, zone nord	31	718,371	5,049,293	0.27	3.13
FR-73-03	Brison-Saint-Innocent	Baie de Grésine	31	724,500	5,068,836	4.09	31.50
FR-73-04	Chindrieux	Baie de Châtillon	31	721,555	5,075,529	0.91	7.60
FR-73-05	Conjux	Baie de Conjux-Portout	31	719,529	5,075,512	0.15	62.83
FR-73-06	Saint-Pierre-de-Curtille	Hautecombe	31	720,961	5,070,173	2.03	5.70
FR-73-07	Tresserve	Littoral de Tresserve	31	725,267	5,063,018	2.12	72.40
FR-74-01	Annecy	Lac d'Annecy, zone nord-ouest	32	278,076	5,087,163	0.12	31.18
FR-74-02	Annecy-le-Vieux	Lac d'Annecy, zone nord-est	32	279,555	5,087,355	0.93	9.25
FR-74-03	Chens-sur-Léman	Littoral de Chens-sur-Léman	32	288,758	5,133,388	0.93	92.60
FR-74-04	Saint-Jorioz	Les Marais de Saint-Jorioz	32	281,218	5,079,598	0.49	4.30
FR-74-05	Sévrier	Le Crêt de Chatillon	32	279,193	5,082,471	1.07	8.20
FR-74-06	Sévrier / Saint-Jorioz	Secteur des Mongets	32	278.838	5,081,690	0.13	63.20

Fig. 0.3 Geographical coordinates and size of the nominated property (ha) and the buffer zone (ha) in France.

Germany

Component part	Municipality	Place name	Coordinates of Centre Points UTM			Comp. part size (ha)	Buffer zone size (ha)
			Zone	E	N		
DE-BW-01	Öhningen	Wangen-Hinterhorn	32	495,412	5,278,619	2.56	3.20
DE-BW-02	Gaienhofen	Hemmenhofen-im Leh	32	497,563	5,279,732	2.79	4.90
DE-BW-03	Gaienhofen	Hornstaad-Hörnle	32	500,444	5,282,347	13.11	72.40
DE-BW-04	Allensbach	Allensbach-Strandbad	32	505,987	5,284,045	2.65	6.60
DE-BW-05	Konstanz	Wollmatingen-Langenrain	32	509,035	5,280,173	1.55	83.70
DE-BW-06	Konstanz	Konstanz-Hinterhausen	32	514,570	5,279,110	4.15	4.12
DE-BW-07	Konstanz	Litzelstetten-Krähenhorn	32	513,420	5,285,715	7.51	47.92
DE-BW-08	Bodman-Ludwigshafen	Bodman-Schachen / Löchle	32	502,976	5,295,681	5.34	14.10
DE-BW-09	Sipplingen	Sipplingen-Osthafen	32	507,641	5,293,314	4.61	6.23
DE-BW-10	Uhldingen-Mühlhofen	Unteruhldingen-Stollenwiesen	32	517,128	5,285,306	4.22	4.52
DE-BW-11	Alleshausen	Ödenahlen	32	547,704	5,329,749	0.97	58.02
DE-BW-12	Seekirch	Achwiesen	32	547,380	5,328,484	0.23	3.52
DE-BW-13	Alleshausen	Grundwiesen	32	546,643	5,328,554	0.54	3.42
DE-BW-14	Alleshausen	Täschenwiesen	32	545,596	5,327,239	1.34	20.42
DE-BW-15	Bad Buchau	Siedlung Forschner	32	547,730	5,322,596	3.54	285.14
DE-BW-16	Bad Schussenried	Olzreute-Enzisholz	32	551,374	5,316,371	1.82	20.62
DE-BW-17	Hosskirch	Königseggsee	32	533,485	5,308,641	0.42	2.63
DE-BW-18	Wolpertswende	Schreckensee	32	542,523	5,304,063	1.06	7.05
DE-BW-19	Aulendorf	Steeger See	32	548,648	5,311,753	0.63	6.10
DE-BW-20	Bad Waldsee	Reute Schorrenried	32	552,272	5,306,018	2.03	8.82
DE-BW-21	Blaustein	Ehrenstein	32	568,321	5,362,367	1.33	2.42
DE -BY-01	Weil	Pestenacker	32	644,886	5,334,438	0.57	3.66
DE -BY-02	Geltendorf	Unfriedshausen	32	645,146	5,333,960	0.79	7.69
DE -BY-03	Feldafing, unincorporated area (STA)	Roseninsel	32	672,454	5,312,383	15.16	34.30

Fig. 0.4 Geographical coordinates and size of the nominated property (ha) and the buffer zone (ha) in Germany.

Italy

Component part	Municipality	Place name	Coordinates of Centre Points UTM			Comp. part size (ha)	Buffer zone size (ha)
			Zone	E	N		
IT-FV-01	Caneva/Polcenigo (PN)	Palù di Livenza – Santissima	33	305,038	5,099,548	13.48	86.72
IT-LM-01	Desenzano del Garda/ Lonato del Garda (BS)	Lavagnone	32	620,248	5,032,582	6.04	14.45
IT-LM-02	Manerba del Garda (BS)	San Sivino, Gabbiano	32	621,626	5,043,625	1.85	3.46
IT-LM-03	Padenghe sul Garda (BS)	West Garda, La Fabbrica	32	618,097	5,039,440	3.93	2.01
IT-LM-04	Sirmione (BS)	Lugana Vecchia	32	628,500	5,035,185	2.59	11.16
IT-LM-05	Polpenazze del Garda (BS)	Lucone	32	616,156	5,045,231	7.66	68.20
IT-LM-06	Piadena (CR)	Lagazzi del Vho	32	609,582	4,995,853	2.77	18.46
IT-LM-07	Cavriana (MN)	Bande - Corte Carpani	32	624,191	5,025,428	7.33	36.40
IT-LM-08	Monzambano (MN)	Castellaro Lagusello - Fondo Tacoli	32	627,970	5,025,271	1.23	59.04
IT-LM-09	Biandronno (VA)	Isolino Virginia-Camilla-Isola di San Biagio	32	478,095	5,073,200	3.79	25.07
IT-LM-10	Bodio Lomnago (VA)	Bodio centrale o delle Monete	32	481,007	5,071,459	1.67	28.55
IT-LM-11	Besnate (VA)	Lagozza	32	480,457	5,061,447	1.63	3.27
IT-LM-12	Cadrezzate (VA)	Il Sabbione o settentrionale	32	472,707	5,071,844	1.18	9.61
IT-LM-13	Sirmione (BS)/Peschiera del Garda (VR)	La Maraschina-Tafella	32	628,466	5,035,208	10.21	7.19

Component part	Municipality	Place name	Coordinates of Centre Points UTM			Comp. part size (ha)	Buffer zone size (ha)
			Zone	E	N		
IT-PM-01	Viverone (BI)/Azeglio (TO)	VI.1-Emissario	32	423,552	5,029,880	5.86	852.77
IT-PM-02	Arona (NO)	Mercurago	32	465,153	5,064,570	5.16	270.06
IT-TN-01	Molina di Ledro (TN)	Molina di Ledro	32	636,978	5,081,577	0.78	2.31
IT-TN-02	Fiavé (TN)	Fiavé-Lago Carera	32	641,802	5,094,577	10.70	73.92
IT-VN-01	Lazise (VR)	Bor di Pacengo	32	634,113	5,037,313	1.08	3.12
IT-VN-02	Lazise (VR)	La Quercia	32	635,066	5,039,244	1.11	2.58
IT-VN-03	Nogara (VR)	Dossetto	32	662,023	5,003,595	1.22	5.15
IT-VN-04	Peschiera del Garda (VR)	Belvedere	32	629,667	5,034,980	2.52	12.46
IT-VN-05	Peschiera del Garda (VR)	Frassino	32	630,090	5,032,595	1.48	31.19
IT-VN-06	Cerea (VR)	Tombola	32	673,735	5,005,274	1.51	123.76
IT-VN-07	Arquà Petrarca (PD)	Laghetto della Costa	32	715,127	5,016,568	1.56	6.52

Fig. 0.5 Geographical coordinates and size of the nominated property (ha) and the buffer zone (ha) in Italy.

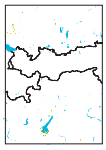
Slovenia

Component part	Municipality	Place name	Coordinates of Centre Points UTM			Comp. part size (ha)	Buffer zone size (ha)
			Zone	E	N		
SI-IG-01	Ig	Kolišča na Igu, severna skupina	33	463,552	5,091,449	19.20	516.65
SI-IG-02	Ig	Kolišča na Igu, južna skupina	33	464,488	5,090,885	26.10	516.65

Fig. 0.6 Geographical coordinates and size of the nominated property(ha) and the buffer zone (ha) in Slovenia.

Maps

ÿ **Fig. 0.7** gives an overview on the location of the *Prehistoric Pile Dwellings around the Alps*. For maps of the single component parts ÿ **see Volume II and pdfs in Annex DVD**.



ÿ **p. 18**

Fig. 0.7 Nominated sites of the *Prehistoric Pile Dwellings around the Alps*.

Proposed Statement of Outstanding Universal Value

The serial of *Prehistoric Pile Dwellings around the Alps* comprises a selection of 156 out of the 937 known archaeological pile-dwelling sites in six countries around the Alps (Switzerland, Austria, France, Germany, Italy and Slovenia). The serial site is composed by the remains of prehistoric pile-dwelling settlements dating from 5000 to 500 BC which are merely situated under water, on lake shores, along rivers or in wetland, offering exceptional conservation conditions for organic materials.

The serial of prehistoric-dwelling structures, thanks to the exceptional number and importance of scientific results, most due to exceptional wealth of organic archaeological remains, provides an outstanding detailed perception of the world of the early agrarians in Europe, giving precise information on their agriculture, animal husbandry and the development of metallurgy. The period of more than four millennia covered by the serial of pile dwellings indubitably coincides with one of the most important phases of recent human history: the dawn of modern societies. In view of the excellent possibilities of exact dating of the remains of wooden architectural elements (annual resolution by dendrochronology) of the serial property the understanding of entire prehistoric villages and their detailed spatial development over very long periods can be followed on the pile-dwelling sites, giving the best known archaeological sources for prehistoric dwellings. The unique preservation of organic material from prehistoric times is as well an exceptional opportunity for research in many fields of natural science, such as archaeobotany and archaeozoology.

Criterion iii
The serial of the prehistoric pile dwellings along the shores of the lakes, banks of rivers and in marshy areas around the Alps is one of the most important archaeological source for the early agrarian societies in Europe between 5000 and 500 BC. The exceptional waterlogged conditions preserved organic matter, so the sites give an exceptionally detailed image of the living conditions of these prehistoric populations, providing unique knowledge of their social and economic development and their ecological interactions. The results of over 150 years of research on the pile-dwelling sites had a considerable influence on the understanding of the development of the early agrarian societies of the Neolithic and the Bronze Age in general, and the interactions between the regions around the Alps in particular.

Criterion v
The serial of the prehistoric pile dwellings give excellent evidence of the early farmer's settlements, providing outstanding well preserved remains of wooden prehistoric architecture and reflecting building traditions over very long periods. The excellent state of conservation of wooden building elements in these villages and their most precise and detailed dating permit the reconstruction of architectural organization and development of these early human settlements and allow the writing of a history of architecture covering the span between 5000 and 500 BC.

Authenticity
The understanding of prehistoric wooden dwellings and their use, function and development are displayed by the proven results of archaeological investigation of a great number of pile-dwelling sites. Research has established credible hypotheses on the life of early agrarian societies in Europe and provided exceptional data for natural science. The organic nature of the remains makes possible particular authentic testimony on prehistory. The remains of settlements and their archeological strata preserved in the ground or under water are absolutely authentic in structure, material and substance, without any later or modern additions. Modern legal and physical protection measures ensure the conservation of vulnerable property and its authenticity.

Integrity
The serial of prehistoric pile-dwelling sites – situated around the Alps and dating from 5000 to 500 BC – represents the well defined geographic area to its full extent, as well as all the cultural groups in it during the whole period of prehistoric pile dwellings. It therefore comprises the complete cultural context of the archaeological phenomena, making available the high density of scientific data necessary for reliable information on the life of early prehistoric societies. The individual components of the serial are included to their entire extent and comprise settlement structures, as well as abundant archaeological strata. The integrity of the property is enhanced by the inclusion of associated sites in the management.

Protection and Management
The *Prehistoric Pile Dwellings around the Alps* are legally protected according to the legal systems applying in the correspondent States Parties. Any proposed actions that may have a significant impact on the heritage values of the archaeological areas nominated for inscription are restricted. The common management system of the nomination is comprehensive and transversal: it integrates all States levels and competent authorities, including the local communities, in each country, and connects the differ-

ent national systems to an international management system, through an already implemented International Coordination Group, based on a Management Commitment signed by all States Parties. Common visions and aims are translated into concrete projects on international, national and regional / local level in a regularly adapted action plan. Funding is provided by Switzerland for the Secretariat and all States Parties for the different projects.

Criteria under which the property is nominated

iii, v (see above)

Name and contact information of official local Institutions / Agencies

General

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Postfach 5233
CH- 3001 Berne
P +41 (0)31 633 98 71
F +41 (0)31 633 98 20
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www.palafittes.ch

Bundesamt für Kultur
Hallwylstrasse 15
CH-3003 Bern
P +41 (0)31 322 92 66
E info@bak.admin.ch
www.bak.admin.ch

Switzerland

Bundesamt für Kultur
Hallwylstrasse 15
CH- 3003 Bern
P +41 (0)31 322 92 66
E info@bak.admin.ch
www.bak.admin.ch

Austria

Bundesministerium für Unterricht, Kunst und Kultur
Sektion IV (Kultur)
Minoritenplatz 5
A- 1014 Wien
P +43 (0)1 53120 3601
E ministerium@bmukk.gv.at
www.bmukk.gv.at

France

Ministère de la Culture et de la Communication
Direction générale des patrimoines
182, rue Saint-Honoré,
F- 75033 Paris Cedex 01
P +33 (0)1 40 15 80 00
E DAPA@culture.gouv.fr
www.culture.gouv.fr/culture/da.htm

Ministère de la Culture et de la Communication
Département des recherches archéologiques subaquatiques et sous-marines
147, plage de l'Estaque
F- 13016 Marseille
P +33 (0)4 91 14 28 00
E le-drassm@culture.gouv.fr
www.culture.gouv.fr/fr/archeosm/archeosom/drasm.htm

Germany

Baden-Württemberg
Wirtschaftsministerium Baden-Württemberg
Theodor-Heuss-Strasse 4
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P +49 (0)7111 230
E poststelle@bwl.de
www.wm.baden-wuerttemberg.de

Regierungspräsidium Stuttgart
Landesamt für Denkmalpflege
Berliner Strasse 12
D- 73728 Esslingen am Neckar
P +49 (0)9044 5109
E abteilung8@rps.bwl.de
www.denkmalpflege-bw.de

Bavaria
Bayerisches Staatsministerium für Wissenschaft, Forschung und Kunst
Referat B 4
Salvatorstrasse 2
D- 80333 München
P +49 (0)89 2186 2208
E poststelle@stmwfk.bayern.de
www.stmwfk.bayern.de

Bayerisches Landesamt für Denkmalpflege
Hofgraben 4
D-80539 München
P +49 (0)89 21140
E poststelle@blfd.bayern.de
www.blfd.bayern.de

Italy

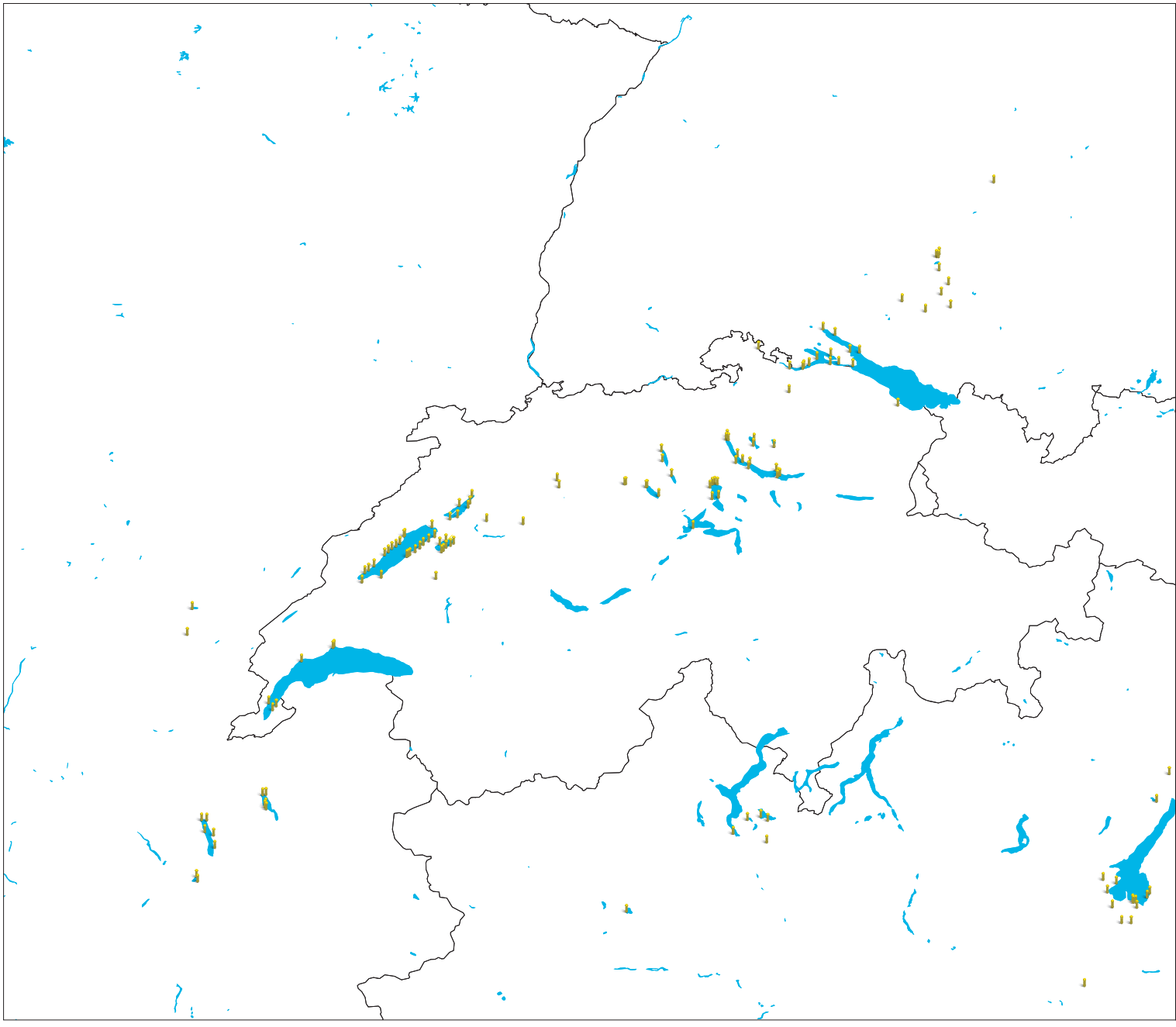
Ministero per i Beni e le Attività Culturali (MiBAC)
Segretariato Generale
Ufficio Patrimonio Mondiale UNESCO
Via del Collegio Romano 27
I- 00186 Roma
P +39 006 6723 2234
E acesi@beniculturali.it
www.unesco.beniculturali.it

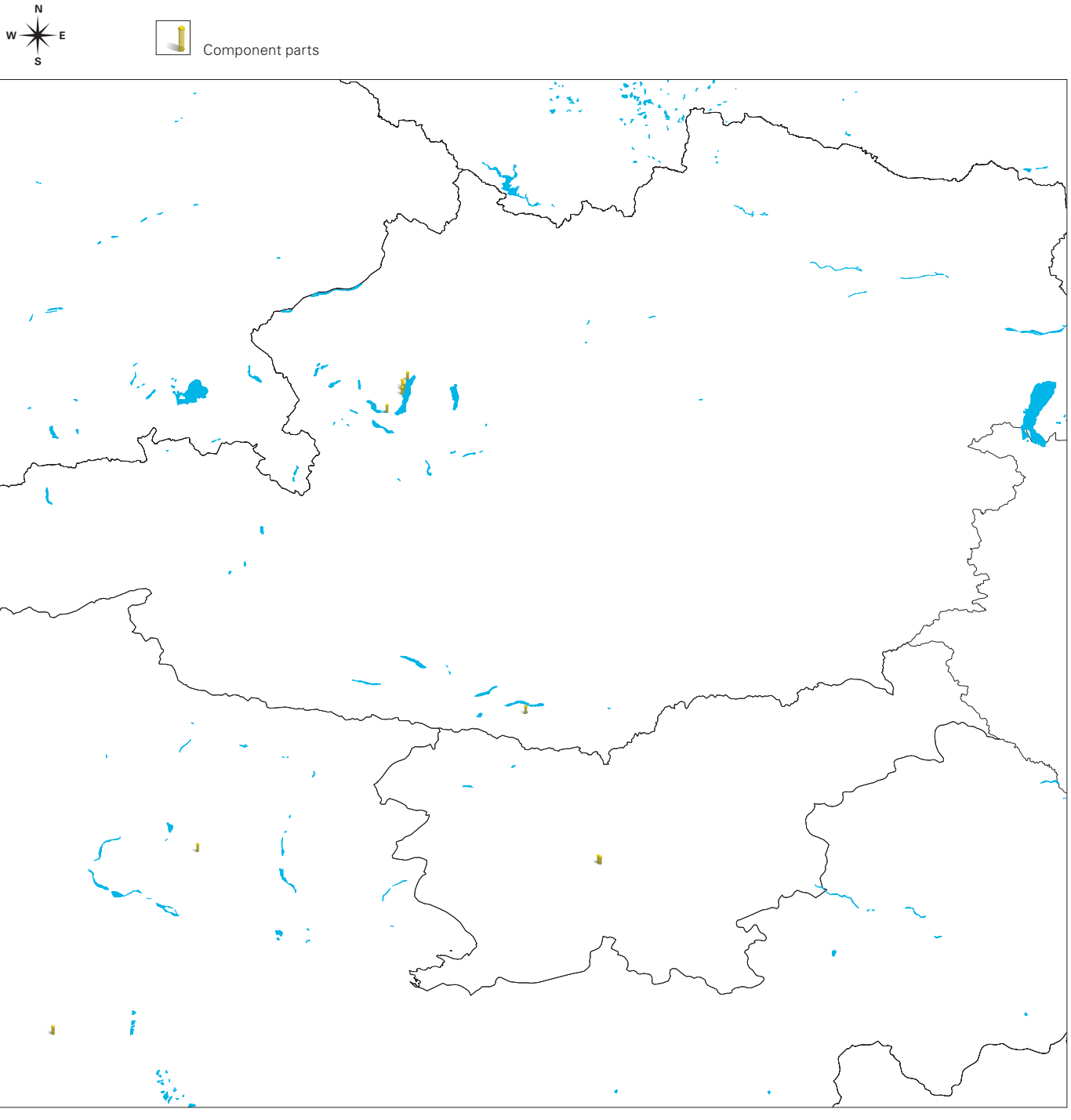
Slovenia

Javni zavod Krajinski park Ljubljansko barje
Podpeška cesta 380
SI- 1357 Notranje Gorice
P +386 (0)41 643 958
E info@ljubljanskobarje.si
www.ljubljanskobarje.si

[this institute is formally founded by the Government, however in a process of operational establishment]

' **p. 14 Fig. 0.7** Nominated sites of the *Prehistoric Pile Dwellings around the Alps*.




N
W
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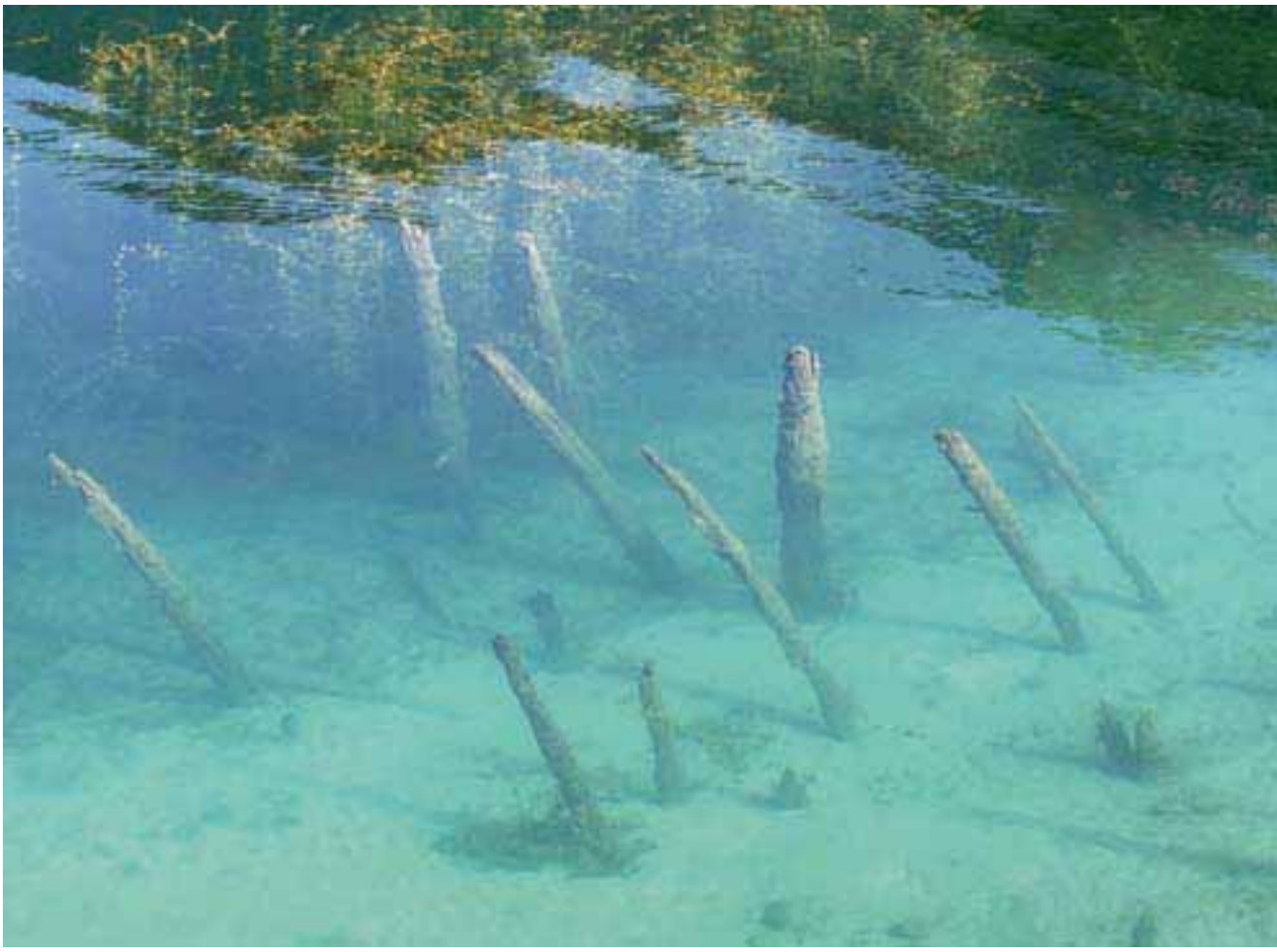
Component parts

Volume I

1. Identification of the Property



1.a Countries

Switzerland (CH)
Austria (AT)
France (FR)
Germany (DE)
Italy (IT)
Slovenia (SI)

1.b State, Province or Region

Since the administrative boundaries do not always correspond to geographical regions, macro-regions have been defined. These macro-regions are dealt with in ÿ **Chapters 2.b.2–2.b.4 and 4.b**. The macro-regions are mentioned alongside the administrative units (cantons, provinces, departments and districts) in the lists ÿ **Figs. 1.1–1.6**. General maps of the macro-regions can be found in ÿ **Figs. 1.16–1.44**.

Switzerland

Cantons of Aargau (AG), Berne (BE), Fribourg (FR), Geneva (GE), Lucerne (LU), Neuchâtel (NE), Nidwalden (NW), Schaffhausen (SH), Schwyz (SZ), Solothurn (SO), St. Gall (SG), Thurgau (TG), Vaud (VD), Zug (ZG), Zurich (ZH).

Component part	Municipality	Place name	Canton	Geographic macro-region
CH-AG-01	Beinwil am See	Ägelmoos	Aargau	Central Swiss Plateau
CH-AG-02	Seengen	Riesi	Aargau	Central Swiss Plateau
CH-BE-01	Biel	Vingelz / Hafen	Berne	Three Lakes Region
CH-BE-02	Lüscherz	Dorfstation	Berne	Three Lakes Region
CH-BE-03	Moosseedorf	Moossee Ost	Berne	Small lakes of the Swiss Plateau
CH-BE-04	Mörigen	Bronzestation	Berne	Three Lakes Region
CH-BE-05	Seedorf	Lobsigensee	Berne	Small lakes of the Swiss Plateau
CH-BE-06	Sutz-Lattrigen	Rütte	Berne	Three Lakes Region
CH-BE-07	Twann	Bahnhof	Berne	Three Lakes Region
CH-BE-08	Vinelz	Strandboden	Berne	Three Lakes Region
CH-FR-01	Delley-Portalban	Portalban II	Fribourg	Three Lakes Region
CH-FR-02	Gletterens	Les Grèves	Fribourg	Three Lakes Region
CH-FR-03	Greng	Spitz	Fribourg	Three Lakes Region
CH-FR-04	Haut-Vully	Môtier I	Fribourg	Three Lakes Region
CH-FR-05	Murten	Segelboothafen	Fribourg	Three Lakes Region
CH-FR-06	Muntelier	Baie de Muntelier	Fribourg	Three Lakes Region
CH-FR-07	Noréaz	En Praz des Gueux	Fribourg	Three Lakes Region
CH-FR-08	Vernay	En Chéseau	Fribourg	Three Lakes Region
CH-GE-01	Collonge-Bellerive	Bellerive I	Geneva	Lake Geneva (Swiss shoreline)
CH-GE-02	Corsier	Port	Geneva	Lake Geneva (Swiss shoreline)
CH-GE-03	Versoix	Bourg	Geneva	Lake Geneva (Swiss shoreline)
CH-LU-01	Egolzwil	Egolzwil 3	Lucerne	Central Swiss Plateau
CH-LU-02	Egolzwil	Egolzwil 4	Lucerne	Central Swiss Plateau
CH-LU-03	Hitzkirch	Seematte	Lucerne	Central Swiss Plateau

Component part	Municipality	Place name	Canton	Geographic macro-region
CH-LU-04	Schenkon	Trichtermoos-Altstadt	Lucerne	Central Swiss Plateau
CH-LU-05	Sempach	Uferpromenade	Lucerne	Central Swiss Plateau
CH-LU-06	Sursee	Halbinsel	Lucerne	Central Swiss Plateau
CH-NE-01	Saint-Aubin-Sauges	Port-Conty	Neuchâtel	Three Lakes Region
CH-NE-02	Gorgier	Les Argilliez	Neuchâtel	Three Lakes Region
CH-NE-03	Bevaix	Treytel	Neuchâtel	Three Lakes Region
CH-NE-04	Bevaix	L'Abbaye 2	Neuchâtel	Three Lakes Region
CH-NE-05	Cortaillod	Petit Cortaillod	Neuchâtel	Three Lakes Region
CH-NE-06	Auvernier	La Saunerie	Neuchâtel	Three Lakes Region
CH-NE-07	Auvernier	Les Graviers	Neuchâtel	Three Lakes Region
CH-NE-08	La Tène (Marin-Epagnier)	Les Piécettes	Neuchâtel	Three Lakes Region
CH-NW-01	Stansstad	Kehrsiten	Nidwalden	Central Switzerland
CH-SH-01	Thayngen	Weier I–III	Schaffhausen	Small lakes and bogs in northeastern Switzerland
CH-SZ-01	Freienbach	Hurden Rosshorn	Schwyz	Region of Lake Zurich
CH-SZ-02	Freienbach	Hurden Seefeld	Schwyz	Region of Lake Zurich
CH-SO-01	Aeschi SO	Burgäschisee Ost	Solothurn	Small lakes of the Swiss Plateau
CH-SO-02	Bolken / Inkwil	Inkwilersee Insel	Solothurn	Small lakes of the Swiss Plateau
CH-SG-01	Rapperswil-Jona / Hombrechtikon	Feldbach	St. Gall	Region of Lake Zurich
CH-SG-02	Rapperswil-Jona	Technikum	St. Gall	Region of Lake Zurich
CH-TG-01	Arbon	Bleiche 2–3	Thurgau	Lake Constance (Swiss shoreline)
CH-TG-02	Ermatingen	West	Thurgau	Lake Constance (Swiss shoreline)
CH-TG-03	Eschenz	Insel Werd	Thurgau	Lake Constance (Swiss shoreline)
CH-TG-04	Gachnang-Niederwil	Egelsee	Thurgau	Small lakes and bogs in northeastern Switzerland
CH-TG-05	Hüttwilen	Nussbaumersee	Thurgau	Small lakes and bogs in northeastern Switzerland
CH-TG-06	Mammern	Langhorn	Thurgau	Lake Constance (Swiss shoreline)
CH-VD-01	Bonvillars	Morbey	Vaud	Three Lakes Region
CH-VD-02	Chabrey	Pointe de Montbec I	Vaud	Three Lakes Region
CH-VD-03	Chevroux	La Bessime	Vaud	Three Lakes Region
CH-VD-04	Chevroux	Village	Vaud	Three Lakes Region
CH-VD-05	Corcelles-près-Concise	Stations de Concise	Vaud	Three Lakes Region
CH-VD-06	Cudrefin	Champmartin	Vaud	Three Lakes Region
CH-VD-07	Cudrefin	le Broillet I	Vaud	Three Lakes Region
CH-VD-08	Faoug	La Gare	Vaud	Three Lakes Region
CH-VD-09	Faoug	Poudrechat	Vaud	Three Lakes Region
CH-VD-10	Grandson	Corcelettes Les Violes	Vaud	Three Lakes Region
CH-VD-11	Morges	Les Roseaux	Vaud	Lake Geneva (Swiss shoreline)
CH-VD-12	Morges	Stations de Morges	Vaud	Lake Geneva (Swiss shoreline)
CH-VD-13	Mur	Chenevières de Guévaux I	Vaud	Three Lakes Region
CH-VD-14	Rolle	Ile de la Harpe	Vaud	Lake Geneva (Swiss shoreline)
CH-VD-15	Yverdon-les-Bains	Baie de Clendy	Vaud	Three Lakes Region
CH-VD-16	Yvonand	Le Marais	Vaud	Three Lakes Region
CH-ZG-01	Cham	St. Andreas, Strandbad	Zug	Central Switzerland
CH-ZG-02	Hünenberg	Strandbad	Zug	Central Switzerland
CH-ZG-03	Risch	Oberrisch, Aabach	Zug	Central Switzerland
CH-ZG-04	Zug	Oterswil / Insel Eielen	Zug	Central Switzerland
CH-ZG-05	Zug	Riedmatt	Zug	Central Switzerland
CH-ZG-06	Zug	Sumpf	Zug	Central Switzerland
CH-ZH-01	Erlenbach	Winkel	Zurich	Region of Lake Zurich
CH-ZH-02	Greifensee	Storen-Wildsberg	Zurich	Region of Lake Zurich
CH-ZH-03	Horgen	Scheller	Zurich	Region of Lake Zurich
CH-ZH-04	Maur	Schifflände	Zurich	Region of Lake Zurich
CH-ZH-05	Meilen	Feldmeilen Vorderfeld	Zurich	Region of Lake Zurich

Component part	Municipality	Place name	Canton	Geographic macro-region
CH-ZH-06	Meilen	Rorenhaab	Zurich	Region of Lake Zurich
CH-ZH-07	Wädenswil	Vorder Au	Zurich	Region of Lake Zurich
CH-ZH-08	Wetzikon	Robenhausen	Zurich	Region of Lake Zurich
CH-ZH-09	Zürich	Enge Alpenquai	Zurich	Region of Lake Zurich
CH-ZH-10	Zürich	Grosse Stadt Kleiner Hafner	Zurich	Region of Lake Zurich
CH-ZH-11	Zürich	Riesbach Siedlungs-kammer Seefeld	Zurich	Region of Lake Zurich

Fig. 1.1 Administrative units and macro-regions in Switzerland.

Austria

— Federal state of Carinthia (Kärnten, KT): administrative district (Verwaltungsbezirk) of Klagenfurt-Land;
— Federal state of Upper Austria (Oberösterreich, OÖ): administrative district (Verwaltungsbezirk) of Vöcklabruck.

Component part	Municipality	Place name	Federal state	Administrative district	Geographic macro-region
AT-KT-01	Keutschach	Keutschachersee	Carinthia	Kärnten-Land	Lake Keutschach
AT-OÖ-01	Attersee	Abtsdorf I	Upper Austria	Vöcklabruck	Salzkammergut
AT-OÖ-02	Attersee	Abtsdorf II	Upper Austria	Vöcklabruck	Salzkammergut
AT-OÖ-03	Attersee	Abtsdorf III	Upper Austria	Vöcklabruck	Salzkammergut
AT-OÖ-04	Attersee	Aufham	Upper Austria	Vöcklabruck	Salzkammergut
AT-OÖ-05	Seewalchen am Attersee	Litzlberg Süd	Upper Austria	Vöcklabruck	Salzkammergut
AT-OÖ-06	Nussdorf am Attersee	Nussdorf	Upper Austria	Vöcklabruck	Salzkammergut
AT-OÖ-07	Mondsee	See	Upper Austria	Vöcklabruck	Salzkammergut

Fig. 1.2 Administrative units and geographic macro-regions in Austria.

France

— Region of Rhône-Alpes: Departements of Savoie (73), Haute-Savoie (74);
— Region of Franche-Comté: Departement of Jura (39).

Component part	Municipality	Place name	Region	Departement	Geographic macro-region
FR-39-01	Clairvaux-les-Lacs	Le Grand Lac de Clairvaux	Franche-Comté	Jura	French Jura lakes
FR-39-02	Doucier / Fontenu / Marigny	Lac de Chalain, rive occidentale	Franche-Comté	Jura	French Jura lakes
FR-73-01	Aiguebelette-le-Lac / Saint-Alban-de-Montbel	Lac d'Aiguebelette, zone sud	Rhône-Alpes	Savoie	Savoyan Lakes
FR-73-02	Novalaise	Lac d'Aiguebelette, zone nord	Rhône-Alpes	Savoie	Savoyan Lakes
FR-73-03	Brison-Saint-Innocent	Baie de Grésine	Rhône-Alpes	Savoie	Savoyan Lakes
FR-73-04	Chindrieux	Baie de Châtillon	Rhône-Alpes	Savoie	Savoyan Lakes
FR-73-05	Conjux	Baie de Conjux-Portout	Rhône-Alpes	Savoie	Savoyan Lakes
FR-73-06	Saint-Pierre-de-Curtille	Hautecombe	Rhône-Alpes	Savoie	Savoyan Lakes
FR-73-07	Tresserve	Littoral de Tresserve	Rhône-Alpes	Savoie	Savoyan Lakes
FR-74-01	Annecy	Lac d'Annecy, zone nord-ouest	Rhône-Alpes	Haute-Savoie	Savoyan Lakes
FR-74-02	Annecy-le-Vieux	Lac d'Annecy, zone nord-est	Rhône-Alpes	Haute-Savoie	Savoyan Lakes

Component part	Municipality	Place name	Region	Departement	Geographic macro-region
FR-74-03	Chens-sur-Léman	Littoral de Chens-sur-Léman	Rhône-Alpes	Haute-Savoie	Savoyan Lakes
FR-74-04	Saint-Jorioz	Les Marais de Saint-Jorioz	Rhône-Alpes	Haute-Savoie	Savoyan Lakes
FR-74-05	Sévrier	Le Crêt de Chatillon	Rhône-Alpes	Haute-Savoie	Savoyan Lakes
FR-74-06	Sévrier / Saint-Jorioz	Secteur des Mongets	Rhône-Alpes	Haute-Savoie	Savoyan Lakes

Fig. 1.3 Administrative units and geographic macro-regions in France.

Germany

— Federal state of Baden-Württemberg (BW): administrative districts (Landkreise) of Alb-Donau-Kreis (UL), Biberach (BC), Bodenseekreis (FN), Konstanz (KN), Ravensburg (RV);
— Free State of Bavaria (BY): administrative districts (Landkreise) of Landsberg am Lech (LL); Starnberg (STA).

Component part	Municipality	Place name	Federal state / Free State	Administrative district	Geographic macro-region
DE-BW-01	Öhningen	Wangen-Hinterhorn	Baden-Württemberg	Konstanz	Lake Constance (German shoreline)
DE-BW-02	Gaienhofen	Hemmenhofen-im Leh	Baden-Württemberg	Konstanz	Lake Constance (German shoreline)
DE-BW-03	Gaienhofen	Hornstaad-Hörnle	Baden-Württemberg	Konstanz	Lake Constance (German shoreline)
DE-BW-04	Allensbach	Allensbach-Strandbad	Baden-Württemberg	Konstanz	Lake Constance (German shoreline)
DE-BW-05	Konstanz	Wollmatingen-Langenrain	Baden-Württemberg	Konstanz	Lake Constance (German shoreline)
DE-BW-06	Konstanz	Konstanz-Hinterhausen	Baden-Württemberg	Konstanz	Lake Constance (German shoreline)
DE-BW-07	Konstanz	Litzelstetten-Krähenhorn	Baden-Württemberg	Konstanz	Lake Constance (German shoreline)
DE-BW-08	Bodman-Ludwigshafen	Bodman-Schachen / Löchle	Baden-Württemberg	Konstanz	Lake Constance (German shoreline)
DE-BW-09	Sipplingen	Sipplingen-Osthafen	Baden-Württemberg	Bodenseekreis	Lake Constance (German shoreline)
DE-BW-10	Uhldingen-Mühlhofen	Unteruhldingen-Stollenwiesen	Baden-Württemberg	Bodenseekreis	Lake Constance (German shoreline)
DE-BW-11	Alleshausen	Ödenahlen	Baden-Württemberg	Biberach	Federsee and Upper Swabia
DE-BW-12	Seekirch	Achwiesen	Baden-Württemberg	Biberach	Federsee and Upper Swabia
DE-BW-13	Alleshausen	Grundwiesen	Baden-Württemberg	Biberach	Federsee and Upper Swabia
DE-BW-14	Alleshausen	Täschenwiesen	Baden-Württemberg	Biberach	Federsee and Upper Swabia
DE-BW-15	Bad Buchau	Siedlung Forschner	Baden-Württemberg	Biberach	Federsee and Upper Swabia
DE-BW-16	Bad Schussenried	Olzreute-Enzisholz	Baden-Württemberg	Biberach	Federsee and Upper Swabia
DE-BW-17	Hosskirch	Königseggsee	Baden-Württemberg	Ravensburg	Federsee and Upper Swabia
DE-BW-18	Wolpertswende	Schreckensee	Baden-Württemberg	Ravensburg	Federsee and Upper Swabia
DE-BW-19	Aulendorf	Steeger See	Baden-Württemberg	Ravensburg	Federsee and Upper Swabia
DE-BW-20	Bad Waldsee	Reute Schorrenried	Baden-Württemberg	Ravensburg	Federsee and Upper Swabia

Component part	Municipality	Place name	Federal state / Free State	Administrative district	Geographic macro-region
DE-BW-21	Blaustein	Ehrenstein	Baden-Württemberg	Alb-Donau Kreis	Swabian Jura
DE-BY-01	Weil	Pestenacker	Bavaria	Landsberg am Lech	Loosbach Valley
DE-BY-02	Geltendorf	Unfriedshausen	Bavaria	Landsberg am Lech	Loosbach Valley
DE-BY-03	Feldafing, unincorporated area (STA)	Rose-Island	Bavaria	Starnberg	Lake Starnberg

Fig. 1.4 Administrative units and geographic macro-regions in Germany.

Italy

— Region of Friuli Venezia Giulia (FV): Province of Pordenone (PN);
— Region of Lombardy (LM): Provinces of Varese (VA), Brescia (BS), Mantua (MN), Cremona (CR);
— Region of Piedmont (PM): Provinces of Biella (BI), Novara (NO), Torino (TO);
— Trentino-South Tyrol / Autonomous Province of Trento (TN);
— Region of Veneto (VN): Provinces of Verona (VR), Padua (PD).

Component part	Municipality	Place name	Region	Geographic macro-region
IT-FV-01	Caneva / Polcenigo (PN)	Palù di Livenza – Santissima	Friuli Venezia Giulia	Small lakes and rivers of eastern Veneto and Friuli Venezia Giulia
IT-LM-01	Desenzano del Garda / Lonato del Garda (BS)	Lavagnone	Lombardy	Region of Lake Garda
IT-LM-02	Manerba del Garda (BS)	San Sivino, Gabbiano	Lombardy	Region of Lake Garda
IT-LM-03	Padenghe sul Garda (BS)	West Garda, La Fabbrica	Lombardy	Region of Lake Garda
IT-LM-04	Sirmione (BS)	Lugana Vecchia	Lombardy	Region of Lake Garda
IT-LM-05	Polpenazze del Garda (BS)	Lucone	Lombardy	Region of Lake Garda
IT-LM-06	Piadena (CR)	Lagazzi del Vho	Lombardy	Small lakes, bogs and rivers of eastern Lombardy
IT-LM-07	Cavriana (MN)	Bande - Corte Carpani	Lombardy	Region of Lake Garda
IT-LM-08	Monzambano (MN)	Castellaro Lagusello - Fondo Tacoli	Lombardy	Region of Lake Garda
IT-LM-09	Biandronno (VA)	Isolino Virginia-Camilla-Isola di San Biagio	Lombardy	Region of lakes Maggiore and Varese
IT-LM-10	Bodio Lomnago (VA)	Bodio centrale o delle Monete	Lombardy	Region of lakes Maggiore and Varese
IT-LM-11	Besnate (VA)	Lagozza	Lombardy	Region of lakes Maggiore and Varese
IT-LM-12	Cadrezzate (VA)	Il Sabbione o settentrionale	Lombardy	Region of lakes Maggiore and Varese
IT-LM-13	Sirmione (BS) / Peschiera del Garda (VR)	La Maraschina-Tafella	Lombardy / Veneto	Region of Lake Garda
IT-PM-01	Viverone (BI) / Azeglio (TO)	VI.1-Emissario	Piedmont	Small lakes or bogs of Piedmont
IT-PM-02	Arona (NO)	Mercurago	Piedmont	Region of lakes Maggiore and Varese
IT-TN-01	Molina di Ledro (TN)	Molina di Ledro	Trentino-South Tyrol / Autonomous Province of Trento	Small lakes or bogs of Trentino
IT-TN-02	Fiavé (TN)	Fiavé-Lago Carera	Trentino-South Tyrol / Autonomous Province of Trento	Small lakes or bogs of Trentino
IT-VN-01	Lazise (VR)	Bor di Pacengo	Veneto	Region of Lake Garda
IT-VN-02	Lazise (VR)	La Quercia	Veneto	Region of Lake Garda
IT-VN-03	Nogara (VR)	Dossetto	Veneto	Region of Lake Garda
IT-VN-04	Peschiera del Garda (VR)	Belvedere	Veneto	Region of Lake Garda

Component part	Municipality	Place name	Region	Geographic macro-region
IT-VN-05	Peschiera del Garda (VR)	Frassino	Veneto	Region of Lake Garda
IT-VN-06	Cerea (VR)	Tombola	Veneto	Region of Lake Garda
IT-VN-07	Arquà Petrarca (PD)	Laghetto della Costa	Veneto	Small lakes or bogs of Berici and Euganei Hills

Fig. 1.5 Administrative units and geographic macro-regions in Italy.

Slovenia

— Municipality of Ig

Component part	Municipality	Place name	Province	Geographic macro-region
SI-IG-01	Ig	Kališča na Igu, severna skupina	–	Ljubljansko barje
SI-IG-02	Ig	Kališča na Igu, južna skupina	–	Ljubljansko barje

Fig. 1.6 Administrative unit and geographic macro-region in Slovenia.

1. Identification of the Property

1.b State, Province or Region

1.c Name of Property

Prehistoric Pile Dwellings around the Alps
Sites palafittiques préhistoriques autour des Alpes
Prähistorische Pfahlbauten um die Alpen
Siti palafitticoli preistorici dell'arco alpino
Prazgodovinska kolišča okoli Alp

1.d Geographical coordinates to the nearest second

The geographical coordinates (UTM WGS 84) shown in ÿ **Figs. 1.7–1.12** mark the center points of the sites in the series of *Prehistoric Pile Dwellings around the Alps*.

Switzerland

Canton	Component part	Municipality	Place name of property	Coordinates of Centre Points UTM		
				Zone	E	N
Aargau	CH-AG-01	Beinwil am See	Ägelmoos	32	440,073	5,236,430
Aargau	CH-AG-02	Seengen	Riesi	32	439,842	5,240,864
Berne	CH-BE-01	Biel	Vingelz / Hafen	32	365,269	5,221,376
Berne	CH-BE-02	Lüscherz	Dorfstation	32	359,487	5,212,241
Berne	CH-BE-03	Moosseedorf	Moossee Ost	32	385,033	5,208,532
Berne	CH-BE-04	Mörigen	Bronzestation	32	363,633	5,216,538
Berne	CH-BE-05	Seedorf	Lobsigensee	32	370,837	5,210,224
Berne	CH-BE-06	Sutz-Lattrigen	Rütte	32	364,410	5,218,393
Berne	CH-BE-07	Twann	Bahnhof	32	360,190	5,217,427
Berne	CH-BE-08	Vinelz	Strandboden	32	356,367	5,211,253
Fribourg	CH-FR-01	Delley-Portalban	Portalban II	32	344,330	5,198,392
Fribourg	CH-FR-02	Gletterens	Les Grèves	32	342,317	5,196,722
Fribourg	CH-FR-03	Greng	Spitz	32	354,624	5,198,322
Fribourg	CH-FR-04	Haut-Vully	Môtier I	32	354,571	5,201,408
Fribourg	CH-FR-05	Murten	Segelboothafen	32	356,385	5,199,092
Fribourg	CH-FR-06	Muntelier	Baie de Muntelier	32	357,669	5,200,287
Fribourg	CH-FR-07	Noréaz	En Praz des Gueux	32	357,779	5,200,284
Fribourg	CH-FR-08	Vernay	En Chéseau	32	357,658	5,200,247
Geneva	CH-GE-01	Collonge-Bellerive	Bellerive I	32	357,549	5,200,329
Geneva	CH-GE-02	Corsier	Port	32	350,230	5,184,293
Geneva	CH-GE-03	Versoix	Bourg	32	339,053	5,194,556
Lucerne	CH-LU-01	Egolzwil	Egolzwil 3	32	283,524	5,126,176
Lucerne	CH-LU-02	Egolzwil	Egolzwil 4	32	285,126	5,127,776
Lucerne	CH-LU-03	Hitzkirch	Seematte	32	282,115	5,129,325
Lucerne	CH-LU-04	Schenkon	Trichtermoos-Altstadt	32	425,558	5,226,047
Lucerne	CH-LU-05	Sempach	Uferpromenade	32	425,409	5,226,075
Lucerne	CH-LU-06	Sursee	Halbinsel	32	443,607	5,229,611
Neuchâtel	CH-NE-01	Saint-Aubin-Sauges	Port-Conty	32	433,981	5,224,754
Neuchâtel	CH-NE-02	Gorgier	Les Argilliez	32	438,547	5,220,563
Neuchâtel	CH-NE-03	Bevaix	Treytel	32	433,729	5,224,609
Neuchâtel	CH-NE-04	Bevaix	L'Abbaye 2	32	433,873	5,224,331
Neuchâtel	CH-NE-05	Cortaillod	Petit Cortaillod	32	433,754	5,224,633

Canton	Component part	Municipality	Place name of property	Coordinates of Centre Points UTM		
				Zone	E	N
Neuchâtel	CH-NE-06	Auvernier	La Saunerie	32	330,252	5,195,541
Neuchâtel	CH-NE-07	Auvernier	Les Graviers	32	331,749	5,196,932
Neuchâtel	CH-NE-08	La Tène (Marin-Epagnier)	Les Piécettes	32	333,249	5,198,432
Nidwalden	CH-NW-01	Stansstad	Kehrsiten	32	334,929	5,199,399
Schaffhausen	CH-SH-01	Thayngen	Weier I–III	32	336,367	5,200,821
Schwyz	CH-SZ-01	Freienbach	Hurden Rosshorn	32	338,175	5,204,205
Schwyz	CH-SZ-02	Freienbach	Hurden Seefeld	32	338,441	5,204,490
Solothurn	CH-SO-01	Aeschi SO	Burgäschisee Ost	32	349,301	5,207,944
Solothurn	CH-SO-02	Bolken / Inkwil	Inkwilersee Insel	32	451,900	5,205,750
St. Gall	CH-SG-01	Rapperswil-Jona / Hombrechtikon	Feldbach	32	484,644	5,231,867
St. Gall	CH-SG-02	Rapperswil-Jona	Technikum	32	484,819	5,231,864
Thurgau	CH-TG-01	Arbon	Bleiche 2-3	32	486,123	5,229,843
Thurgau	CH-TG-02	Ermatingen	West	32	477,918	5,287,163
Thurgau	CH-TG-03	Eschenz	Insel Werd	32	399,459	5,224,913
Thurgau	CH-TG-04	Gachnang-Niederwil	Egelsee	32	398,786	5,228,256
Thurgau	CH-TG-05	Hüttwilen	Nussbaumersee	32	485,451	5,229,727
Thurgau	CH-TG-06	Mammern	Langhorn	32	485,104	5,228,884
Vaud	CH-VD-01	Bonvillars	Morbey	32	532,290	5,261,388
Vaud	CH-VD-02	Chabrey	Pointe de Montbec I	32	532,290	5,261,388
Vaud	CH-VD-03	Chevroux	La Bessime	32	532,345	5,261,636
Vaud	CH-VD-04	Chevroux	Village	32	505,842	5,279,978
Vaud	CH-VD-05	Corcelles-près-Concise	Stations de Concise	32	505,842	5,279,978
Vaud	CH-VD-06	Cudrefin	Champmartin	32	505,489	5,280,115
Vaud	CH-VD-07	Cudrefin	le Broillet I	32	490,089	5,278,138
Vaud	CH-VD-08	Faoug	La Gare	32	489,770	5,267,382
Vaud	CH-VD-09	Faoug	Poudrechat	32	486,196	5,273,652
Vaud	CH-VD-10	Grandson	Corcelettes Les Violes	32	486,196	5,273,652
Vaud	CH-VD-11	Morges	Les Roseaux	32	486,149	5,273,802
Vaud	CH-VD-12	Morges	Stations de Morges	32	495,076	5,277,803
Vaud	CH-VD-13	Mur	Chenevières de Guévaux I	32	323,698	5,188,891
Vaud	CH-VD-14	Rolle	Ile de la Harpe	32	345,592	5,199,992
Vaud	CH-VD-15	Yverdon-les-Bains	Baie de Clendy	32	339,571	5,194,946
Vaud	CH-VD-16	Yvonand	Le Marais	32	340,217	5,195,513
Zug	CH-ZG-01	Cham	St. Andreas, Strandbad	32	340,327	5,195,476
Zug	CH-ZG-02	Hünenberg	Strandbad	32	340,217	5,195,513
Zug	CH-ZG-03	Risch	Oberrisch, Aabach	32	325,953	5,190,636
Zug	CH-ZG-04	Zug	Oterswil / Insel Eielen	32	325,953	5,190,636
Zug	CH-ZG-05	Zug	Riedmatt	32	325,909	5,190,917
Zug	CH-ZG-06	Zug	Sumpf	32	347,721	5,201,455
Zurich	CH-ZH-01	Erlenbach	Winkel	32	350,221	5,203,305
Zurich	CH-ZH-02	Greifensee	Storen-Wildsberg	32	353,484	5,197,050
Zurich	CH-ZH-03	Horgen	Scheller	32	352,731	5,196,420
Zurich	CH-ZH-04	Maur	Schifflände	32	352,817	5,196,448
Zurich	CH-ZH-05	Meilen	Feldmeilen Vorderfeld	32	352,640	5,196,376
Zurich	CH-ZH-06	Meilen	Rorenhaab	32	322,195	5,187,730
Zurich	CH-ZH-07	Wädenswil	Vorder Au	32	308,944	5,154,435
Zurich	CH-ZH-08	Wetzikon	Robenhausen	32	308,504	5,153,899
Zurich	CH-ZH-09	Zürich	Enge Alpenquai	32	308,503	5,153,854
Zurich	CH-ZH-10	Zürich	Grosse Stadt Kleiner Hafner	32	308,551	5,154,003
Zurich	CH-ZH-11	Zürich	Riesbach Siedlungskammer Seefeld	32	352,021	5,199,919

Fig. 1.7 Geographical coordinates to the nearest second of the sites in Switzerland.

Austria

Federal state	Component part	Municipality	Place name	Coordinates of Centre Points UTM		
				Zone	E	N
Carinthia	AT-KT-01	Keutschach	Keutschacher See	33	435,607	5,159,616
Upper Austria	AT-OÖ-01	Attersee	Abtsdorf I	33	390,394	5,305,639
Upper Austria	AT-OÖ-02	Attersee	Abtsdorf II	33	390,296	5,305,780
Upper Austria	AT-OÖ-03	Attersee	Abtsdorf III	33	390,355	5,305,472
Upper Austria	AT-OÖ-04	Attersee	Aufham	33	390,095	5,306,779
Upper Austria	AT-OÖ-05	Seewalchen am Attersee	Litzlberg Süd	33	392,053	5,310,014
Upper Austria	AT-OÖ-06	Nussdorf am Attersee	Nussdorf	33	389,876	5,303,742
Upper Austria	AT-OÖ-07	Mondsee	See	33	383,887	5,295,667

Fig. 1.8 Geographical coordinates to the nearest second of the sites in Austria.

France

Departement	Component part	Municipality	Place name	Coordinates of Centre Points UTM		
				Zone	E	N
Jura	FR-39-01	Clairvaux-les-Lacs	Le Grand Lac de Clairvaux	31	710,709	5,161,187
Jura	FR-39-02	Doucier / Fontenu / Marigny	Lac de Chalain, rive occidentale	31	712,356	5,172,476
Savoie	FR-73-01	Aiguebelette-le-Lac / Saint-Alban-de-Montbel	Lac d'Aiguebelette, zone sud	31	718,951	5,047,138
Savoie	FR-73-02	Novalaise	Lac d'Aiguebelette, zone nord	31	718,371	5,049,293
Savoie	FR-73-03	Brison-Saint-Innocent	Baie de Grésine	31	724,500	5,068,836
Savoie	FR-73-04	Chindrieux	Baie de Châtillon	31	721,555	5,075,529
Savoie	FR-73-05	Conjux	Baie de Conjux-Portout	31	719,529	5,075,512
Savoie	FR-73-06	Saint-Pierre-de-Curtille	Hautecombe	31	720,961	5,070,173
Savoie	FR-73-07	Tresserve	Littoral de Tresserve	31	725,267	5,063,018
Haute-Savoie	FR-74-01	Annecy	Lac d'Annecy, zone nord-ouest	32	278,076	5,087,163
Haute-Savoie	FR-74-02	Annecy-le-Vieux	Lac d'Annecy, zone nord-est	32	279,555	5,087,355
Haute-Savoie	FR-74-03	Chens-sur-Léman	Littoral de Chens-sur-Léman	32	288,758	5,133,388
Haute-Savoie	FR-74-04	Saint-Jorioz	Les Marais de Saint-Jorioz	32	281,218	5,079,598
Haute-Savoie	FR-74-05	Sévrier	Le Crêt de Chatillon	32	279,193	5,082,471
Haute-Savoie	FR-74-06	Sévrier / Saint-Jorioz	Secteur des Mongets	32	278.838	5,081,690

Fig. 1.9 Geographical coordinates to the nearest second of the sites in France.

Germany

Federal state	Component part	Municipality	Place name	Coordinates of Centre Points UTM		
				Zone	E	N
Baden-Württemberg / KN	DE-BW-01	Öhningen	Wangen-Hinterhorn	32	495,412	5,278,619
Baden-Württemberg / KN	DE-BW-02	Gaienhofen	Hemmenhofen-im Leh	32	497,563	5,279,732
Baden-Württemberg / KN	DE-BW-03	Gaienhofen	Hornstaad-Hörnle	32	500,444	5,282,347
Baden-Württemberg / KN	DE-BW-04	Allensbach	Allensbach-Strandbad	32	505,987	5,284,045
Baden-Württemberg / KN	DE-BW-05	Konstanz	Wollmatingen-Langenrain	32	509,035	5,280,173
Baden-Württemberg / KN	DE-BW-06	Konstanz	Konstanz-Hinterhausen	32	514,570	5,279,110
Baden-Württemberg / KN	DE-BW-07	Konstanz	Litzelstetten-Krähenhorn	32	513,420	5,285,715
Baden-Württemberg / KN	DE-BW-08	Bodman-Ludwigshafen	Bodman-Schachen / Löchle	32	502,976	5,295,681
Baden-Württemberg / FN	DE-BW-09	Sipplingen	Sipplingen-Osthafen	32	507,641	5,293,314
Baden-Württemberg / FN	DE-BW-10	Uhldingen-Mühlhofen	Unteruhldingen-Stollenwiesen	32	517,128	5,285,306

Federal state	Component part	Municipality	Place name	Coordinates of Centre Points UTM		
				Zone	E	N
Baden-Württemberg / BC	DE-BW-11	Alleshausen	Ödenahlen	32	547,704	5,329,749
Baden-Württemberg / BC	DE-BW-12	Seekirch	Achwiesen	32	547,380	5,328,484
Baden-Württemberg / BC	DE-BW-13	Alleshausen	Grundwiesen	32	546,643	5,328,554
Baden-Württemberg / BC	DE-BW-14	Alleshausen	Täschenwiesen	32	545,596	5,327,239
Baden-Württemberg / BC	DE-BW-15	Bad Buchau	Siedlung Forschner	32	547,730	5,322,596
Baden-Württemberg / BC	DE-BW-16	Bad Schussenried	Olzreute-Enzisholz	32	551,374	5,316,371
Baden-Württemberg / RV	DE-BW-17	Hosskirch	Königseggsee	32	533,485	5,308,641
Baden-Württemberg / RV	DE-BW-18	Wolpertswende	Schreckensee	32	542,523	5,304,063
Baden-Württemberg / RV	DE-BW-19	Aulendorf	Steeger See	32	548,648	5,311,753
Baden-Württemberg / RV	DE-BW-20	Bad Waldsee	Reute Schorrenried	32	552,272	5,306,018
Baden-Württemberg / UL	DE-BW-21	Blaustein	Ehrenstein	32	568,321	5,362,367
Bavaria / LL	DE-BY-01	Weil	Pestenacker	32	644,886	5,334,438
Bavaria / LL	DE-BY-02	Geltendorf	Unfriedshausen	32	645,146	5,333,960
Bavaria / STA	DE-BY-03	Feldafing, unincorporated area (STA)	Rose-Island	32	672,454	5,312,383

Fig. 1.10 Geographical coordinates to the nearest second of the sites in Germany.

Italy

Region	Component part	Municipality	Place name	Coordinates of Centre Points UTM		
				Zone	E	N
Friuli Venezia Giulia	IT-FV-01	Caneva / Polcenigo (PN)	Palù di Livenza – Santissima	33	305,038	5,099,548
Lombardy	IT-LM-01	Desenzano del Garda / Lonato del Garda (BS)	Lavagnone	32	620,248	5,032,582
Lombardy	IT-LM-02	Manerba del Garda (BS)	San Sivino, Gabbiano	32	621,626	5,043,625
Lombardy	IT-LM-03	Padenghe sul Garda (BS)	West Garda, La Fabbrica	32	618,097	5,039,440
Lombardy	IT-LM-04	Sirmione (BS)	Lugana Vecchia	32	628,500	5,035,185
Lombardy	IT-LM-05	Polpenazze del Garda (BS)	Lucone	32	616,156	5,045,231
Lombardy	IT-LM-06	Piadena (CR)	Lagazzi del Vho	32	609,582	4,995,853
Lombardy	IT-LM-07	Cavriana (MN)	Bande - Corte Carpani	32	624,191	5,025,428
Lombardy	IT-LM-08	Monzambano (MN)	Castellaro Lagusello - Fondo Tacoli	32	627,970	5,025,271
Lombardy	IT-LM-09	Biandronno (VA)	Isolino Virginia-Camilla-Isola di San Biagio	32	478,095	5,073,200
Lombardy	IT-LM-10	Bodio Lomnago (VA)	Bodio centrale o delle Monete	32	481,007	5,071,459
Lombardy	IT-LM-11	Besnate (VA)	Lagozza	32	480,457	5,061,447
Lombardy	IT-LM-12	Cadrezzate (VA)	Il Sabbione o settentrionale	32	472,707	5,071,844
Lombardy / Veneto	IT-LM-13	Sirmione (BS) / Peschiera del Garda (VR)	La Maraschina-Tafella	32	628,466	5,035,208
Piedmont	IT-PM-01	Viverone (BI) / Azeglio (TO)	VI.1-Emissario	32	423,552	5,029,880
Piedmont	IT-PM-02	Arona (NO)	Mercurago	32	465,153	5,064,570
Trentino-South Tyrol / Autonomous Province of Trento	IT-TN-01	Molina di Ledro (TN)	Molina di Ledro	32	636,978	5,081,577
Trentino-South Tyrol / Autonomous Province of Trento	IT-TN-02	Fiavé (TN)	Fiavé-Lago Carera	32	641,802	5,094,577
Veneto	IT-VN-01	Lazise (VR)	Bor di Pacengo	32	634,113	5,037,313
Veneto	IT-VN-02	Lazise (VR)	La Quercia	32	635,066	5,039,244
Veneto	IT-VN-03	Nogara (VR)	Dossetto	32	662,023	5,003,595
Veneto	IT-VN-04	Peschiera del Garda (VR)	Belvedere	32	629,667	5,034,980
Veneto	IT-VN-05	Peschiera del Garda (VR)	Frassino	32	630,090	5,032,595

Region	Component part	Municipality	Place name	Coordinates of Centre Points UTM		
				Zone	E	N
Veneto	IT-VN-06	Cerea (VR)	Tombola	32	673,735	5,005,274
Veneto	IT-VN-07	Arquà Petrarca (PD)	Laghetto della Costa	32	715,127	5,016,568

Fig. 1.11 Geographical coordinates to the nearest second of the sites in Italy.

Slovenia

Province	Component part	Municipality	Place name	Coordinates of Centre Points UTM		
				Zone	E	N
–	SI-IG-01	Ig	Kolišča na Igu, severna skupina	33	463,552	5,091,449
–	SI-IG-02	Ig	Kolišča na Igu, južna skupina	33	464,488	5,090,885

Fig. 1.12 Geographical coordinates to the nearest second of the sites in Slovenia.

Volume I

2. Description

2.a Description of Property

2.a.1 Prologue

Pile dwellings or stilt houses – so called in ethnographic and anthropological literature – are houses raised on piles over the surface of the soil or a body of water. In many regions of Southeast Asia, Africa and Latin America pile dwellings are still a widespread and traditional type of construction. Building on piles is also a typical European type of construction in areas where the foundations have to respect humid conditions. A well known European example is that of the City of Venice, constructed in a lagoon of the Adriatic Sea in the Mediterranean. When Amerigo Vespucci explored South America and saw for the first time Indian pile dwellings in Lake Maracaibo, he described them as palafitos. The name of the modern state of Venezuela means 'Little Venice' because the Indian settlements reminded him of Venice.

Before anthropology became a social science, European seafarers and explorers were the first to use the term 'pile dwellings' in their descriptions of settlements in tropical regions of the world. It was the famous French captain Jules Sébastien César Dumont d'Urville who explored the island of New Guinea in the late 1820s. Several images in the publication about his explorations show the pile-dwelling village of Kouaoui in the Dorey Bay of New Guinea (Dumont d'Urville 1830–1835).

The German translation of Dumont d'Urville's travel description was printed in 1836 in Switzerland (Dumont d'Urville 1836). The relatively 'young' University of Zurich was the first university in Europe founded by a democratic state (in 1833). Zurich has always been a home of intellectual ideas being one of the centres of the Reformation in the 16th century. Ferdinand Keller, the grand-master and 'father' of the prehistoric pile-dwelling theory ↘ Chapter 2.b.4 lived and worked in Zurich. In 1832 he founded the Antiquarian Society of Zurich (Antiquarische Gesellschaft) and acted as president until his death in 1881.

It is obvious that Keller studied ethnographic publications and was without doubt inspired by lithographic prints from Dumont d'Urville's publication about New Guinea. In 1854 he published his famous first volume of the so-called Pfahlbauberichte (the Pile Dwelling Reports) of the Antiquarian Society of Zurich. In 1854 he described his ideas for the first time and used the term 'Pfahlbauten' (pile dwellings) in archaeology (Keller 1854).

2.a.2 General description

Prehistoric pile dwellings are a cultural phenomenon peculiar to the Alpine countries. Their distinguishing feature is their excellent state of preservation due to special conditions of deposition in lakes and wetlands around the Alps.

937 pile-dwelling sites are known from the six Alpine countries Switzerland, Austria, France, Germany, Italy and Slovenia ↘ Figs. 1.16–1.44. According to article 137 of the *Operation Guidelines*, they belong to the same type of property which is chara-cteristic of the geographical zone around the Alps. Out of the 937 sites a representative selection of 156 sites is proposed for nomination as a serial, transnational World Heritage property ↘ Fig. 2.1. The following description concerns the whole series. A detailed description of the individual sites is given in ↘ Volume II.

	Total number of sites known	Number of sites listed in the database ↘ Annex DVD	Number of component parts included in this serial nomination
Switzerland	453	453	82
Austria	28	28	8
France	132	100	15
Germany	128	128	24
Italy	156	58	25
Slovenia	40	40	2
Total	937	807	156

Fig. 2.1 Overview of the number of pile-dwelling sites known around the Alps and the number of component parts of the series *Prehistoric Pile Dwellings around the Alps*.

In modern archaeological language the term pile dwellings is used for prehistoric human settlements in lakes, rivers and bogs synonymously with the terms 'lakeside settlements' and 'wetland settlements'. The *Prehistoric Pile Dwellings around the Alps* are the archaeological remains of prehistoric settlements from the period between 5000 and 500 BC. They mainly consist of architectural components of houses, access paths, palisades and archaeological layers. The layers contain different kinds of finds including vessels, tools, textiles, food remains and other utensils made of various materials. A striking difference between waterlogged pile dwellings and archaeological sites on dry land is the excellent preservation of organic material. Therefore, these settlement remains offer a far more detailed insight into everyday life in prehistoric times: it is no exaggeration to say that they are the most important sources for research into early farming communities in Europe ↘ **Chapter 2.a.3**.

Particularly dense concentrations of pile-dwelling sites exist in Western Switzerland (Three Lake Region with Lakes Bienne, Morat and Neuchâtel, ↘ **Fig. 1.21, Fig. 1.22, Fig. 2.2** and in Central Switzerland (areas of Lake Zurich and Lake Zug; ↘ **Fig. 2.3**. In Eastern Switzerland and Southern Germany Lake Constance forms another region of high settlement density. This region of pile-dwelling settlements continues to the north with numerous bog sites around Lake Federsee in Upper Swabia ↘ **Fig. 2.4** and in the foothills of the Swabian Jura. Farther to the east follow the sites of the Bavarian pre-Alpine lakes and wetlands. Another group of sites is situated around the Lakes of the Salzkammergut in the Upper Austrian foothills of the Alps.

The pile-dwellings of Lake Keutschach (Carinthia, Austria) are situated the farthest east. From this position the link to sites in the southeastern Alps is obvious. A closed group of sites is located in Slovenia. The pile-dwelling settlements in this region are concentrated in an area limited to the vast wetlands of Ljubljansko Barje ↘ **Fig. 2.5**.

To the west of Switzerland, a unique geographical position is represented by sites located in the lakes of the French Jura Mountains and deep in the valleys of the Savoy Alps ↘ **Fig. 2.6**. South of the Alps, the pile dwellings of Northern Italy cover an area extending from Piedmont to Friuli Venezia Giulia including Lombardy, Veneto and Trentino-South Tyrol. A dense concentration of sites exists around the lower area of Lake Garda, the largest of the southern Alpine lakes.

The pile dwellings can be divided into three types of sites. The most numerous are the lakeside settlements ↘ **Fig. 2.7**, followed by bog settlements ↘ **Fig. 2.8** and the least numerous pile-dwelling sites in the flood plains of rivers ↘ **Fig. 2.9**. Regarding lakes, one must differentiate between large lakes situated in the foothills of the Alps, whose water systems are determined by the Alpine glaciers, and smaller lakes that were spread throughout the moraine landscape of the last ice age. The latter are often bodies of water without effluences, located in the transition area between the mountainous regions and the surrounding fenlands ↘ **Fig. 2.10**.

Not least due to fluctuating lake levels, the pile-dwelling period is characterised by a significant dynamic of movement and change. During more favourable climatic phases, with warmer and drier conditions and thus lower lake levels, the settlements

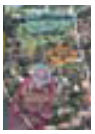


Fig. 2.2
↘ **p. 96**

Fig. 2.3
↘ **p. 96**

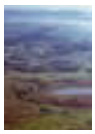


Fig. 2.4
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Fig. 2.5
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Fig. 2.6
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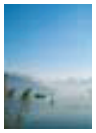

Fig. 2.7
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Fig. 2.8
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Fig. 2.9
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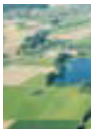

Fig. 2.10
↘ **p. 99**

were built in the inundation zones of the lakeshores ↘ Fig. 2.11. Settlements built on steep shorelines are very rare ↘ Fig. 2.12. Some pile-dwelling settlers preferred specific locations such as peninsulas ↘ Fig. 2.13 or islands ↘ Fig. 2.14. A choice probably motivated by defence reasons.

High lake levels in prehistoric times led to an abandonment of the settlements and to the deposition and accumulation of natural lake sediments on the ruins. Later, when the lake levels decreased, the most convenient sites were once again re-settled. This led to the formation of new archaeological layers. It is often the case that deposits from several settlement phases accumulated in the same location over the millennia. These continuous processes led to sequences of archaeological layers which may sometimes be several metres thick. The characteristic aspect of these strata is dark bands of archaeological layers alternating with lighter coloured natural sediment layers ↘ Fig. 2.15.

Today 37% of the sites proposed for nomination as World Heritage are situated under water. The depth of these locations ranges from 0.5 to 10 m. Some 33% of the sites are either on dry land or in bogs while 30% are partially submerged and partially on dry land ↘ Fig. 2.16–2.17. Sites on dry land are covered by topsoil, peat and sediment layers ↘ Fig. 2.18. Sites under water are usually covered by natural lake sediments. The feature common to all the sites is that they are essentially not visible. In that sense they are an invisible cultural heritage, notwithstanding their enormous potential.

Fig. 2.11
↘ p. 99

Fig. 2.12
↘ p. 99

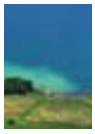

Fig. 2.13
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Fig. 2.14
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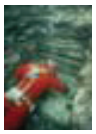

Fig. 2.15
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Fig. 2.17
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Fig. 2.18
↘ p. 101

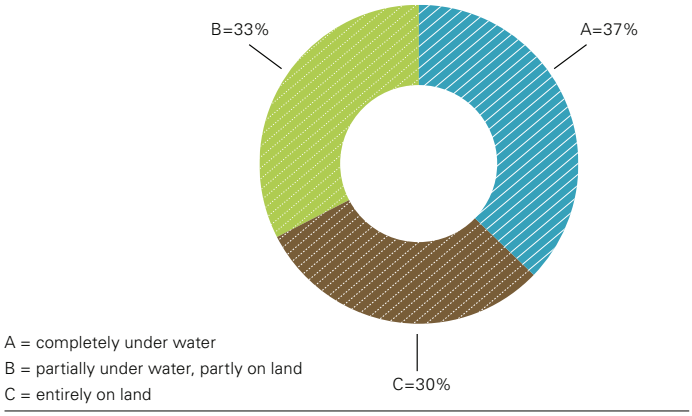

Fig. 2.16 Location of the sites.

2.a.3 Pile dwellings: comprehensive insight into a prehistoric world

Thanks to the excellent preservation conditions in the pile-dwelling sites, numerous detailed and attractive artists' impressions could be created ↘ Figs. 2.19–2.20. They are very detailed and are based on well-founded scientific knowledge. The contents of these images are based on numerous original finds and features and did not depend on analogies.

The extraordinary importance of lakeside settlements in reconstructing the day-to-day lives of prehistoric people is self-evident. A comparison between the abundance of finds from pile dwellings with the fragmentary archaeological traces found at dryland settlements alone demonstrates this. While the timber foundations in lakeside settlements survive as actual piles, the remains of Neolithic and Bronze Age settlements on normal dry mineral soil consist of so-called post holes, which are rather

↘ p. 101

Fig. 2.19 Impression of Daily life 5000 years ago. Artistic reconstruction of the Neolithic village of Cham–St. Andreas, Strandbad (CH-ZG-01; Lake Zug).

↘ p. 102

Fig. 2.20 Impressions of daily life at a prehistoric pile-dwelling village. Artistic reconstruction by comic writer-drawer André Houot.

difficult to discern soil stains. We know that fragile organic materials such as wood, bark and textiles were intensively worked and used in prehistoric times ↘ Figs. 2.21–2.26. Hardly any traces remain of this 'soft ware' due to the unfavourable preservation conditions outside of the pile-dwellings. Only 'hard ware' can survive the passage of time unharmed: fired shards of ceramic vessels and solid objects made of stone such as axe blades and flint artefacts. In very favourable conditions, human skeletal remains and animal bones also survive. It is an obvious conclusion that this range of objects only provides a strongly limited insight into prehistoric reality.

Pile dwellings, on the other hand, have yielded a multitude of objects from all aspects of everyday life. Some examples: complete axes with handles and antler sleeves, harvesting tools and knives, dugout canoes and paddles, axles and wheels. The earliest European textiles and many items used for spinning and weaving have been found in pile dwellings: spindle whorls, hackles, bobbins, remains of looms and numerous fragments of textiles. Fishing is well-represented by net floats ↘ Fig. 2.25 and sinkers, fishhooks, harpoons and fragments of nets. Clubs, bows and arrows, quivers and bow-cases are parts of hunting gear. Besides numerous piles of houses, other structures such as trackways and palisades have also been found.

As an archaeological source, the pile dwellings display a multitude of special characteristics, which clearly set them apart from normal dryland sites. The most important characteristics are outlined in the next paragraph.

Fig. 2.21
↘ p. 102

Fig. 2.22
↘ p. 102

Fig. 2.23
↘ p. 103

Fig. 2.24
↘ p. 103

Fig. 2.25
↘ p. 103

Fig. 2.26
↘ p. 104

Settlements of early agriculture societies in Europe (a)

Neolithisation – i.e. the transition from hunting and gathering societies to the food-producing lifestyle of the first farming communities which also brought with it a sedentary way of life – is one of the most important civilisation steps taken by humankind. The lakeside settlements around the Alps provide varied insight into the early agrarian societies in Central Europe. The numerous archaeological finds recovered from pile dwellings include evidence of important stages of civilisation. These include agricultural equipment and remains of cultivated plants, metallurgical utensils and copper, bronze and iron finds, as well as artefacts representing prehistoric mobility and the exchange of goods.

The settlement remains have yielded farming equipment that represents various methods of soil cultivation and harvesting ↘ Fig. 2.26. Yoke finds suggest that hook ploughs or ards drawn by oxen were used around 3000 BC. The early farmers used hand-held furrowing sticks with the seeds being sown in the resulting furrows. The various tools show that in some cases only the ears were harvested, while in other cases the stalks were cut closer to the ground. Archaeobotanical analyses reveal the complete range of cultivated plants in the past and give insight into the development of wheat, barley and millet from the Neolithic to the Iron Age. Archaeozoological studies of animal bones show the whole range of livestock and hunted game. Bones of cattle, pigs, goats and sheep reveal details of prehistoric economy and the behaviour of agrarian societies in times of crisis. Bones of deer, wild boar and other game bear witness to increased hunting at times when agricultural yields decreased or failed.

Pile dwellings give a detailed insight into technological progress over the course of the millennia, one example being the transition from roaming hunter-gatherers to sedentary farmers, including the construction of permanent houses, pathways and palisades. The enormous amount of wood-working required a new tool: the axe ↘ Fig. 2.27. Handles were usually made from tough ash wood, while blades were initially made of polished stone, and more rarely of bone, copper or flint. Deer antler sleeves inserted between the axe blades and handles lessened the blow and made the axes more durable. The power of impact from stone axes is quite good – however, they

↘ p. 104

Fig. 2.27 Wood working tools from pile dwellings. Complete axes with wooden shafts, some equipped with antler sleeves, are found regularly in Neolithic pile-dwelling sites.

↘ p. 104

Fig. 2.28 Wood working tools from pile dwellings. During the Bronze Age the more sophisticated metal axes increasingly replaced the traditional stone axes (Auvernier–Nord, Lake Neuchâtel).

were replaced over time by blades made of copper or bronze ↘ Fig. 2.28. The technical progress of a tool that changed the world can be traced over more than 4000 years. Moreover, this invention by the early farmers was so successful that we still use the same type of tool today; we have simply replaced the bronze axe head with steel.

The rise of metals and technology

In the Alps the early 4th millennium opens the scene for the earliest metallurgical evidence originating from southeastern Europe: a number of copper artefacts have been found in pile-dwelling sites at Lake Constance, in the lakes of the Austrian Salzkammergut and at Slovenian sites. The extraction and working of metal can be considered a 'technological revolution'. This phenomenon contributes decisively to the development of complex societies with a structured social organisation. The new techniques very soon led to the independent development of copper processing in the eastern and central Alps.

Important for the understanding of this process are the sites at Lake Mondsee (Austria) and in the Ljubljansko barie (Slovenia). Based on finds of ready-to-use tools, blanks and moulds ↘ Figs. 2.29–2.30, the pile dwellings allow us to trace the entire sequence of tool making, from copper to bronze and eventually to iron.

Fig. 2.29
↘ p. 105

Fig. 2.30
↘ p. 105

Bronze, an alloy of copper and tin, evolved from around 2200 BC as a by-product of copper technology. The centres of this innovation were not located in the pile-dwelling regions. Pile dwellings, however, have yielded a large number of metal finds dating from the Early to the Late Bronze Ages ↘ Figs. 2.31–2.32. In combination with the precise dating of pile-dwelling sites by means of dendrochronology these finds allow us to draw conclusions regarding the development of bronze-working techniques all over Europe.

Fig. 2.31
↘ p. 105

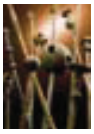

Fig. 2.32
↘ p. 106

At the end of the Bronze Age, around 800 BC, the occupation of the lakeshores and bogs in the circum-Alpine region by pile dwellers came to a sudden end. A new era, the so-called 'Iron Age', began all over Europe with the discovery of iron. Compared to copper and bronze processing, iron smelting and working required a completely new type of technology. A small number of Late Bronze Age pile-dwelling sites have yielded early iron finds. Again, thanks to the excellent dating opportunities offered by dendrochronology, these finds can provide invaluable evidence in terms of the development of a technology that has remained important to this day.

Exchanging relationships

As today, the foothills of the Alps in prehistoric times were also located within the sphere of influence of various cultural traditions. The lakeshores and the bogs throughout the foothills of the Alps contain the remnants of some 30 cultural groups from the Neolithic period, the Bronze Age and the Early Iron Age ↘ Chapter 2.b.2. Thus the pile dwellings do not represent a uniform and homogenous culture. Modern science rather views them as a phenomenon by which a large number of prehistoric cultural groups can be comprehensively studied.

Over the course of time, western traditions such as the use of round-based vessels from today's middle Rhône valley in France reached the Swiss Plateau, where they met with elements from southern Germany. This may even illustrate cultural differences between western and eastern parts of Switzerland that still exist today, and it can be supposed that they were already manifest thousands of years ago.

Southern Germany, Austria and Slovenia were mainly influenced by cultural contacts with the Danubian world. The eastern area of distribution of the pile dwellings thus served as a gateway to the most important innovations in the region of the Lower

Danube and in the Balkans (for instance metallurgy). There is also evidence to suggest that there was contact between the areas north and south of the Alps in prehistoric times: Mediterranean cultural influences, for instance, were brought north across the Alpine passes, which means that the mobility of people 6000 years ago already extended over hundreds of kilometres. Flint – the 'steel of the Stone Age' – was a much sought-after raw material. It was used to make arrowheads, drills and knives, and in the 3rd millennium BC even daggers ↘ Fig. 2.33. Microfossils embedded in the flint today allow for a precise localisation of its provenance. Besides local flint sources, high-quality imported flint from far-off deposits was also used. The individual regions sourced their materials from various areas, which in turn changed over the course of time. This provides information for research into the systems of sourcing raw materials in pile-dwelling settlements. Jewellery, made for instance of seashells, gold or amber ↘ Figs. 2.34–2.35, and also pottery imports give us information about communication networks that were spread over great distances across Europe ↘ Figs. 2.36–2.37.

Given these numerous complex relationships, the *Prehistoric Pile Dwellings around the Alps* are of great importance for the understanding of prehistoric times in the foothills of the Alps. But they also allow us, thanks to the extraordinary abundance of finds and the many opportunities to gather dendrochronological dates of the highest quality, to draw conclusions with regard to developments relevant for the entire European prehistory.

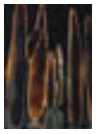

Fig. 2.33
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Fig. 2.34
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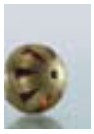

Fig. 2.35
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Fig. 2.36
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Fig. 2.37
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Mobility

Dugout canoes were the earliest means of transport also used by the pile dwellers. Quite a large number of these up to 12 m long impressive boats ↘ Fig. 2.38 have already been found in the lakes of the foothills of the Alps, quite often in the vicinity of the settlements. To move and steer the dugouts paddles were required ↘ Fig. 2.39. Dugout canoes were the most important means of transportation on water in prehistoric times.

The pile-dwelling sites have yielded more than a dozen of the earliest preserved wheels in the world ↘ Figs. 2.40–2.42. From approximately 3400 BC onwards, carts facilitated the transportation of various goods. The wheels were made of wood and their complex construction reflects a high standard of carpentry skills. The wheels of the pile-dwelling type belonged to two-wheeled carts that were probably drawn by oxen. Not only wheels have survived in the pile dwellings; in some cases both wheels and axles have been found in their original position.

Fig. 2.38
↘ p. 108

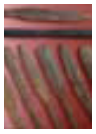

Fig. 2.39
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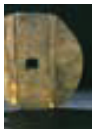

Fig. 2.40
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Fig. 2.41
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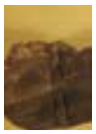

Fig. 2.42
↘ p. 109

Development of architecture and building structures (b)

The wooden piles used as the weight-bearing component of the houses allow us to reconstruct the ground plans of the buildings and the organisational structure of these early farming villages. Building remains form the core of the archaeological record of the pile-dwellings. In bog settlements the floorboards of houses and planks from paths are often very well preserved ↘ Fig. 2.43. Other architectural elements are also frequent: palisades surrounding the villages are common ↘ Fig. 2.44. Up to now, many wooden architectural elements have been recovered from pile-dwelling settlements. They give a clear insight into the architecture of distinct regions and the development of architectural styles over time ↘ Figs. 2.45–2.47.

Besides simple pile foundations, sill beams and foot-plate constructions were also known ↘ Figs. 2.47–2.48. Raised constructions were mainly chosen on the large lakes such as Lake Constance or on Lake Neuchâtel, where the lake level fluctuations were quite significant; at small lakes and in bogs, on the other hand, the houses were generally built directly on the ground.

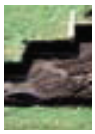

Fig. 2.43
↘ p. 109

Fig. 2.44
↘ p. 110

Fig. 2.45
↘ p. 110

Fig. 2.46
↘ p. 110

Fig. 2.47
↘ p. 111

Fig. 2.48
↘ p. 111

Evidence of the roof coverings is only rarely found, but we know that roof shingles were definitely used ↘ Fig. 2.49. Walls consisted of round or split timbers, and wattle and daub was also sometimes used ↘ Fig. 2.50. Log constructions ↘ Fig. 2.51 as well as tongue and groove joints were used from the Bronze Age onwards.

Besides architectural information, insight into the interior organisation of the houses can also be gleaned from pile dwellings ↘ Fig. 2.52. Only a small number of sites have been completely examined and the structure of the entire site revealed. They were built at particular periods of time and in specific geographical regions according to long-lasting rules and traditions. We know of rows of houses, ribbon developments, street settlements and cluster villages ↘ Fig. 2.53.

Fig. 2.49 ↘ p. 111

Fig. 2.50 ↘ p. 112

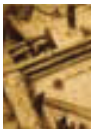

Fig. 2.51 ↘ p. 112

Fig. 2.52 ↘ p. 112

Fig. 2.53 ↘ p. 113

Dating possibilities: Dendrochronology (c)

Trees in temperate latitudes usually form a new growth-ring each year: vegetation phases between spring and autumn alternate with a dormant phase in the winter months. The widths of the tree-rings reflect the climatic as well as local conditions that prevailed in each particular year. This sequence of narrow and wide rings is very similar in trees of the same species from the same region. Any significant sequence of tree-rings in a piece of wood is thus characteristic of its region and period.

In order to ascertain its chronological positioning, i.e. to date a sample to the exact year, the unknown tree-ring sequence is compared to an existing reference sequence, a so-called reference chronology of known dated ring patterns ↘ Fig. 2.54. If the two curves show strong visual similarities in growth patterns the piece of wood can be synchronised and dated. If the last growth ring underneath the bark is still present, the exact year can be identified in which the tree was felled. In many cases it is even possible to determine the felling season. By overlapping sequences with modern trees with known felling dates various reference chronologies have been built from many thousands of samples extending into the past. It is an ongoing project that various laboratories have been contributing to for many decades. The present 10,000 year Central European Oak Chronology dates back to the 9th millennium BC and, together with the earlier Southern German and Swiss Oak Reference Chronology, has been the basis for the dating of many of the Alpine pile-dwelling sites.

↘ p. 112

Fig. 2.54 Dendrochronology.

In terms of pile dwellings, dendrochronology is of special significance. Wood species such as oak, ash or silver fir are particularly well suited for dendrochronology. These species were also commonly used in construction. Over the past 25 years, nine laboratories analysed 300,000 wood samples from pile-dwelling settlements, some 50,000 of which could be dated to the year. Such precise dates not only enable one to determine the chronology of construction and renovation phases of houses, they also help to date the finds recovered from the archaeological layers associated with these timbers. Pile dwellings thus provide a chronological framework of unparalleled precision throughout the world.

Thanks to the numerous dendrochronological data from pile dwellings, the chronology of the European Neolithic and Bronze Age has reached an almost inconceivable degree of precision. No other dating method would have been able to do so. As an added bonus, radiocarbon dating, the most common archaeological dating method applied in archaeology, has achieved an additional degree of precision due to the calibration with dendrochronological dates.

↘ p. 113

Fig. 2.55 Cortaillod-Est (Lake Neuchatel, Switzerland). Plan of Bronze Age settlement.

The dating of the piles to the year enables us to analyse the constructional history of individual houses and entire settlement complexes. Many of the settlements evolved spontaneously from a nucleus of individual houses built by pioneers, others were literally planned and built at the same time ↘ text box and ↘ Fig. 2.55. The life span and end of a settlement was also variable. Initially, the houses were used only for 5 to 20 years and then rebuilt. Sometimes the entire village was relocated after only a few decades, either to a nearby location or further afield ↘ text box and ↘ Fig. 2.56. It was not until the latter part

↘ p. 114

Fig. 2.56 Sutz-Lattrigen (Lake Bienne, Switzerland). Plan of Neolithic and Bronze Age settlements, dated 4600–1600 BC.

Cortaillod-Est (Lake Neuchâtel, Switzerland) – Example of a completely excavated Late Bronze Age village

The imminent total destruction of cultural layers due to particularly active erosion processes led to an underwater rescue excavation undertaken by scuba divers between 1981 and 1984. The main aim was to excavate an entire Late Bronze Age village for the first time: Cortaillod-Est.
20,000 m^2 of lakebed were excavated under water. Aerial photographs taken from aeroplanes and hot air balloons afforded an approach to the village as a whole, both before and during the excavation work. Notably, a palisade towards the shore, but more importantly a very regular alignment of light and dark parallel bands outlining the houses and lanes were observed at right angles to the shore. The village was constructed on a terrace 40–50 cm higher than the neighbouring land. Since the spring of 1005 BC, the prehistoric people had attempted to protect their village form the overflow of a branch of the Areuse which flowed through this small valley by building a dam in the form of a palisade. As the village grew in size, the palisade was extended in 992–991 BC both to the east and to the west.

↘ p. 113

Fig. 2.55 Cortaillod-Est (Lake Neuchatel, Switzerland). Plan of Bronze Age settlement.

The construction of Cortaillod-Est began in 1010 BC ↘ Fig. 2.55. The central part in the shape of a rectangle of 46.5 by 38 m was built between 1010 and 1001 BC. Repairs and extensions were carried out sporadically until 965 BC when the village was moved closer to the present shoreline to an area called Cortaillod-Plage. Although pottery makes up the largest part of the artefacts recovered from Cortaillod-Est (more than 150,000 potsherds), other clay artefacts such as andirons or spindle whorls were also discovered, as were objects made of bronze, tin, glass, lignite, stone, antler, bone and wood.
Special attention was paid to the piles. They provide information not only about the types of houses and the development of the village over time but also about forest use. While there is a lack of information about felling techniques, much is known about carpentry and woodworking. With regard to shaping the points of the piles, only the final stages can be observed, the earlier stages having been worn away as the work progressed. The width of the chips removed show that the work was done with bronze axes the tops of which were shaped to hold the handle. Only oak was used to make the posts and beams. Oak trees with diameters of more than 32 cm, were generally split into 4 or 6 posts and then dragged to the village. Traces of this form of transportation are found on the points, i.e. the tree trunks were lifted and the tops of the trees dragged along the ground. The trip was several kilometres long over prepared paths.

of the Late Stone Age that the first long-lasting settlements were built, and in the Late Bronze Age some villages existed in the same location for 50 to 100 years.

Besides the unique opportunity for the precise dating of individual houses and their renovation phases, the study of the settlement history and the chronological positioning of the finds allow us to compare them with neighbouring villages and other regions. Beyond this, tree-ring analyses also offer invaluable insight into the climate and environmental conditions of these periods as well as cycles of forest clearing. ↘ cf. Chapter 2.a.3.e below.

Scientific data (d)

Suitable locations on lakeshores were often resettled time and again. That is why the remains of settlements from various periods often lie on top of each other like the layers of a cake ↘ Fig. 2.58. Up to 25 villages can thus lie above or next to each other in a small area. The individual settlements can be dated with the help of scientific dating methods.

As a rule, every topographic position on lakeshores in the vicinity of good farmland was used by prehistoric pile-dwelling communities for settling. The extraordinary dense concentration of the sites – at some lakes they are located only a few kilometres apart ↘ Fig. 2.2 – is an advantage for pile-dwelling archaeology: thanks to the reliable dates provided by dendrochronology contemporaneous sites can be identified. This enables us to define differences and similarities, rules and exceptions, which is important for the understanding of the mechanisms that ruled prehistoric society. It is therefore essential that the sites are not assessed individually but that the pile dwellings are viewed as a sufficiently large series where the knowledge gained from one site complements that from the others.

Wetland settlements contain large numbers of finds made of a variety of materials: amber, bast, bone, bronze, copper, deer antler, flint, glass, gold, flax, iron, plant seeds, pottery Figs. 2.59–2.61, shells, stone, wood,– the list is by no means complete. The most important feature of prehistoric wetland settlements, however, is that organic materials can survive in the anaerobic conditions of the waterlogged soils ↘ Figs. 2.62–2.65. Organic finds form the largest category of registered finds from pile-dwelling settlements excavated with modern methods. This reflects how important organic materials were in the everyday lives of prehistoric people and shows the amount of finds lost to archaeological research in dryland settlements.

Organic materials were omnipresent in prehistoric times: wood not only served as fuel and as raw material for the construction of houses, trackways and palisades, it was also an important material for making vessels, basketry, various types of utensils, tools and weapons as well as means of transport such as carts, travois or dugout canoes. Bark was used as insulation material for house floors against the humid ground, possibly also as roofing material and not least for making boxes and containers. Birch bark was used for making quivers and bow-cases and for decorating axe handles or ceramic vessels. Tar from birch bark was a universally used glue ↘ Fig. 2.64–2.65. Ropes, capes, hats and shoes among other things were made from oak and lime bast. Flax was also rather important for clothes making and fabrics have been found in many wetland settlements. Neither leather nor sheep's wool, however, have survived in the alkaline soils in the foothills of the Alps.

Fig. 2.58
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Fig. 2.59
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Fig. 2.60
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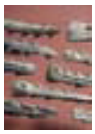

Fig. 2.61
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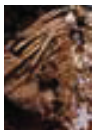

Fig. 2.62
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Fig. 2.63
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Fig. 2.64
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Fig. 2.65
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Natural sciences (e)

The archaeological sites in lakes and bogs are excellent archives for the natural sciences, particularly for biosciences (archaeobiology, archaeozoology) and for palae-

Pile-dwelling sites of Sutz-Lattrigen (Lake Bienne, Switzerland) – Example of a village development from the Neolithic to the Bronze Age

The lakeside settlements of Sutz-Lattrigen are situated on the southern shore of Lake Bienne. The rescue excavations began in 1988. A total of over 43,000 m2 of lakebed was systematically documented and dendrochronological analyses were carried out on over 23,000 wooden piles. This has allowed the identification of approximately twenty Neolithic villages, many with architectural structures still clearly definable, and with absolute dates ranging from 4600 BC to 1600 BC ↘ Fig. 2.56.

↘ p. 114

Fig. 2.56 Sutz-Lattrigen (Lake Bienne, Switzerland). Plan of Neolithic and Bronze Age settlements, dated 4600–1600 BC.

The earliest remains discovered at Sutz-Lattrigen were situated in the eastern part of the area. The site, named 'Solermatt' dates from around 4600–4200 BC. The archaeological record consists of three circular structures of undetermined function and an isolated building. The building was constructed in 3863 BC and repaired in 3856 BC. In the early stages of the investigation the building and the ring structures were thought to be of the same period, although this could not be verified dendrochronologically. The ring structures, most of hazel-wood, were interpreted as fish traps and the building, made from oak and elm posts, as a construction for the fishermen. Only when radiocarbon dating was carried out the age difference in the structures was identified. The actual function of the circular structures and the building still remains unknown.

The earliest settlement in the bay of Lattrigen identified dendrochronologically dates from 3825 BC indicating a village of the Cortaillod culture. Among the structures of this settlement in the inner 'Hauptstation', other dendrochronologically dated piles revealed another village some 200 years later. What began to emerge was that several villages shifted to the southwestern area of the bay at intervals of approximately 15 years, with later building phases dating from 3630, 3615 and 3595 BC. The next later settlement which existed from 3582 to 3566 BC provided a more detailed picture. It included some forty buildings, of which twenty were located within the excavated area. With the exception of an individual house located a short distance away, all the buildings were arranged with their roof ridges at right angles to the shore. Within the excavated area, a group of eight houses surrounded by a palisade were the first to appear. In the space of a few years, the village expanded twice, both times with the construction of four new houses. The final three buildings were erected in 3568 BC and in 3566 BC, at which point the dendrochronological record breaks off.

After a break in the settlement record of about 170 years, a new village was founded. It has been given the name 'Riedstation', and it is situated about 200 m northeast of the Lattrigen inner 'Hauptstation'. The clearly defined village ground plan and the constructional history of this settlement is one of the best examples of Neolithic village architecture ↘ Fig. 2.57. Beginning in the spring of 3393 BC, nineteen buildings were systematically erected within a period of five years. The village itself was probably abandoned shortly after 3388 BC. The houses in this settlement also stood with their roof ridges at right angles to the shore. The basic structures of the two Neolithic settlements 'Riedstation' and inner 'Hauptstation' were similar. Both villages contained a row of larger buildings of about 8 and 12 metres in length built closely together and a second row of significantly smaller houses which could be interpreted as storage buildings at some distance.

↘ p. 114

Fig. 2.57 Sutz-Lattrigen–Riedstation (Lake Bienne, Switzerland). Plan and building history of the Neolithic settlement, dated 3393–3388 BC.

Two new settlement phases have recently been discovered around 3400BC. The first quite unique event was the discovery of two isolated buildings situated between the 'Riedstation' village and the inner 'Hauptstation' site. Both have been dendrochronologically dated

to 3412 BC. The lack of further dates suggests that the buildings were never repaired and therefore probably used only for a very short time. Other houses of the same type and period, dated to 3393 BC, were discovered in 2008 at the site 'Neue Station'. Their construction showed great similarities to the buildings dated to 3412 BC.
From around 3388 BC another settlement hiatus of about 180 years has been identified. Approximately 200 m from today's shoreline, a Late Neolithic settlement was discovered showing continuous occupation over at least 100 years. It remains unclear whether the dendrochronological date of around 3110 BC for the site 'Kleine Station' indicates a short-term settlement shift or simply represents houses belonging to the settlement at the outer 'Hauptstation' situated some 300 m away. In any case, the next set of dates from 31st century BC villages (dendrochronological felling dates from 3040/3015 BC) once again came from the area of the outer 'Hauptstation'. However, the Late Neolithic villages of this period showed a completely different type of construction: the buildings were moved around by 90° and were now oriented parallel to the shoreline, instead of at right angles as seen in the earlier settlements. In addition, after year 3200 BC the buildings were organised in close parallel rows with alleys in between. These settlements were also larger and occupied over longer periods. Another village, also dating from around 3200 BC, was recently discovered and partially excavated at the so-called 'Neue Station'. The existence of a second village dating from around 3200 BC in the vicinity of Sutz-Lattrigen indicates early demographic pressure. Even before this discovery it was well known that larger numbers of settlements existed after 2750 BC. This new result now suggests that increases in settlement density can be expected even earlier. Furthermore, this site also had quite an unusual type of palisade. Neolithic palisades are usually rather light fences, whereas the palisade at 'Neue Station' is constructed from much stronger posts and this can only be explained as a defensive measure.
Earlier settlements from the 3rd millennium BC lie approximately 1 km downstream from the previous settlements in the so-called 'Rütte' site. The felling dates from the pile fields lie between 2918 and 2895 BC. The closest settlements from the same period were located in the area of 'Kleine Station', dating from 2845 BC and 2785-2754 BC, and at 'Neue Station', dating from between 2850, 2843 and 2725 BC. From 2763 BC, the dendrochronological dates have revealed a settlement situated some 500 m downstream from the 'Rütte' site. This village existed until 2688 BC when it was destroyed by fire. In summary, we can state that three villages stood in close proximity, which again indicates that a certain degree of population pressure existed in the first centuries of the 3rd millennium BC.
The latest settlements discovered in the area of Sutz-Lattrigen to date, are two Early Bronze Age villages at the 'Buchtstation' site. The earlier settlement dates from between 1763 and 1746 BC and has yielded massive fortification structures. A total of four palisades protected the residential area from enemies or alternatively from the lake. A second village dates from around 1660 BC (1662 and 1659 BC) but little is known about its structure. Based on early records, Late Bronze Age settlements dating from around 1200 to 800 BC are also presumed to have existed in this area but no archaeological evidence has yet been discovered to support this.

olimnology (study of inland waters and ecosystems). Tree-ring analyses provide invaluable insight into the climatic and environmental conditions (cycles of forest clearance and settlement relocation) and are an excellent source for climate research.

Archaeobiology and Archaeozoology

The waterlogged archaeological layers of pile-dwelling settlements contain large quantities of plant remains and animal bones. The excellent preservation of organic material provides exceptionally good conditions for studies of the economy of early farming societies. Archaeobotanical and archaeozoological studies of the botanical and faunal macro-remains are standard for the research of pile-dwelling settlements and allow conclusions about the economy and the environment.

Not many other types of sites in Europe have preservation conditions as favourable as the pile dwellings. This applies to bones of mammals, birds, amphibians and fish as well as remains of cultivated plants and the natural vegetation from the environs of the settlements ↘ Figs. 2.66–2.68. In contrast, the poor conditions at dryland sites result in a distortion of the range of plants in that the taxa with a greater likelihood and ability of becoming charred are overrepresented. This applies to cereals for instance. Wild herbs and gathered plants, on the other hand, are underrepresented.

The lakeside settlements thus not only provide comprehensive and direct insight into prehistoric diet but also help to interpret the finds from dryland sites. Moreover, thanks to dendrochronology, the sequence of events can be dated rather precisely. Beyond the possibility of carrying out systematic analyses of the nutritional basics, lakeside settlements often give detailed information about the actual 'menu' of the time. The ceramic vessels often contain burnt food remains. Loaves of bread found in a small number of pile-dwelling settlements are of particular significance. This is the earliest evidence of a staple food that has retained its importance to this day ↘ Fig. 2.69.

The archaeobotanical analyses show that people gathered various berries, nuts and wild fruits. More difficult to identify are edible roots, mushrooms and leafy plants that may have been consumed as vegetables or salads. Birds' eggs and honey were much sought-after delicacies. Fish scales, vertebrae and other bones as well as fishing equipment shows that fish were caught with nets, traps, rods and harpoons.

Animal bones are among the most frequent finds recovered from settlement layers. Kept in herds, the cattle, pigs, sheep and goats not only provided meat for the settlers, but also bone and other raw materials such as hides, horns and sinews. The herds, initially small, only filled a limited amount of the daily calorific requirement; milk and cheese were probably still only consumed in small amounts. Around 4000 BC, livestock was still fed in wood pastures, and in the wintertime the animals would have been fed on dried leaves of ash, beech and other trees. The enormous workload and limited nutrition this type of fodder offered restricted herd sizes. It was only when open grasslands were extended in the 3rd millennium BC that farmers were able to keep larger cattle herds.

The terrain surrounding the lakes north and south of the Alps varied. The analysis of plant remains and pollen from lake deposits allow us to study the ecological conditions in detail. The beach faces, sometimes flooded and without topsoil, were not suited for agriculture. The fields were located in clearings in the dense forest, and later in the ever-expanding environs of the villages.

Fig. 2.66
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Fig. 2.67
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Fig. 2.68
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Fig. 2.69 Bread. Even today bread is one the most basic food staples in most parts of the world. The oldest examples stem from pile-dwellings in Switzerland: Black (left) is the original item as excavated, and brown (right) the modern product (Zug–Galgen, Galgenbächli, Lake Zug).

Social difference

The finds recovered from Hornstaad (DE-BW-03, Lake Constance) show social differences within the village: some of the families had prestigious objects among their possessions and were in contact with the southern Alpine region and specialised in the manufacture of bead jewellery. Food remnants from Arbon–Bleiche 3 (CH-TG-01, Lake Constance) suggest that the economy within the village was divided: the people living in the landward quarter ate more beef and fish that were mainly caught close to the shore whereas the inhabitants of the lakeward houses ate more pork and fished in open water ↘ **Fig. 2.70**.

↘ **p. 119**

Fig. 2.70 The northern and southern halves of the village Arbon–Bleiche 3 (CH-TG-01) showed differences in animal husbandry and also in their respective fishing methods.

Climate research

Other scientific disciplines applied in pile-dwelling research are palynology (analysis of pollen), sedimentology and pedology (analysis of sediments and soils), malacology and entomology (analysis of molluscs and insects). Archaeological layers of waterlogged sites and especially prehistoric pile-dwelling sites can be seen as archives for climatic signals ↘ **text box**. In many cases the layers of pile-dwelling sites bear great potential for future climate change research. The precise dating possibilities in lake-dwellings research by means of dendrochronology shows that the felling dates represent only particular time periods. However, since these periods are similar everywhere from the French Jura Mountains to Upper Swabia, there must be an overriding explanation for this phenomenon: the beryllium levels in the GISP2 ice core in Greenland indicate that solar activity rose during these periods, which meant that the weather was slightly warmer and drier (1–2 °C warmer than today). This led to reduced lake levels and partial drying out of the beach faces so that they could be used as settlement locations during the warmer periods. However, the different bodies of water did not always react in exactly the same way – depending on their location, size and tributaries – so that we do not yet understand all the details of the system.

The deterioration of the climate led to famine

While studying animal bones from Neolithic pile-dwelling settlements, archaeozoologists have noticed that the ratios of domesticated and wild animals could change significantly over time. The wild animal bones from sites dating from between 4000 BC and 3800 BC ranged around the 30% mark, gradually decreasing to below 10% at sites dating from between 3500 BC and 2500 BC. The period around 3700/3600 BC, on the other hand, stands out due to animal bone amounts climbing above 50%. This period coincides with the so-called Piora I cold phase. This phase lasted for some 200 years and can be identified in pollen analyses and glacier advances. It is generally believed that the average temperature dropped by 2.5 degrees Celsius.

Because of this climatic deterioration, the harvest yields decreased from 3700 BC probably throughout the entire Swiss Plateau. The evidence from the pile-dwelling settlements illustrates the flexibility of prehistoric societies in dealing with such crises. The climatic conditions led to a shortage of cultivated plants. In order to compensate for this loss, the numbers of domestic animals would need to be increased. In reality, however, this is not an option because other factors limit the growth of domestic animal hers (e.g. the supply of fodder in the winter months). The only possibility of balancing the shortage of crop yields open to early agrarian societies lay in (once more) intensifying hunting and fishing.

Increased hunting activity left its mark on wild animal populations, particularly on the numbers of deer. Young pre-adult animals were killed increasingly more often. This can be seen in the animal bones from pile-dwelling sites. Deer antler as an important raw material for the manufacture of tools became scarcer and this led to technological adjustments.

2. Description

2.a Description of Property

↖ **p. 82 Fig. 2.2** 'The Three Lakes Region' of Western Switzerland has an extremely high density of prehistoric settlements, containing almost 200 known pile-dwelling sites. The picture shows Muntelier (Lake Morat, canton Fribourg), where a cluster of seven settlement areas is documented.

↖ **p. 82 Fig. 2.3** Numerous sites at Lake Zug (Central Switzerland) are situated between the Swiss Midlands and the foothill zone of the Alps.

↖ **p. 82 Fig. 2.4** Lake Federsee is one of the richest pile-dwelling areas north of the Alps (Baden-Württemberg, Germany). The region was formed by Alpine glaciers during the last Ice Age. In the background the Alps of Switzerland and Austria can be seen.

↖ **p. 82 Fig. 2.5** At Ljubljansko barje Slovenia, the vast bogs in the vicinity of Ljubljana form a typical wetland landscape at the foothills of the South-Eastern Alps.

↖ **p. 82 Fig. 2.6** The pile-dwelling sites in the lakes of the Savoyan Alps (France) are situated at the western periphery of the pile-dwelling phenomon.

↖ **p. 82 Fig. 2.7** View of Lake Zug showing the associated site of Cham–Eslen (canton of Zug, Switzerland)

↖ **p. 82 Fig. 2.8** Typical bog landscape showing the site of Noréaz–En Praz des Gueux (CH-FR-07).

↖ **p. 82 Fig. 2.9** Most pile-dwelling sites are to be found in lakes and bogs. Only few are situated in the flood plains of rivers (view of Palù di Livenza (IT-FV-01)).

↖ **p. 82 Fig. 2.10** The small Lake of Inkwil (bordering cantons Solothurn and Berne) contained in the moraine landscape formed by the Alpine glaciers of the last Ice Age. Lakes of this type are often located in the transition area between mountainous regions and surrounding fenlands.

↖ **p. 83 Fig. 2.11** Aerial view of Neolithic settlements located on the shallow submerged plateau of the northern shore-line of Lake Constance (Sipplingen-Osthafen, DE-BW-09).

↖ **p. 83 Fig. 2.12** Prehistoric pile-dwelling settlements located at steep shore-line areas are very rare. The site of Stansstad-Kehrsiten (CH-NW-01) on Lake Lucerne is therefore of special interest

↖ **p. 83 Fig. 2.13** Peninsulas and islands ↘ **Fig. 2.14** were highly attractive locations for prehistoric pile-dwelling communities. Aerial view of the site of Seengen-Riesi (CH-AG-02, Lake Hallwil).

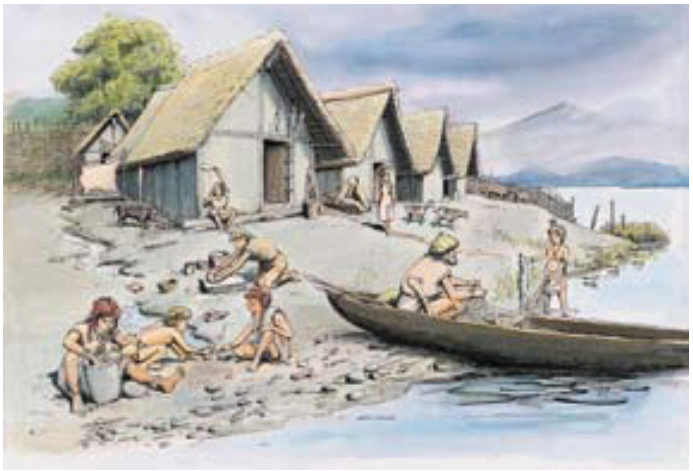
↖ **p. 83 Fig. 2.14** Peninsulas ↘ **Fig. 2.13** and islands were highly attractive for prehistoric pile-dwelling communities. View of the site of Rose Island (DE-BY-03, Lake Starnberg).

↖ **p. 83 Fig. 2.15** Archaeological strata form a 'layer cake'-style stratigraphy of black cultural deposits and white natural sediments. Stratigraphies of this type are characteristic for sites at Lake Zurich (Underwater view of Erlenbach-Winkel, CH-ZH-01, Lake Zurich).

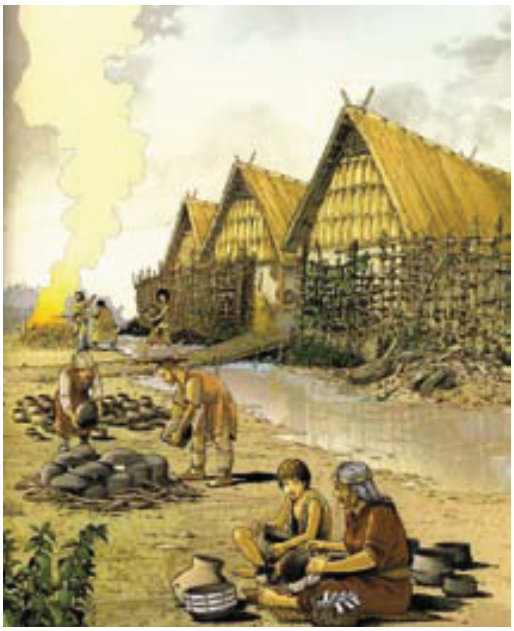
↖ **p. 83 Fig. 2.17** A view of Lake Constance during an exceptionally low lake-level period in January 2006. The black and brown dots are Neolithic construction piles of the associated site Maurach-Ziegelhütte: usually submerged and unseen by the covered water (Baden-Württemberg, Germany).

↖ **p. 83 Fig. 2.18** Sites on dry land are covered by topsoil, peat and sediment layers. Here, the dark band of the archaeological layer from the Neolithic site Arbon–Bleiche 3 dated about 3400 BC is clearly visible (CH-TG-01, Lake Constance).

↖ **p. 83 Fig. 2.19** Impression of Daily life 5000 years ago. Artistic reconstruction of the Neolithic village of Cham–St. Andreas, Strandbad (CH-ZG-01; Lake Zug).



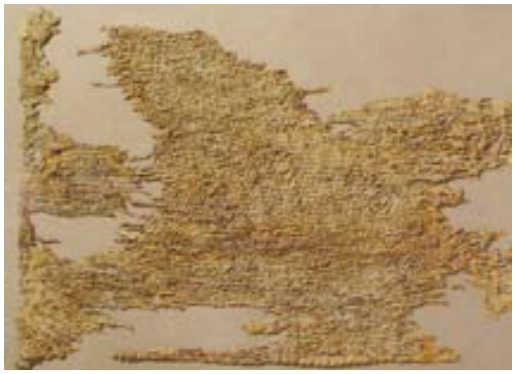
↖ **p. 83 Fig. 2.20** Impressions of daily life at a prehistoric pile-dwelling village. Artistic reconstruction by comic writer-drawer André Houot.



↖ **p. 84 Fig. 2.21** Wood is a perishable material surviving time only under special conditions. Wooden artifacts from pile-dwelling sites are one of the outstanding preserved archaeological features (Fiavé, IT-TN-02).

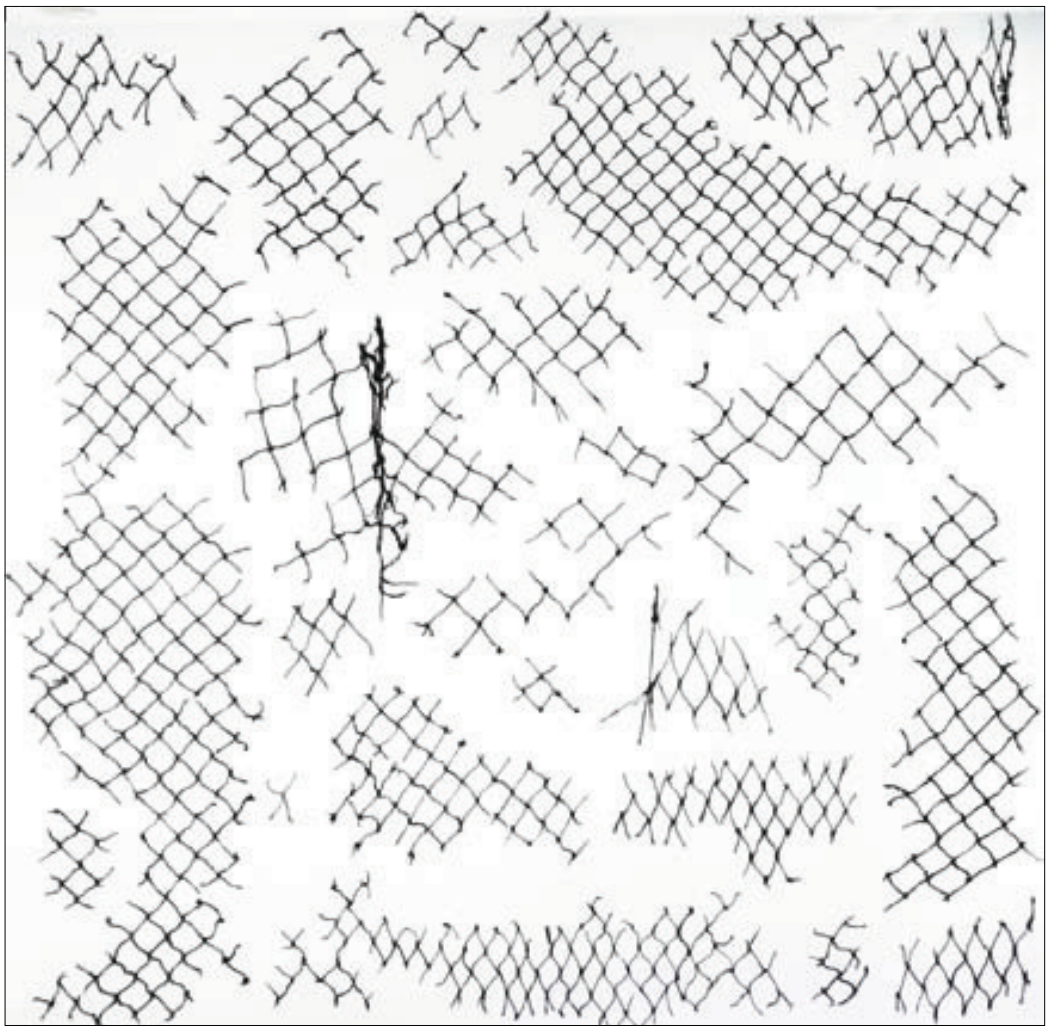
↖ **p. 84 Fig. 2.22** Footwear from pile-dwelling sites gives testimony to extraordinary good conditions of preservation in wetland sites.

↖ **p. 84 Fig. 2.23** The oldest textiles in Europe stem from pile-dwelling sites. These 5000 year old woven fabrics exemplify again the astonishing good state of conservation.



↖ **p. 84 Fig. 2.24** Narrow panel of cloth from Twann–Bahnhof (CH-BE-07).

↖ **p. 84 Fig. 2.25** Fragments of fishing-nets: a special type of textile product (Sutz-Lattrigen, CH-BE-06, Lake Bienne).



↖ **p. 84 Fig. 2.26** One of the oldest evidence of a complex farming tool: hook plough from the site of Lavagnone. (IT-LM-01).

↖ **p. 84 Fig. 2.27** Wood working tools from pile dwellings. Complete axes with wooden shafts, some equipped with antler sleeves, are found regularly in Neolithic pile-dwelling sites.

↖ **p. 84 Fig. 2.28** Wood working tools from pile-dwellings. During the Bronze Age the more sophisticated metal axes increasingly replaced the traditional stone axes (Auvernier–Nord, Lake Neuchâtel).

↖ **p. 85 Fig. 2.29** The extraction and working of metal can be considered as a 'technological revolution'. Neolithic alembics and copper artifacts from Slovenian pile-dwellings sites (SI-IG-01–SI-IG-02).

↖ **p. 85 Fig. 2.31** Finely worked swords from Lake Neuchâtel testify to high standards of Bronze Age metallurgy (Switzerland).

↖ **p. 85 Fig. 2.30** Neolithic alembic and copper axes from Reute Schorrenried in the Lake Federsee area (DE-BW-20).

↖ **p. 85 Fig. 2.32** Baroque decorated bronze needles. Late Bronze Age objects from Lake Neuchatel (Switzerland).

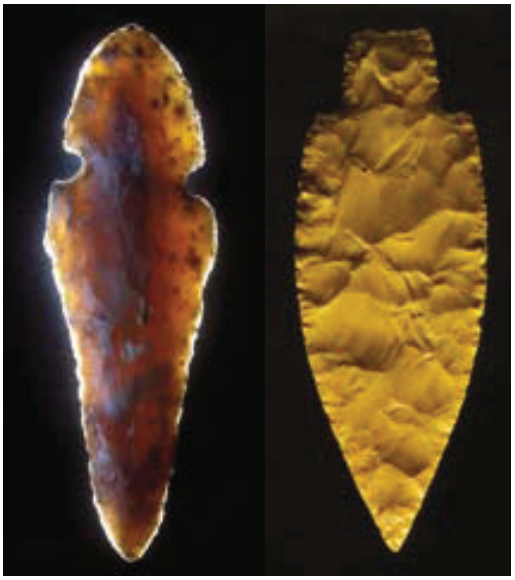
↖ **p. 86 Fig. 2.33** Flint blades of the so-called Grand Pressigny type originating from the Paris basin in France give testimony to prehistoric long distance trade. Items from Lake Neuchatel (Switzerland).

↖ **p. 86 Fig. 2.34** Jewellery in general, and especially amber, was one of the most precious products in Bronze Age pile-dwelling sites. Example from Hüttwilen–Nussbaumersee (CH-TG-05, Lake Nussbaum, Switzerland).

↖ **p. 86 Fig. 2.35** Early Bronze Age gold plated amber pearl from the associated site Zurich–Grosse Stadt Mozartstrasse (Lake Zurich, Switzerland).

↖ **p. 86 Fig. 2.36** Ceramics of the Danubian Baden-Boléraz typ found in the pile-dwelling site of Arbon–Bleiche 3 (CH-TG-01, Lake Constance, Switzerland).

↖ **p. 86 Fig. 2.37** Flint daggers from the neolithic. Either the raw material for these exceptional objects or the object itself was imported over great distances from Italy to the region North of the Alps (Rose-Island, DE-BY-03, right and Arbon–Bleiche 3, CH-TG-01, left).

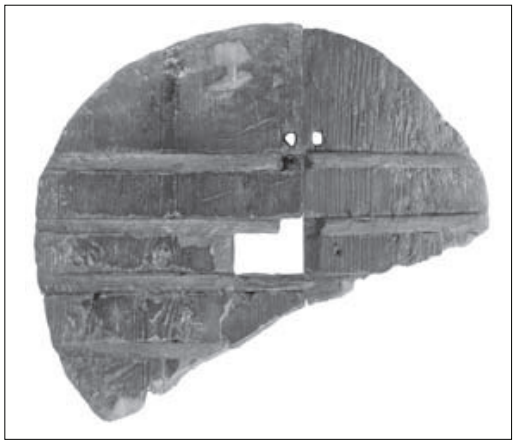


↖ **p. 86 Fig. 2.38** Half finished Bronze Age dugout canoe from Erlach–Heidenweg (Lake Bienne, Switzerland), built around 1550 BC.

↖ **p. 86 Fig. 2.40** The oldest wheels in the world have been found in numerous pile-dwelling sites (Disc wheel from Saint-Blaise–Bains des Dames, Lake Neuchâtel, Switzerland).

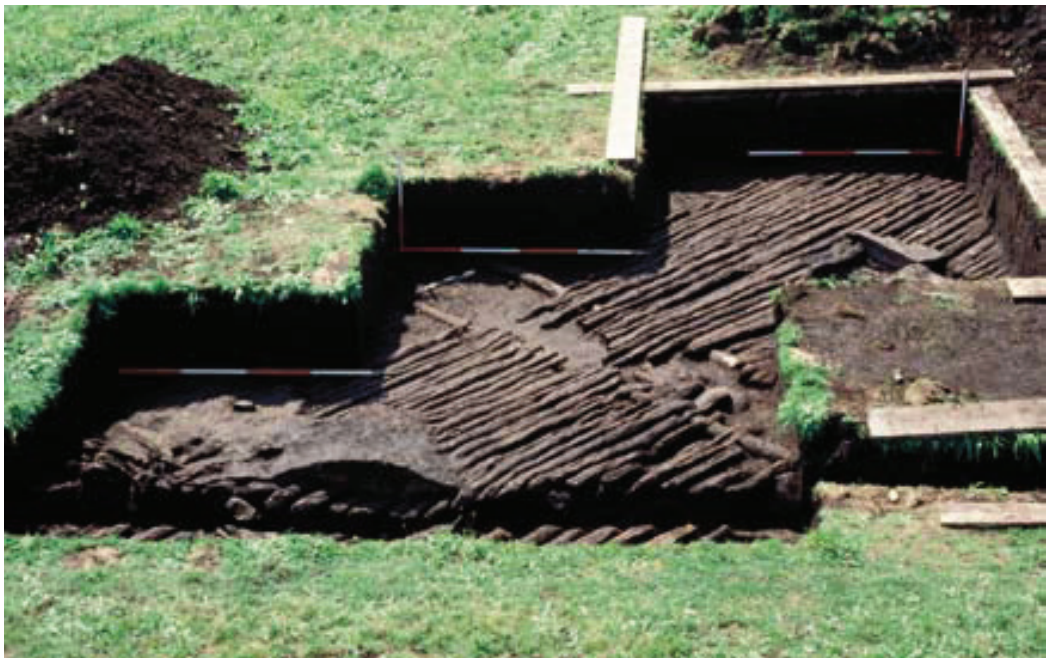
↖ **p. 86 Fig. 2.39** Paddles are essential for moving logboats. Examples from Zug-Chollerpark (Lake Zug, Switzerland).

↖ **p. 86 Fig. 2.41** The ash wood planks are held together by oak wood dowels (Disc wheel from Stare gmajne, Ljubljansko barje, Slovenia).



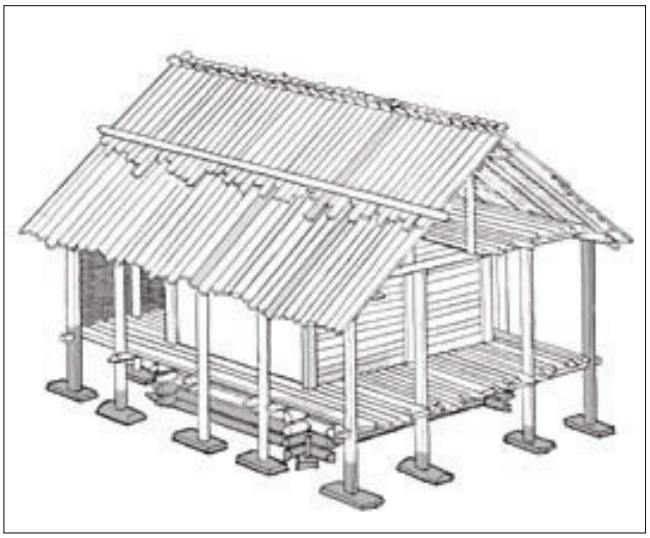
↖ **p. 86 Fig. 2.42** Not only wheels have been found. In a few cases also the axles have shown up. Axle and wheels were used for two-wheeled carts (Zurich–Pressehaus, Lake Zurich, Switzerland).

↖ **p. 86 Fig. 2.43** Example of ground level constructions. A section of wooden floor from the bog pile-dwelling site of Alleshausen-Grundwiesen (DE-BW-13).

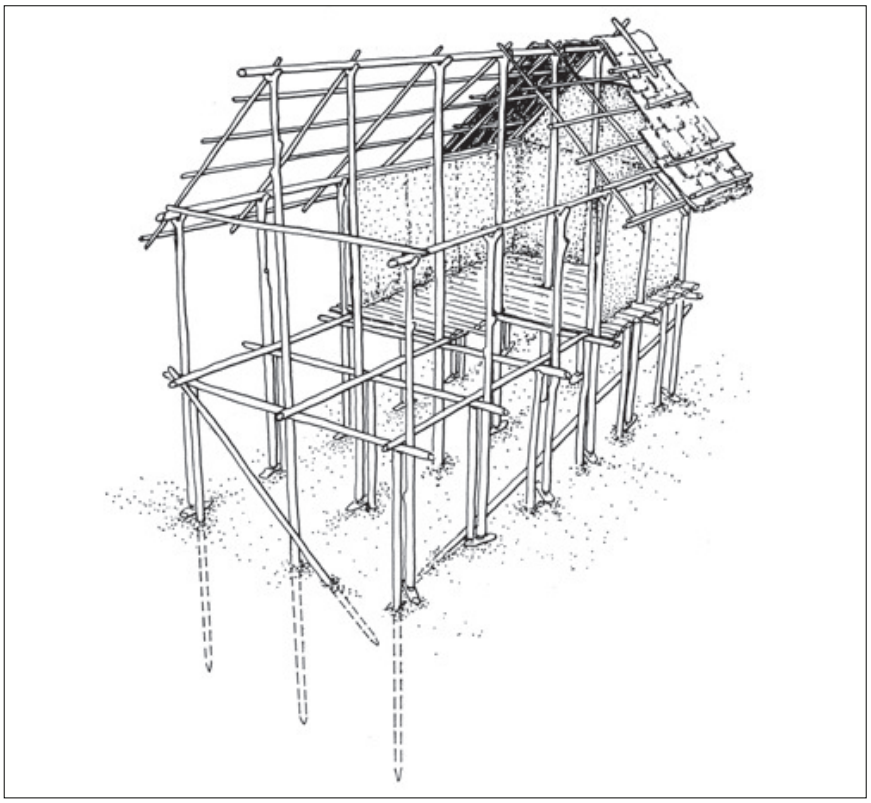


↖ **p. 86 Fig. 2.44** Prehistoric villages were often protected by palisades (Fiavé, IT-TN-02).

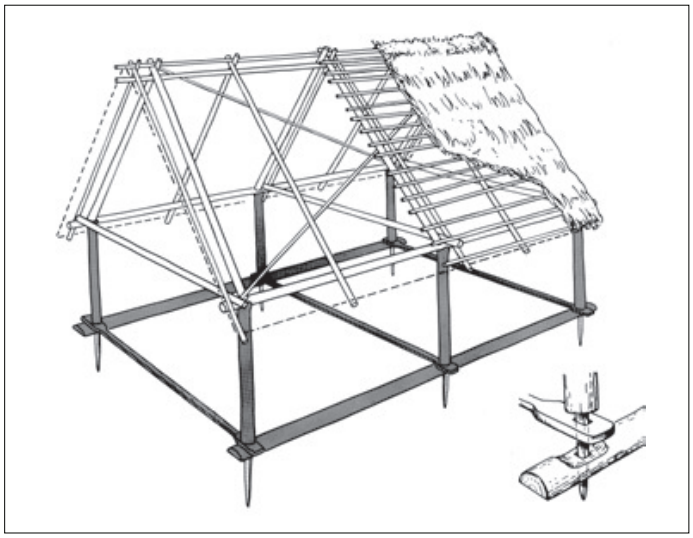
↖ **p. 86 Fig. 2.45** Example of raised constructions with floors built above the ground (Greifensee-Böschen, Lake Greifensee, Switzerland).



↖ **p. 86 Fig. 2.46** Example of raised constructions with floors built above the ground (Hornstaad-Hörnle IA, DE-BW-03, Lake Constance).



↖ **p. 86 Fig. 2.47** Example of a sill beam construction built directly on the ground (Zürich–Grosse Stadt Mozartstrasse, Lake Zurich, Switzerland).



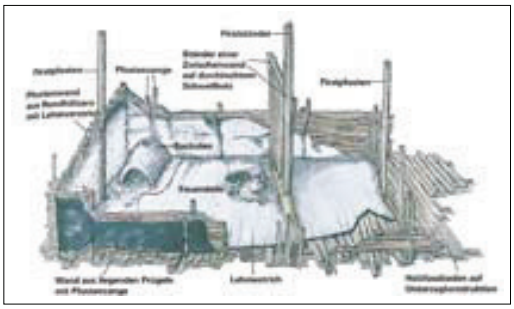
↖ **p. 87 Fig. 2.49** Wooden shingle. A roof construction element of a Bronze Age building (Steinhausen–Chollerpark, Lake Zug, Switzerland).

↖ **p. 86 Fig. 2.48** Wooden base-plate. This construction element was used in Bronze Age buildings to stop support piles from sinking into the clay (Zug–Sumpf, CH-ZG-06).

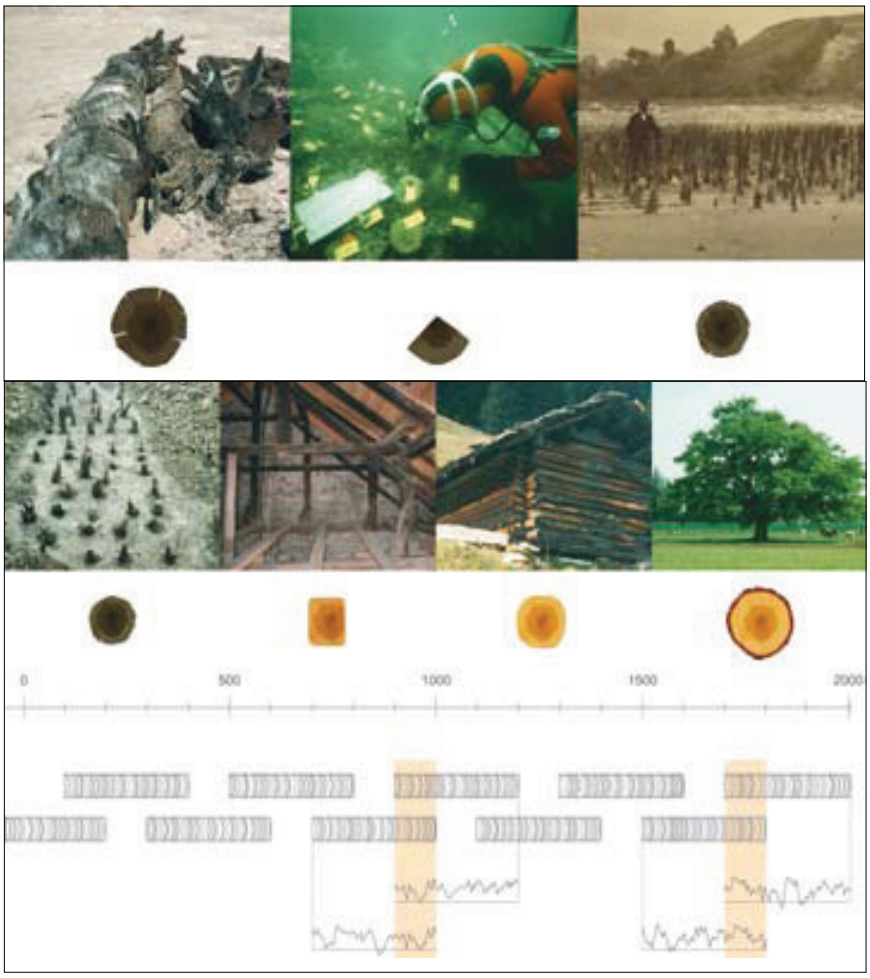
↖ **p. 87 Fig. 2.50** Ancestor worship? Female breasts and painted fragments of plaster from the ritual bulding in Ludwigshafen-Seehalde (Lake Constance, Germany).

↖ **p. 87 Fig. 2.51** Log beams of the Late Bronze Age building of Zug–Sumpf (CH-ZG-06, Lake Zug).

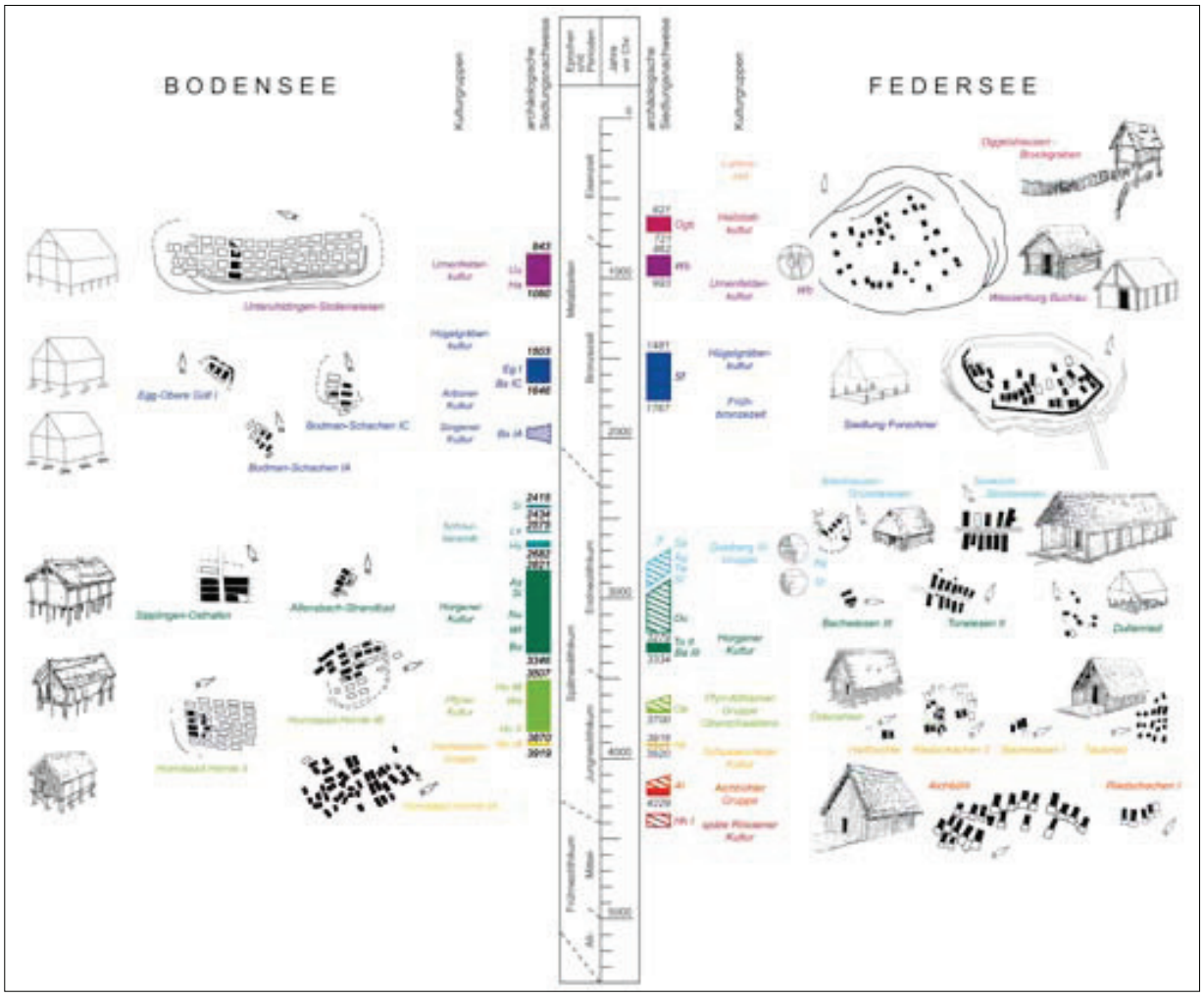
↖ **p. 87 Fig. 2.52** Reconstruction of the interior of a Neolithic pile-dwelling building (Taubried, Upper Swabia, Germany).



↖ **p. 87 Fig. 2.54** Dendrochronology.



↖ **p. 87 Fig. 2.53** Development of house and settlement types during the Neolithic and Bronze Age Periods in the regions of Lake Constance and Lake Federsee (Germany).

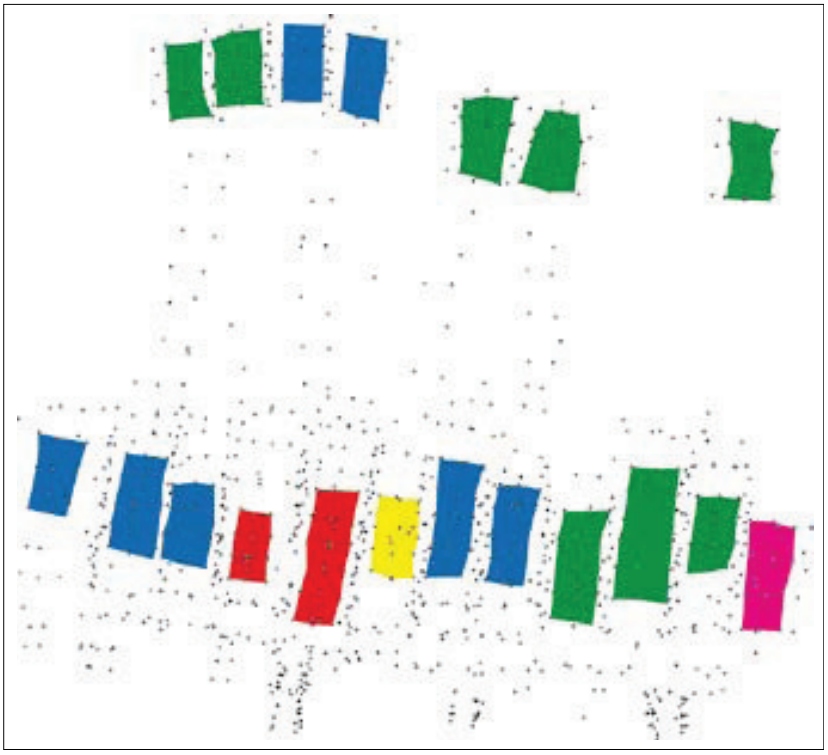


↖ **p. 87 Fig. 2.55** Cortaillod-Est (Lake Neuchatel, Switzerland): Part of the settlement built according to a pre-established plan between 1010 and 1001 BC [bold]. The palisade has been built in 1005 and extended to the west and the east during winter 992/991 BC. The peripheral fence was constructed in several stages between 994 and 985 BC. Repairs and extensions of the village were carried out sporadicaly until 965 BC.

↖ **p. 87–90 Fig. 2.56** Sutz-Lattrigen (Lake Bienne, Switzerland). Plan of Neolithic and Bronze Age settlements, dated 4600–1600 BC.

↖ **p. 89 Fig. 2.58** Favorable locations on lakeshores were often resettled time and time again. Thus, compacted layers can form above or next to each other within a small area. With the help of scientific dating methods the individual settlements can be accurately dated (Zürich–Grosse Stadt-Mozartstrasse, Lake Zurich, Switzerland).

↖ **p. 89 Fig. 2.57** Sutz-Lattrigen–Riedstation (Lake Bienne, Switzerland). Plan and building history of the Neolithic settlement, dated 3393–3388 BC. ■ 3393 BC, ■ 3392 BC, ■ 3391 BC, ■ 3390 BC, ■ 3389 BC.



↖ **p. 89 Fig. 2.59** Prehistoric ceramic vessels.
Neolithic examples from the Mondsee-Group (Upper Austria).

↖ **p. 89 Fig. 2.60** Prehistoric ceramic vessels. Neolithic examples from Switzerland (Muntelier–Baie de Muntelier, CH-FR-06, Lake Morat).

↖ **p. 89 Fig. 2.61** Prehistoric fishing equipment. Neolithic antler harpoons from Lake Morat, Switzerland.

↖ **p. 89 Fig. 2.62** Bronze Age hat from Fiavé (IT-TN-02): the viburnum shoots were woven onto a spruce frame.

↖ **p. 89 Fig. 2.63** Prehistoric braiding equipment. Neolithic wooden baskets from Switzerland (Zürich–Enge Alpenquai, CH-ZH-09, Lake Zurich).

↖ **p. 89 Fig. 2.64** Prehistoric chewing gums. Birch tar was used as glue. To make it soft it was probably chewed. Marks of teeth can still be clearly recognized. Neolithic examples from Hornstaad-Hörnle IA (DE-BW-03, Lake Constance).

↖ **p. 92 Fig. 2.66** The oxygen-poor archaeological layers of pile-dwelling sites are perfect biological archives for plant remains. Complete charred ears of grains attracted attention from botanists already in the 19th century.

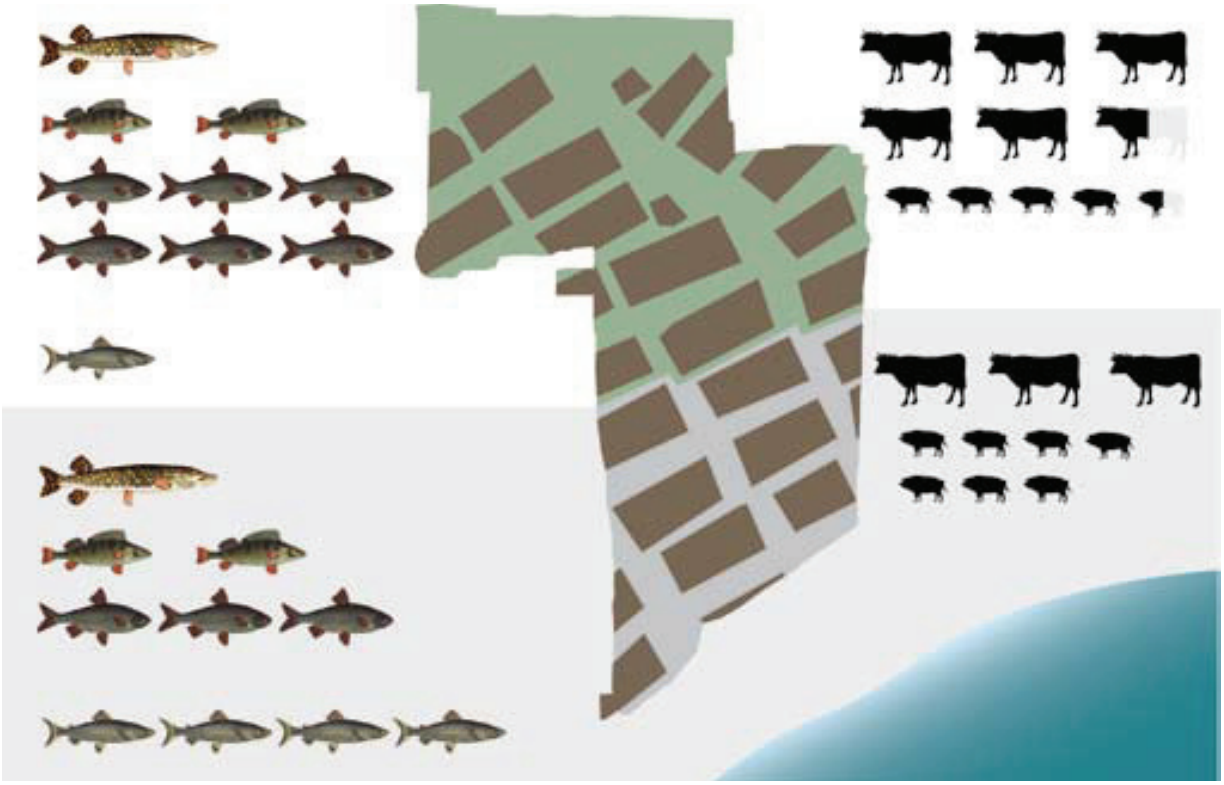
↖ **p. 89 Fig. 2.65** Prehistoric tools made of a combination of different materials (bone, sinew, wood, birch bark, birch tar). Heckles and combs from Lake Bienne, Switzerland.

↖ **p. 92 Fig. 2.67** Uncharred seeds and fruits are common in prehistoric pile-dwelling layers from the Neolithic and the Bronze Age (Arbon–Bleiche 3, CH-TG-01).

↖ **p. 92 Fig. 2.68** Animal bones from mammals served as a useful raw material for several kinds of tools.

↖ **p. 92 Fig. 2.69** Bread. Even today bread is one the most basic food staples in most parts of the world. The oldest examples stem from pile-dwellings in Switzerland: Black (left) is the original item as excavated, and brown (right) the modern product (Zug–Galgen, Galgenbächli, Lake Zug).

↖ **p. 93 Fig. 2.70** The northern and southern halves of the village Arbon–Bleiche 3 (CH-TG-01) showed differences in animal husbandry and in their respective fishing methods.



2.b History and Development

The Chapter 'History and Development' is divided into four sections. The first part describes the forming of the pre-Alpine lacustrine landscape which offered the conditions required for the preservation of numerous pile-dwelling sites throughout the foothills of the Alps. This section is followed by a chronological overview for each country of the development of more than 30 cultural groups that existed during the pile-dwelling era between 5000 and 500 BC. The third part deals with the human impact on the lakes and bogs in historic periods while the final section is devoted to the discovery of the pile dwellings in the 19th century and the research history of the 20th century. Further detailed information on the individual sites is given in ↘ **Volume II, Id-files**.

2.b.1 Development of the pre-Alpine lacustrine landscape

The landscape in the foothills of the Alps was greatly impacted by the Ice Ages. The glaciers of the Würm glacial grounded out existing hollows or created new ones and deposited rubble on their margins, thus forming end and lateral moraines. These so-called glacial scour basins were filled with water after the glaciers had retreated, which led to the formation of numerous lakes.

Most of the medium-sized and large lakes in the foothills of the Alps were created by this process. Typical examples of glacial scour lakes are Lake Constance (Switzerland / Germany / Austria), Lake Garda (Italy) and also medium-sized lakes such as Lakes Hallwil, Baldegg, Greifensee and Pfäffikon (Switzerland) but also the French Jura lakes Lake Chalain and Lake Clairvaux. Tectonic breaks (fractures) during orogeny (mountain-building) can also impact on the formation and shaping of lakes, as in Lake Geneva (Switzerland / France), for instance, or Lake Lucerne (Switzerland).

Other lakes are simply the remains of lakes that had been considerably larger in the Late Glacial period such as the three lakes in the Swiss Jura region (Lakes Neuchâtel, Bienne and Morat). These were created by effluence, silting up and depositing of till that caused the regression of a post glacial lake called Lake Solothurn.

Sometimes glaciers did not melt regularly. Blocks of ice were left behind and covered over by a layer of sand that was gradually brought in by melt water. This layer of sand served as insulation against the radiation of the sun, thus leading to the formation of so-called dead ice. When this ice finally melted, its surfaces collapsed and dead-ice holes were created. If the area was located below the groundwater table, these holes filled up with groundwater which let to the creation of a lake. Typical examples of dead ice lakes are Lake Inkwil or Lake Nussbaumen (Switzerland).

The morainic areas south of the largest ancient glaciers of northern Italy (i.e. those of Ivrea, Trana, Lake Maggiore, Lake Garda) are characterized by the presence of small lacustrine hollows originated from the barriers created by the morainic hills. At present these basins are completely or partially dried-up, but in the early last Post-glacial they were lakes, whose ancient shorelines are detectable in the all-around geomorphological slopes.

The Ljubljansko barje is nowadays a marsh area in central Slovenia and has a different origin in comparison with the other lakes and wetlands around the Alps. It was formed by the submersion starting two million years ago, a process which is still active with a rate of about one meter in 500 years. Water, sediments and deposits subsequently filled all the depressions. Surface waters carry large quantities of gravel and sand during high water level and quickly filled large areas. These surface waters have been filling the area for thousands of years in this manner, forming lakes with their clay deposit. The last lake was formed at the end of the Ice Age. During the 2nd millennium BC the Holocene lake disappeared and peat started to grow.

2.b.2 Chronological summary of the pile-dwelling period

The region left behind by the glaciers was gradually occupied by humans during the Late and Postglacial period. The remains of these settlements survived in numerous sites thanks to the excellent preservation conditions ↘ cf. Chapter 2.a.

While the earliest evidence of farming and animal husbandry that has come to light along the coastline of the western Mediterranean and on the loess soils north of the Alps dates from as early as the 6th millennium BC, the state of research for this period in the foothills of the Alps is still rather limited due to a lack of suitable sites. Our knowledge only improves with the earliest occurrence of pile dwellings south of the Alps in Biandronno–Isolino Virginia (IT-LM-09) dating from about 5000 BC. The earliest pile-dwelling settlements north of the Alps date from 4300 BC (Egolzwil 3, CH-LU-01), Zürich–Grosse Stadt Kleiner Hafner (CH-ZH-10) or Aichbühl. This sets off the period of 'pile dwellers', whose culture and way of life can be traced over thousands of years in the wetland areas.

The levels of many of the lakes displayed considerable fluctuations over the course of time which led to a dynamic process of villages being built, flooded, abandoned and finally eroded and / or covered by calcareous mud. Therefore, not all periods are represented to the same extent by lakeside settlements.

Palynological analyses have, for instance, provided evidence of two periods of climate change that occurred during the Neolithic period in the west-Alpine region; these periods have been named Piora I and II and have been dated to approximately 4100–3800 BC and 3600–3200 BC. They are mirrored in the Eastern Alps by the two almost contemporaneous Rotmoos fluctuations. Based on sedimentological analyses carried out in the northern foothills of the Alps and in the French Jura region, these two phases were parallelised with phases of elevated lake levels (phases of transgression) (Magny 1992).

The Middle Bronze Age coincided with another cold period, the so-called Löbben phase. There are no pile-dwelling sites, exept northern Italy, where the phenomena flourished also during the middle Bronze Age. As a general rule, one may state that during more favourable and dry periods, the lake levels were low and the exposed beach faces of the lakes were occupied. Rather long periods of warm climate, on the other hand, occurred from 2800–1900 BC and from 1300–800 BC. Another extended cold phase can be dated to 850–800 BC, which finally triggered the end of the occupation of most of the foreshores.

Except for these gaps the pile dwellings cover a period of about 4500 years ↘ Figs. 2.71–2.73. A detailed overview of the complex history concerning more than 30 different cultural groups would be too long to comment in this publication. Therefore a tabular form has been chosen.

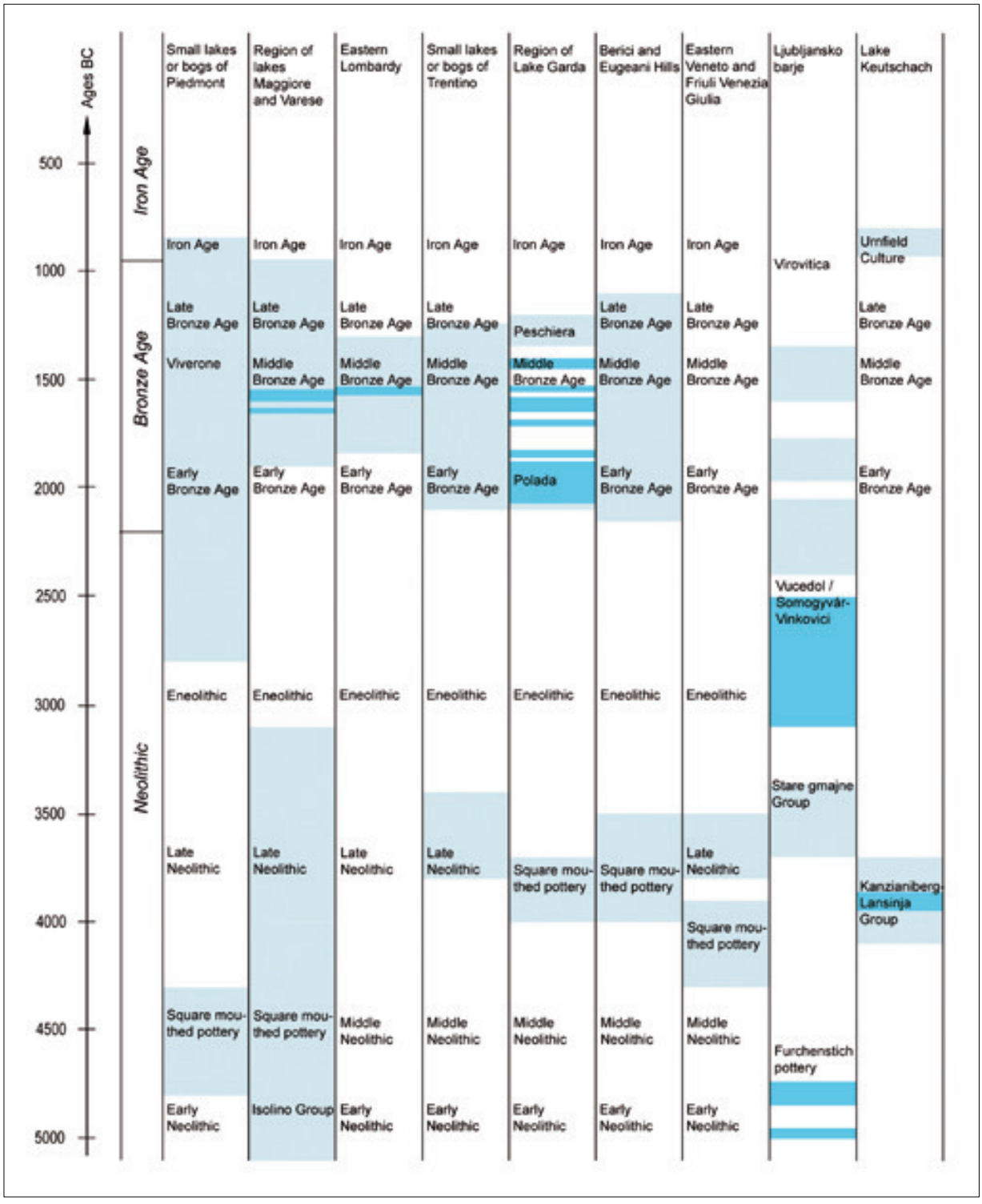


Fig. 2.71 Overview of the chronological development from the Neolithic to the Early Iron Age south of the Alps.

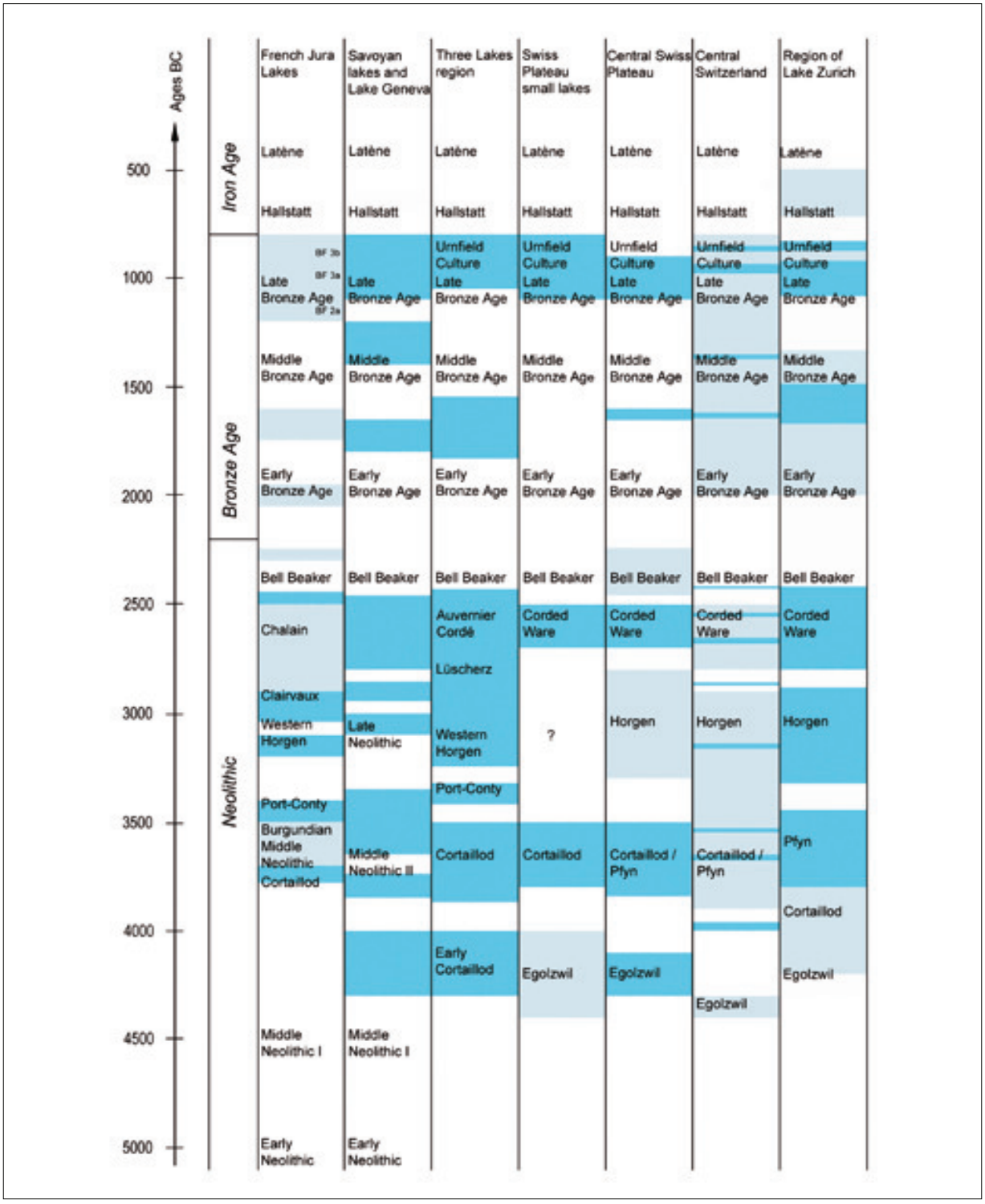


Fig. 2.72 Overview of the chronological development from the Neolithic to the Early Iron Age north of the Alps (western part).

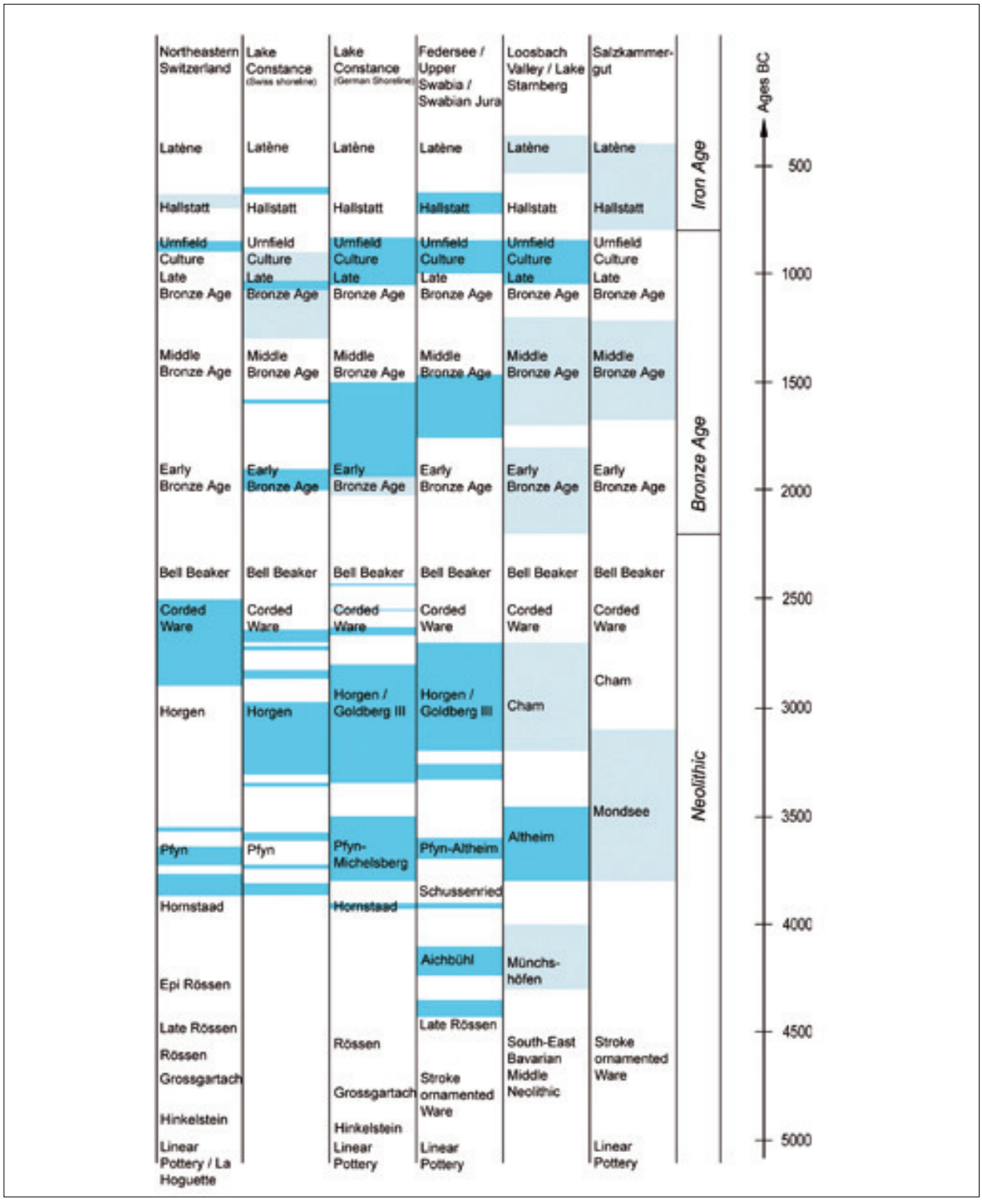


Fig. 2.73 Overview of the chronological development from the Neolithic to the Early Iron Age north of the Alps (eastern part).

Switzerland

Neolithic

Analyses of pollen cores and small assemblages of finds suggest that a neolithicized population lived in Switzerland as early as the 6th/5th millennium BC. However, tangible evidence of the Neolithic period in the Swiss Midlands only started to emerge with the earliest pile-dwelling settlements from c. 4300 BC onwards. These settlements have been attributed to the Egolzwil Group, so called after the site Egolzwil 3 (CH-LU-01), which also included other sites in Wauwil Bog, on Lake Zug and on lower Lake Zurich (for example Zürich–Grosse Stadt Kleiner Hafner, CH-ZH-10. Palynological analyses in Egolzwil 3 have clearly shown that the lifestyle was fully Neolithic, characterised not only by permanently occupied villages but also by an economy based on farming and animal husbandry.

While evidence of this early phase of the lakeside settlements has also been found in the western half of what is today Switzerland, these sites have not yet been sufficiently studied and published so that it is not yet possible to make detailed statements (Corcelles-près-Concise–Stations de Concise, CH-VD-05; Äschi SO–Burgäschisee Ost, CH-SO-01).

Archaeological traces of settlements start to increase from the mid 39th century BC onwards. Settlements of the Cortaillod tradition named after the site Cortaillod–Petit Cortaillod (CH-NE-05) and dating from the subsequent centuries are known from almost all of the lakeshores. The Cortaillod Culture extended across Central Switzerland and to the lakes of Zurich and Pfäffikon. Judging by the stylistic development of the pottery it evolved seamlessly from the Egolzwil Group and its development can be traced in the stratigraphic sequence of the site Zürich–Grosse Stadt Kleiner Hafner (CH-ZH-10).

Subsequently, influences from the east emerged and became manifest in the Pfyn Tradition (called after the associated site Pfyn–Breitenloo, Canton Thurgau), which spread into Central Switzerland up to the lakes of Baldegg and Lucerne. The people of the Pfyn Group were already using copper. The necessary know-how had come from the east.

The pottery shows a gradual transition from the Pfyn Group to the Horgen Culture: the tendency towards simpler cylinder-shaped cooking pots with thick walls had already started earlier and experienced a highpoint in the Horgen Culture. Smaller vessels were now mainly made of wood and well preserved examples have been recovered at various sites.

The transition from Pfyn to Horgen occurred during the phase Piora II (see above) and is thus not very well represented at the lakesides. An important site from this transition period is Arbon–Bleiche 3 (CH-TG-01), which has been dated dendrochronologically to between 3384 and 3370 BC.

Towards the end of the Cortaillod and the following Port-Conty period (around 3400 BC) Western Switzerland also suffers a reduction of pottery types and quality, but the ceramic forms still show a western tradition. In Western Switzerland no tangible evidence has been found, either for the transition from Cortaillod to the western strand of the Horgen Group called 'Western Horgen', or for the transition from Horgen to the subsequent Lüscherz Group. Yvonand–Le Marais (CH-VD-16) is the only site where a layer contained both typical Horgen and Lüscherz pottery together.

In contrast to the Western Horgen tradition, Lüscherz pottery had different types of decoration and round bases. Other characteristic features of assemblages pertaining to this culture were flint daggers made of Grand-Pressigny flint originating from the region of Tours (France), netting needles, various stone beads and copper daggers. All these artefacts were closely modelled on objects from the South of France. The Lüscherz Group is dated to 2950–2900 BC on the southern end of Lake Neuchâtel and from about 2850 BC onwards to 2700 BC in the northern area of Lake Neuchâtel and around Lake Bienne.

A further marked change in the pottery shapes occurred between 2780 and 2750 BC in Central and Eastern Switzerland with the appearance of vessels with S-shaped profiles and corded decorations typical of the Corded Ware period. To what extent this change was also linked with a change in society and attitudes is one of the great unanswered questions. While settlement finds documenting this distinctive change in Central and Eastern Switzerland have not yet been made, it has been proved that it took place within the space of 30 years at most. Cornerstones are the sites Zürich–Grosse Stadt Kleiner Hafner (CH-ZH-10) with a last tree-ring felling date of 2781 BC (Horgen Culture) and Zürich–Wollishofen Bad with 2749 BC (Corded Ware).

The lakeside settlements on Lakes Burgäschi and Inkwil formed the southwestern boundary of the distribution pattern of the Corded Ware Culture (Äschi SO–Burgäschisee Ost, CH-SO-01 or Bolken / Inkwil–Inkwilersee Insel, CH-SO-02), which extended throughout the entire western part of Central Europe and southern Scandinavia. Because this tradition is mainly represented by burial finds elsewhere in Central Europe, the pile-dwelling sites have provided important insight into Corded Ware settlement structures.

On Lake Neuchâtel some of the decoration elements adopted from Corded Ware led to the development of the Auvernier cordé typical of Western Switzerland. A stratigraphic sequence of this development was documented in Yverdon-les-Bains–Baie de Clendy (CH-VD-15).

In the second half of the 25th century BC, the occupation of the lakeshores all across Switzerland ended, but the reasons for this phenomenon have not yet been identified. Therefore, settlement traces of the Bell Beaker Culture have not been found in wetland areas, even though some individual finds have come to light (for example in Wädenswil–Vorder Au, CH-ZH-07 or in Sutz-Lattrigen–Rütte, CH-BE-06).

Bronze Age

The beginning of the Bronze Age in Switzerland is dated to about 2200 BC. This period, however, has not been documented by traces of dry-land or wetland settlements. Based on radiocarbon dating the earliest Bronze Age pile-dwelling sites probably date from the 21st/20th or 20th/19th centuries BC. An important site in Western Switzerland is Corcelles-près-Concise–Sous-Colachoz (CH-VD-05) with felling phases starting from c. 1800 BC. It was not until the period between 1650 and 1500 BC that large-scale settling of the lakeshores reoccurred, and the records become more numerous again. In eastern Switzerland this late phase of the Early Bronze Age has been called 'Arbon Culture' after the site Arbon–Bleiche 2 (CH-TG-01) on Lake Constance. Indeed the term is not used very often in archaeological publications. Usually one talks about 'Early Bronze Age' or for the period between 1800 and 1550 BC one uses the term 'Bz A2'. A characteristic feature is pottery with rich geometric decoration, which has also been found at Lake Baldegg (Hochdorf–Baldegg) and at Lake Zurich (Wädenswil–Vorder Au, CH-ZH-07).

During the advanced stages of the Middle Bronze Age and the earliest phases of the Late Bronze Age, traces of lakeside settlements are again missing, which can be attributed to the cooling down of the climate during the Löbben fluctuation which resulted in a significant rise in the lake levels. During the Middle Bronze Age settlements were erected further inland and the remains of these dwellings were only very poorly preserved in the mineral soils. Freienbach–Hurden, Rosshorn (CH-SZ-01) is the only site to have yielded finds dated dendrochronologically to the beginning of the 15th century BC. This site, however, did not contain settlement remains but traces of footpaths and bridge constructions.

Large-scale settling of the lakeshores did not recommence until the mid 11th century BC, in the phase Ha B1. Late Bronze Age villages were built on all the lake-

shores up to the mid 9th century BC. These villages were larger than their Neolithic predecessors and were occupied over a considerable length of time.

The villages belonged to the 'Urnfield Culture', a collective term referring to a shared burial rite. This Urnfield Culture, however, could display quite significant differences in terms of the material culture. The Rhine-Swiss-Eastern French pottery group (RSFO), for instance, had a western and an eastern strand in Switzerland, which also displayed differences regarding their bronze jewellery.

Hundreds of metal finds and casting implements (moulds, crucibles, tuyères, bronze ingots) recovered from lakeside settlements bear witness to the importance of bronze technology. Towards the end of this phase, the earliest iron artefacts started to appear, for instance a hollow-cast arm ring from Grandson–Corcelettes Les Violes (CH-VD-10), knives from Zürich–Grosse Stadt Kleiner Hafner (CH-ZH-10), two sword hilts from Mörigen–Bronzestation (CH-BE-04) or a vase-headed pin from Zürich–Enge Alpenquai (CH-ZH-09).

Iron Age

In the first half of the 9th century BC, settling on the Swiss lakeshores came almost everywhere to an abrupt end, which again can be attributed to a considerable rise in lake levels. Only one site is known from the Hallstatt period: On the southeastern beach of the peninsula in the Lake Nussbaumen the Iron Age settlement of Hüttwilen-Uerschhausen (CH-TG-05) was abandoned after 635 BC. This was the end of the occupation of the foreshores in Switzerland.

Austria

Neolithic

With the onset of the younger phase of the Linear Pottery culture (Linearbandkeramik) in the last third of the 6th millenium BC, regional developments in Austria become comprehensible for the first time. In Upper Austria, the Šárka group already encounters the influence of Bavarian Stroke-ornamented ware culture (Stichbandkeramik) groups which would develop into the Middle Neolithic groups of southern Germany and Bavaria (end of 6th / middle of 5th millennium BC).

In mid-5th millennium BC, the Moravian-East Austrian group of the Painted Ceramics culture spreads south-west to the Drau-Save region, and onwards into so far untouched woodlands to the south-eastern and northern foothills of the Alps and the northern edge of the Alps. In the south-eastern and southern Austrian areas, a younger Painted Ceramics culture can be found which shows influences from the Hungarian regions from about the middle of the 5th millennium, described as Lengyel complex (Kanznianiberg-Lasinja group in Carinthia).

Copper Age

In the Late Neolithic or the beginning Copper Age (ca. 4300–2300/2200 BC), a multitude of different culture groups arise from a mixture of autochtonous traditions and external influences. The first time horizon is the Epi-Lengyel, followed by the Baden culture.

The Hungarian, Slovenian and north-west Croatian influences of the Balaton-Lasinja culture bring knowledge of copper working to the region of Styria and Carinthia, which had so far not been colonized according to the current state of research. For this Late Neolithic early phase, several well stratified hill-top settlement as for example Kanzianiberg are known, influenced by the upper Italian *Cultura dei Vasi a Bocca Qua-*

drata. Parallel to these the oldest Austrian pile-dwelling station originated as an island complex in Lake Keutschacher (AT-KT-01). Its age has been proven by individual dendrochronological and radiocarbon data for the first quarter of the 4th millennium BC.

North of the main chain of the Alps, the Mondsee group starts to be discernible in its central settlement regions in the Salzkammergut and between the rivers Enns and Traun at the end of the first quarter of the 4th millennium (ca. 38th–31st century BC). The expansion of the area developed for economic use probably occurs in the context of prospection and exploitation of copper deposits. Though the villages of the Mondsee group are to be found on small hills, the formative and eponymous find locations of the Mondsee group are pile dwellings. So far, the decisive reasons of the settlers to establish themselves at the alpine foothill lake shores in Austria could not be resolved, but the trading connections already clearly show an important position of the complexes. Through imported high-quality chert from the Lower Bavarian region of the Altheim culture a direct trading connection to the pile dwelling at Mondsee–See (AT-OÖ-07) can be established. Flint tools found with the glacier mummy of Hauslabjoch, vulgo Ötzi, which show analogies to the flint inventory at Mondsee, point towards the North Italian area of the Remedello culture.

Bronze Age and Iron Age

The dating of Bronze Age pile dwellings in Austria (BZ A2/B1) which is mainly based on relative find classification is restricted to a few settlements on Lake Attersee. Amongst them is the important settlement of Abtsdorf I (AT-OÖ-01), which shows the only radiocarbon dating from the turning point between Early and Middle Bronze Age, and points towards a period between 1690–1260 BC. From a number of other pile dwellings in the Salzkammergut, we have stray finds of Bronze Age objects, which may suggest a comprehensive settlement during the Bronze Age, as we know it from other areas with pile-dwelling cultures.

Some few wood and ceramics finds from the urn field era of the pile dwelling in Lake Keutschach (AT-KT-01) and Hallstatt time finds of settlement relics near Traunkirchen in Lake Traunsee mark the end of the pile-dwelling cultures in Austria.

France

Neolithic

The shores of Lake Chalain (FR-39-02) and Lake Clairvaux (FR-39-01) were occupied between 5300 and 600 BC by wetland villages. The earliest occupation of Lake Chalain, identified by pollen analyses, probably goes back to an early Neolithic period around 5300 BC. Where these two small lakes (Clairvaux and Chalain) are concerned, their originality is not really a question of the chronology of their settlement phases since their shores were in the main occupied during the same periods as were the lakes of Western Switzerland (from 3700 to 850 BC with clearly marked breaks during the 34th and the 24th centuries BC).

This evolution reflects the relative development of population density on the western plateau of the Jura Mountains where two successive phases can be demarcated. The first, between 3800 and 3400 BC (Middle Neolithic I), would seem to correspond to a period of low population density during which a single small village was occupied at Chalain and another of the same period at Clairvaux, at a distance of 12 km as the crow flies. Both lake basins were apparently occupied in turn by farming communities of different origins, some from the western foot of the Jura (Burgundian Middle Neolithic) and others from the eastern foot (Classical Cortaillod and Port-Conty).

Following a chronological break in lakeshore settlement between 3400 and 3200 BC, the two lakes were colonised once again. The improvement in the climate at the end of the 31st century saw the growth of the local population, while agricultural land became increasingly more important and cultural traditions underwent rapid changes, this time brought about by farming groups from Western Switzerland profoundly marked by the Horgen culture. Simultaneously, growing influences were being felt from the Ferrières tradition from the middle Rhone valley amounting to a veritable colonisation from the south, at least from 3040 BC, while the number of villages of the same period at Chalain and Clairvaux increased tenfold. This growth in sedentarisation clearly coincided with a more extensive opening-up of farmland. It was also a time when local Horgen culture populations and Ferrières immigrants were engaging in a rapid reciprocal acculturation around 3000 BC, and when a modification of the Horgen and Ferrières cultural markers came about with the emergence of an original form of cultural interpretation – the Clairvaux tradition. In any event, the rapid technological, economic and cultural changes reveal instances of readaptation and choices in periods of less than a generation; they point to the robustness of a dynamic current of development, of cereal yields and of the ongoing processes of acculturation between immigrants and local populations.

With a Late Neolithic / Bell Beaker sequence at the end of the Bronze Age, the site of La Motte-aux-Magnins on Lake Clairvaux is an exception. It was only at the very end of the Early Bronze Age that a genuine recolonisation of the basin of the Jura lakes took place.

Four main phases of occupation can be distinguished in current regional research on the Savoyan lakes: the transition 39th–38th centuries, the 36th century, from the mid-31st to the mid-29th centuries, from the early 27th century to the end of the 25th century BC. These sequences only partially reflect the material evidence of more numerous or possibly earlier occupations. By and large this division into phases is no different from the Jura data.

Although the pattern of fluctuations in lake levels for the late Atlantic reveals regressive episodes which would have been favourable to littoral settlements, no archaeological evidence has been found for the early Rhodanian Neolithic (5500–4800 BC). During the Middle Neolithic I (second half of the fifth millennium), it is only on the shores of Lake Annecy at Sévrier–Les Charretières (4330–4000 BC) that an initial discreet approach, contemporary with Egolzwil 3 (CH-LU-01) in Central Switzerland, is attested. This single date has not been ruled out since it can be compared with a structure of similar antiquity discovered at Concise–Sous-Colochoz (CH-VD-05). Associated artefacts are completely absent from both deposits.

After this tentative appearance, the first authentic approach to the lakeshores by Middle Neolithic II populations may be observed in organic layers of deposits from around 3842 and 3835 BC preserved at Saint-Pierre-de-Curtille–Hautecombe (FR-73-06), with pottery showing a local development of Cortaillod and Chasséen influences that include some Burgundian Middle Neolithic features, and at Saint-Jorioz–Les Marais (FR-74-04), around 3791 and 3793 BC where the pottery clearly differs from the Classical Cortaillod series discovered on the Geneva bank of Lake Geneva. Unlike the Swiss lakeshores, the Savoyan lakes show little occupation between 3730 and 3600 BC. The settlements seem to have been short-lived, e.g. Annecy-le-Vieux-Le Petit-Port (tree-felling has been shown to have existed over a period of 32 years, from 3600 to 3568 BC) and generally small-scale, as in the Conjux-Les Côtes bay (small groups of stakes dated to between 3650 and 3360 BC).

In the Late Neolithic the same break in settlement frequency can be seen between 3350 and 3250 BC both in the French Pre-Alps and in the Jura massif. On Lake Geneva, settlement presence is attested from eroded deposits where a number of piles can be dated to 3094–3049 BC at Thonon-les-Bains and to 3043–3035 BC at Chens-sur-Léman–Beauregard.

For the first half of the end of the Late Neolithic the deposits have been poorly conserved. The intensification of the settlements observed in the Jura lakes in the 32nd century BC does not seem to have taken place in the Savoyan region where it tended rather to emerge as from the mid-31st century up to the mid-28th century. The second half of the same period saw a very considerable expansion of littoral settlements in the Savoyan lakes and the French Jura, dating from the mid-28th to the mid-25th centuries. As was the case everywhere, these settlements came to an end around 2440 BC at Conjux on Lake Le Bourget, where the pottery shows only a faint influence of Auvernier Corded Ware, rather reflecting the environment of the Rhone and the Jura, although the characteristic decorations of the Chalain tradition are missing, and around 2435 BC at Talloires on Lake Annecy; these dates indicate the final phases of lakeshore occupation. It may be noted that this desertion occurred in the course of an apparently favourable climatic phase. In the Late Neolithic / Bell Beaker period the lake shores were deserted.

Bronze Age and Iron Age

In the earliest phase of the Early Bronze Age no settlements are known on the shores of the region's lakes. A radiocarbon-dated palisade (cal. 2190–-1890 BC) has, however, been identified at Brison–Saint-Innocent-Mémars (Lake Le Bourget) and suggests a sporadic occupation. It is only during a later phase of the Early Bronze Age that the shores of the Savoyan lakes reveal the traces of a few settlements. There are few sites from this period and the remains are poorly conserved. In Lake Le Bourget the archaeological remains have not yet been identified. In Lake Annecy two settlement phases can be discerned: a first phase, at the end of the 19th and the beginning of the 18th century BC at Sévrier–Les Mongets (FR-74-06), where several hundred piles form an identifiable plan with palisades, access routes and dwelling structures (dated by dendrochronology to 1803–1766 BC), and a second phase on the Annecy-Albigny deposit, dated to a more recent period (tree-felling between approximately 1624 and 1619 BC).

As can be seen from the frequency pattern of lake settlement phases, there are no known traces of the Middle Bronze Age (1600–1300 BC) on the shores of the region's lakes. A rise in the water level of the Jura and sub-Alpine lakes can be seen in the second half of the Sub-Boreal (considered to have begun around cal. 1520 BC and to have ended by cal. 1100 BC).

During an early phase of the Late Bronze Age, a new approach to the lakeshores in the 14th/13th centuries BC seems confirmed; for the time being this has only been identified in the Savoyan lakes for the Late Bronze Age (Bronze final 1/2a). In the middle and late periods of the Late Bronze Age the shores in question saw a very significant augmentation of settlements. According to information to date, some forty deposits have been identified in the Savoyan Lakes. At Chens-sur-Léman–Tougues (FR-74-03), dating indicates a minimum occupation period of more than 210 years: Group 1 – from 910 to 859 BC, Group 2 – from 1017 to 962 or 943 BC, and Group 3 – from 1071 to 1038 or 1028 BC. In the lowest group, RSFO (Rhine-Switzerland-Eastern France) influences can be seen in pottery from the middle phase of the Alpine Late Bronze Age (Bronze final 2b). In the middle group, the artefacts are overall similar to those of the preceding group but show variations reflecting a decrease in Rhine-Switzerland features which might suggest that they should be attributed by chrono-typology to the Late Bronze Age (Bronze final 3a). Those of the topmost group, despite a few still identifiable common features, mark a typological break in the Bronze final 3a/3b transition. In Lake Le Bourget, tree-felling is spread over nearly 280 years, from 1084 BC (Conjux–Pré Nuaz) to 805 BC (Tresserve–Le Saut). The very late dates of 814 BC at Chindrieux–Châtillon (FR-73-04), 813 BC at Conjux–Le Port 3 (FR-73-05) and

805 BC at Tresserve–Le Saut (FR-73-07) seem to mark the last littoral settlements used as dwellings.

At the end of the Sub-Boreal / beginning of the Sub-Atlantic periods around 800 BC, the lakeshore populations remained sporadically close to the shoreline where they made conversions to the banks linked to the temporary use of the stretch of water (fishing grounds, berthing pontoons, protective structures, etc.). This modification of lakeshore practices has been identified at Aix-les-Bains–La Culaz (cal. 925–760 BC), a site which can be considered as marking the passage from the last stages of the Late Bronze Age to the Early Iron Age.

Signs of the occupation of the Jura lakes also reappeared in the second period of the Late Bronze Age. At Clairvaux, a deposit of seven bronze objects was discovered, their composition reminiscent both of Western Switzerland and Savoie. The last occupancy of the shores of the Jura lakes came finally to an end around 800–750 BC with the transition to Early Hallstatt. The last traces of occupation of the Chalain basin vanished with the disappearance of the large village sited on a terrace approximately 250 m from the bank at Marigny-les-Vernois.

Germany

Neolithic

In Upper Swabia settlers leave dry land and erect settlements or resting places in bog areas as early as the Middle Neolithic. In this phase on the small lakes and bogs to the south of Lake Federsee extreme localities such as the tips of peninsulas or islands are particularly prevalent. Whether these are real settlements is at present not clear, due to the lack of building remains. The oldest finds in association with building features belong to the Aichbühl culture (after 4260 BC cal) from the beginning of the Late Neolithic. The eponymous site was completely excavated in the 1920s.

In the southern group of the Schussenried culture which followed (3955–3916 BC) two house types are present: Real pile dwellings, as found in Bad Buchau-Bachwiesen and a ground level house whose floor is made up of criss-crossing layers of timbers under a top layer of screed, as for example at Ehrenstein (DE-BW-21). This site holds a key position for the development of the Schussenried culture. It is the most northerly wetland settlement and is situated on what is probably an ancient pass route over the Swabian Alp to the settlements of the Michelsberg culture on the Middle Neckar.

Though finds from Middle Neolithic culture groups were brought in with the clay used for building in Late Neolithic sites of Bodman-Weiler and Hornstaad-Hörnle IA (DE-BW-03) – proving the existence of settlements in the hinterland – the oldest settlement phase on the shore of Lake Constance itself is connected with the Hornstaad group, named after the eponymous site of Hornstaad-Hörnle IA (DE-BW-03), dated to 3918–3902 BC. A number of sites where occupation layers have survived are known: Hornstaad, Hemmenhofen-Im Leh (DE-BW-02), Bodman-Weiler and Sipplingen-Osthafen (DE-BW-09). The Hornstaad group is related to the Schussenried culture in Upper Swabia and to the Cortaillod culture of the Lake Zürich region. Artefacts of Lessinic flint demonstrate imports from the south Alpine region. Aphanite axes come from the southern Vosges in France.

The Pfyn culture (3870–3500 BC) – well known on Lake Constance – developed out of the Hornstaad culture. Elements of phases III–IV of the Michelsberg culture are present in the earlier Pfyn phases and the first appearance of pottery with barbotine is probably associated with them. In Hornstaad-Hörnle II (DE-BW-03) part of a settlement surrounded by a palisade has been excavated. Early proof of the expression of cult is especially significant in Sipplingen-Osthafen (DE-BW-09). In a burnt layer

painted daub and daub representations of female breasts were found. Crucibles found for the first time at Wangen-Hinterhorn (DE-BW-01), Bodman-Weiler and Sipplingen-Osthafen (DE-BW-09) prove metal smelting and casting during the Middle or 'Classical' Pfyn culture. A complete settlement of the late Pfyn culture dated to 3586–3507 BC was excavated at Hornstaad-Hörnle IB (DE-BW-03). As during earlier Pfyn phases, its houses stood in rows parallel to the shoreline and were surrounded by a palisade.

The finds from around the Upper Swabian lakes and the Federsee region allow to define a proper group in this period: the Pfyn-Altheim group of Upper Swabia (3745–3650 BC) placed intermediately, both geographically and culturally, between the Altheim group in Bavaria and the Pfyn culture. Finds include not only a common canon of forms but also typical Lake Constance elements such as Pfyn jars, funnelled vessels with continuous fingertip decoration and crucibles. Altheim bottles and biconical pots with subcutaneously perforated eyes originate from the Bavarian cultural area immediately to the east. Reaping knives of tabular chert are present at Schreckensee (DE-BW-18) and in Oedenahlen (DE-BW-11). The flint is imported from the Altmühl region of Bavaria. A riveted copper dagger of the Mondsee type and a crucible were found in a well stratified context in Reute-Schorrenried (DE-BW-20) indicating connections to the east.

The oldest pile-dwelling settlement in Bavaria is the younger Neolithic site of Kempfenhausen. It is located on the underwater bank of a moraine in front of the northern shore of Lake Starnberg and dates from the early Altheim culture. Examinations of the timber indicate that the trees were felled between 3728 and 3719 BC. It can thus be seen that the idea of locating settlements along the water's edge reached the Bavarian prealpine landscape at the beginning of the 4th millenium BC. The people of the Altheim culture appear to have adopted at least parts of this settlement approach. Evidence of this can be found not only at the former island settlement of Kempfenhausen and the Lower Bavarian site of Ergolding-Fischergasse and Essenbach-Koisthof in the district of Landshut, but also more importantly at the wetland settlements of Pestenacker (DE-BY-01) and Unfriedshausen (DE-BY-02) in the 'Valley of the Lost Brook' (*Tal des verlorenen Baches*) near Landsberg am Lech in western Upper Bavaria. The latter two were established in the mid-fourth millenium BC along the banks of the Loosbach brook. Dendrochronological data from those sites indicate a height in the time span between 3537 and 3457 BC. The wetland settlements in Bavaria disappeared at the latest with the end of the Altheim culture around 3400/3300 BC.

As in Switzerland, the transition from the Pfyn to the Horgen culture is only poorly documented on Lake Constance. For 3507–3384 BC there are no known settlements. The oldest Horgen settlement on the German shore of Lake Constance is found in layer 11 of Sipplingen-Osthafen (DE-BW-09) and has a dendrochronological date of 3316–3303 BC. The pottery indicates a gradual transition from the Pfyn to the Horgen culture. In Sipplingen the continuing development of the ceramic of the Horgen culture is illustrated by the seven-layer stratigraphy, terminated by a layer dating to 2917–2855 BC. In this layer unusually large buildings whose entrances point toward a central access road were recognised. This situation is reminiscent of the 'street villages' of the Federsee region. Wing beads indicate cultural connections to Western Switzerland. Otherwise the cord impressed pottery indicates contact with the Globular Amphora culture and the Lessinic flint dagger from Allensbach-Strandbad (DE-BW-04) has a southern Alpine provenance. High quality serpentine axe blades are typical of the Middle and Late Horgen culture. Serpentine of this quality was mined in the Swiss canton of Graubünden and traded into the Lake Constance area.

Settlement dimorphism is characteristic of both the Horgen culture and the following Goldberg III group in the Federsee and Upper Swabian region. The main settlements are street villages with buildings gable-ended to the street. Auxiliary settlements are huddled villages with smaller buildings and a specialisation in hunting and cattle husbandry. Toward the end of the Horgen culture the Goldberg III

group is widespread in Upper Swabia (ca. 2900–2800 BC) and clearly visible in stratified and scientifically datable finds. The small complex from Alleshausen-Täschenwiesen (DE-BW-14) is characterised by larger Horgen style pots and the lack of textile impressed pottery. This might indicate the presence of an earlier phase of the Goldberg III group in Upper Swabia. The sites at Alleshausen-Grundwiesen (DE-BW-13), Seekirch-Achwiesen (DE-BW-12) and Schreckensee (DE-BW-18) show a strongly differentiated ceramics spectrum with textile impressed pottery and much use of antler point fittings and are allocated to the later phase of the Goldberg III group. Significant are the finds of two pieced disk wheels with external battens and square centre bores from Alleshausen-Grundwiesen (DE-BW-13), Seekirch-Achwiesen (DE-BW-12) and the recent discovery of three wheels in Olzreute-Enzisholz (DE-BW-16). The wheel and the cart are connected with road building, proved on the Federsee by the wooden village road in Seekirch-Stockwiesen together with the earliest wheel. A specialisation in flax growing can be seen at the Alleshausen-Grundwiesen site (DE-BW-13). Although it is generally likely that animals were kept outside the settlements, a thick layer of dung from this site and a mass find of sheep / goat coprolites in Alleshausen-Täschenwiesen (DE-BW-14) indicates at least temporary presence of animals inside the settlement.

With the appearance of cord decorated beakers, *Strichbündelamphoren* and pottery decorated with wavy ledges on Lake Constance between 2682–2415 BC, a marked change in pottery forms takes place. While on Lake Zürich this change took place quickly, within at most 30 years, on Lake Constance there is hiatus between the late Horgen and the earlier Corded Ware Culture from 2821–2682 BC. As in neighbouring Switzerland, settlement in South West Germany stops in the 25th century BC. The Bell Beaker Culture is known from settlements and graves in the surrounding area, but not from the shoreline.

Bronze Age

Dendrochronological dates from a dugout canoe from the Settlement Forschner, new finds from Kappel, pollen diagrams and Early Bronze Age sacrifice sites indicate that people had at least begun to penetrate the bogs of Upper Swabia and the Federsee area by 2000 BC. They began to fell building timber in 1767 BC for the Settlement Forschner (DE-BW-15) which was organized in homestead groups and, more so than most of the peri-alpine settlements, protected by a palisade and a wooden protective wall. In its last settlement phase Settlement Forschner was connected to the mainland by an access bridge (1507/1508 BC) which possibly continued on into a trackway. More trackways are known from Bad Buchau connecting the mainland with Buchau Island (1514–1388 BC). Around 1480 BC, the water level of the lake began to rise, threatening and finally submerging the Settlement Forschner, which was then abandoned. Both the finds and the settlement form indicate contacts to the east. A flint dagger blade and amber finds show long distance connections to the North and Northwest. There is hardly any indication of contact to the west. In this respect Settlement Forschner, with its eastern orientation directed towards the Danube, stands in strong contrast to the finds from the Lake Constance area and Switzerland.

At Lake Constance, the stratigraphy at Bodman-Schachen / Löchle (DE-BW-08) plays a key role for the development of the Early Bronze Age. The earliest layer A dates to 1900 BC; the layers B and C, situated above, to 1640 BC and 1615 BC. Beakers from layer A show a relationship to the late Bell Beaker Culture. The pottery from layers B and C indicates close connections to the eastern Swiss Arbon culture and to Bavaria, enigmatic figures (Brotlaibidole) and pan shaped crucibles to Upper Italy. A last settlement of Bodman-Schachen represented by piles with dates of 1500 BC belongs already to the transition from Early Bronze Age to middle Bronze Age.

There are no traces of lakeside settlements in the developed Middle Bronze Age or the early Late Bronze Age. This is possibly due to a deterioration of the climate and rise of the lake water level during the Löbben oscillation.

Widespread settlement of the Lake Constance shoreline only starts again with the Urnfield culture in the middle of the 11th century BC. The Lake Constance area was part of a contact zone between the Lower Main-Swabian and the Rhine-Swiss-Eastern French groups (RSFO) of the Urnfield culture. The pile field of Unteruhldingen-Stollenwiesen (DE-BW-10) has been systematically surveyed. With its 1.4 ha it was considerably larger than the settlements of previous phases. The importance of metal production and trade is shown by hundreds of metal finds. Glass beads and the remains of glass slag from Hagnau document the manufacture of glass beads. The first iron finds – iron slag from Unteruhldingen and a bracket shaped bent wire from Meersburg-Haltnau – appear toward the end of the phase. Around the middle of the 9th century BC the settlements of the Lake Constance shore cease abruptly, probably due to an extreme rise in the water level.

There are almost no known Bronze Age and Urnfield-period lakeshore settlements in Bavaria. Only on Rose Island (DE-BY-03) is there clear evidence of a settlement in these periods. The location reached its peak in the transition phase between the Early and Middle Bronze Age, i.e. the 17th/16th century BC, and especially in the mid- to late-Urnfield culture, in phases Ha A2 to Ha B2/3 (mid 11th to end-9th century BC). All together the Bronze Age and Urnfield-period settlement phases on Rose Island and at the lakeshores of the Pile Dwelling District correspond excellently.

Iron Age

The fishing site at Oggelshausen-Bruckgraben (721–621 BC) shows that the Federsee area was also accessed during the Early Iron Age. Chance finds continue to remind us of the incompleteness of our knowledge and indicate the likelihood that the wetlands and bogs were continuously used during the Metal Ages.

From 2005 to 2007 it was possible to document the wooden remains of displaced sill beams and a tipped-over palisade in the waters at the exposed northeastern tip of Rose Island (DE-BY-03). These were dated at the end of the Hallstatt or early La Tène periods. In other words, they originated in the period from the end of the 6th century to the beginning of the 4th century BC. With this dating, Rose Island thus marks an exceptional site on the Iron Age map of Central Europe and among the lakeshore settlements around the Alps.

Italy

As far as chronology is concerned, human habitation in the wetlands of Northern Italy started in the Upper Paleolithic and Mesolithic, as is shown by the peat bogs of Iseo (Lombardy), Fiavé (IT-TN-02) (Trentino), the Palughetto, on Altopiano del Cansiglio (Veneto) and by the site of Palù di Livenza (Friuli Venezia Giulia, IT-FV-01).

Nevertheless the oldest pile-dwelling structures belong to an Early Neolithic phase (ca. 5000 BC). The settlement of Isolino di Varese (IT-LM-09) was, in fact, the first lake dwelling in the Alpine region. Subsequently, the pile-dwelling phenomenon flourished during the Early and Middle Bronze Age, when lake shores in the north Alpine slopes were abandoned. It ended towards the end of the Late Bronze Age (ca.1200 BC). The end of pile-dwellings seems to have coincided with the disappearance of the 'terramare' ↘ see Chapter 3.c.4.

Neolithic

The oldest remains of pile dwellings in northern Italy are in western Lombardy – in the area between Lake Varese and Lake Comabbio – the widest and best preserved being at Isolino di Varese (IT-LM-09). They all belong to the so called *Gruppo dell'Isolino*, a cultural aspect developed in this region in early Neolithic times. Later, dating from the 5th millennium BC, pile-dwelling village remains show archaeological evidence from the Square Mouthed Pottery Culture (Cultura dei Vasi a Bocca Quadrata, VBQ) as documented in almost all of northern Italy with settlements of different typologies.

Evidence of this period comes from Isolino di Varese and other sites in the area of Lake Varese, such as Bodio Centrale o delle Monete (IT-LM-10), Gaggio Keller and Desor o del Maresco. In northeastern Italy the settlement of Fimon-Molino Casarotto (Vicenza), dating from the first half of the 5th millennium BC, belongs to the first phase of Square Mouthed Pottery Culture. From the same period comes evidence from the neighbourhood of the small lake of Frassino (IT-VN-05) and from Palù di Cordignano (Treviso).

From the above mentioned sites in the region of Lake of Varese come artefacts belonging to a later Neolithic phase. These – together with some findings from Lake Monate – refer to the Chassey / Lagozza Culture, which takes its name from the eponymous settlement at Lagozza di Besnate (IT-LM-11).

Some pile dwellings pertain to another later Neolithic phase (3800 to 3400 BC) called by Italian scholars *Tardoneolitico* (Late Neolithic). Besides some remains found at Lagozza (IT-LM-11), we also note the eastern settlements of Palù di Livenza (IT-FV-01) (Pordenone), Colmaggiore di Tarzo / Laghi di Revine (Treviso) e Paluch (Belluno). Although wooden remains are often well preserved, precise information on features of the Neolithic pile-dwelling settlements and buildings is rare. Floors made of planks are documented at Isolino di Varese (IT-LM-09), and vertical posts bearing raised houses at Lagozza (IT-LM-11).

Bronze Age

A few remains attest to the presence of lakeside sites during the Copper Age (3400 to 2200 BC), but data confirming the existence of pile dwellings in that period is currently very rare. The pile-dwelling phenomenon became widespread during the Early Bronze Age, being related to the wealthiest and best-documented cultural group of northern Italy, the so called *Cultura di Polada*. Finds of pile-dwelling sites are becoming increasingly frequent, and their greatest concentration lies around Lake Garda where more than 30 pile dwellings are known.

Many sites appear along lake shores, such as Gabbiano (IT-LM-02), Maraschina (IT-LM-13), Bor (IT-VN-01) and La Quercia (IT-VN-02). Others are to be found in numerous small morainic basins such as Lucone (IT-LM-05), Lavagnone (IT-LM-01), Bande (IT-LM-07) and Frassino (IT-VN-05); or in small Alpine lakes such as Ledro (IT-TN-01) and Fiavé (IT-TN-02).

Pile dwellings are also in evidence in the 'risorgive' (resurgence) belt, in the central Po Plain (Roverbella) and in the fluvial belts or ancient riverbeds of the lower plain (Isolone del Mincio, Lagazzi del Vho (IT-LM-06)). The oldest sites appear to be concentrated in the Lake Garda area, both along the shores of the great lake and the moraine amphitheatre. In contrast, the occupation of the plain – down to the River Po – seems to have been more recent, dating from the latest phases of the Early Bronze Age.

A useful framework of high-precision dates for the Early Bronze Age comes from dendrochronology, due to the creation of some regional sequences (for example the sequence called Garda 1). For 13 sites there are dendrochronological dates related to the earliest phase of building construction (ca. 2068 to 2031 BC) and subsequent dates of tree felling (ending ca. 1837 BC).

At the beginning, settlement strategies showed the diffusion of small sized settlements – some of which were abandoned after the early phases of the Early Bronze Age (BA 1). Later (BA 2), while the presence of pile dwellings in the plain to the South of Lake Garda was expanding, lakeshore sites seemed to become bigger and more structured. For many of them the occupation lasted until the beginning of the middle Bronze Age (BM 1). This witnessed the flourishing of the pile dwelling and 'terramare' culture, while in the Po plain the first villages enclosed by bank and ditch were founded. In the villages of the morainic basins, from the end of the Early Bronze Age onwards, we can see a shift from wet to dry settlements.

The pile-dwelling settlement pattern seemed to be progressively abandoned during the late Middle Bronze Age and Late Bronze Age, in favour of the 'terramare' settlement pattern. Although this phenomenon was widespread in Northern Italy, we know some important exceptions. These included Castellaro Lagusello (IT-LM-08), Cisano and Fiavé (IT-TN-02) – which were pile dwellings of the late Middle Bronze Age – and Peschiera, where this type of settlement lasted until the Late Bronze Age.

Concerning absolute chronology, only a few dendrochronological felling dates (corresponding to the end of the Early Bronze Age and to the beginning of the Middle Bronze Age) are known. In western Lombardy, phases dating to the Early and Middle Bronze Age were known to 19th century researchers in the above mentioned pile dwellings of Lake of Varese (such as Bodio Centrale (IT-LM-10), Gaggio Keller and Isolino (IT-LM-09)). Huge quantities of material have been recovered from these sites, but the nature of that earlier research means that data about contexts and structures are generally lacking. Regarding areas other than those mentioned above, the small number of sites makes it difficult to reach a complete overview. Pile dwellings are known from the Early Bronze Age – Mercurago (IT-PM-02), Arquà Petrarca (IT-VN-07); as well as the middle Bronze Age – (Viverone, Fimon (IT-PM-01) both in Piedmont – and in eastern Veneto.

Concerning huts, fragments have been recovered in many sites – for example the roof beam of Lucone (IT-LM-05). But complete houseplans are very rare. At present only in the lake dwelling of Il Sabbione on the Lake Monate (16th century BC) we can recognize the rectangular shape of the houses through dendrochronology. Even though we know of Late Bronze Age artefacts found in pile-dwelling sites, there is no evidence of structures dated from the same period.

Slovenia

Neolithic

The neolithicized population reached the area of Central Slovenia in the 47th/46th centuries BC. It built their settlements most on naturally protected spots, such as hill forts or terraces near river beds. Small communities among them probably created the first pile dwellings at Ljubljansko barje (ca. 4600 BC). Analogies permit the presumption that they maintained close ties with the Neolithic cultures of the western Carpathian Basin and the eastern Alps (the Lengyel and Sopot cultures). Analyses of shaft-hole axes from Resnikov prekop pile-dwellings (SI-IG-02) have revealed their origin as the Pohorje mountains in northeastern Slovenia.

Eneolithic (Copper Age)

The next traces of human settlement at Ljubljansko barje date from the 2nd quarter of the 4th millennium BC. It was the period of the so called 'Furchenstich' horizon, characterized by its developed metallurgy. Copper ore was mined intensively in the

eastern Alps in this period. A shapeless fragment of pure copper and a fragment of a crucible with traces of copper inside it were discovered at Hočevarica. Two copper axes of the Altheim type are also known from the same site as well as small necklace ringlets made of metamorphic rock. Similar ringlets can be found far away from Ljubljansko barje in the Karavanke mountains (Austria / Slovenia) and Pohorje, rich in copper ore. A fragment of a ray bone found in the cultural layer of one of the pile-dwellings indicates that they also maintained contact with populations living along the coast of the Adriatic Sea, 100 km away.

Metallurgy also developed during the next few centuries of the 'Stare gmajne Group' (corresponding to the 'Badener Group'). At Stare gmajne, a few clay crucibles and a stone crucible have been found. At Ljubljansko barje, there is a series of dendrochrological settlements dating from between the 35th and 32nd/31st centuries BC. The assemblage from these settlements includes a group of tools made from imported rock, such as flat axes made from raw material from north-western Italy, and shaft-hole axes likely to originate from Central Austria and from a still unknown area probably located more to the east. These finds indicate that the Ljubljansko barje played a key role as a place of mediation between the Po lowland and the Danubian area and between the eastern Alps and the Balkans in the 4th millennium BC.

Up until the 29th/28th centuries, when pile dwellers settled the area around the village of Ig (SI-IG-01 and SI-IG-02), another discontinuity occured in the Ljubljansko barje. From that date, dendrochronological research, radiocarbon analysis and typological analysis of pottery finds all point to a more-or-less continuous settlement up to the 24th century BC belonging to the Vučedol and Somogyvár-Vinkovci cultures.

Dendrochronological analysis of wood samples from a group of several hundred vertical piles at one site near Ig (SI-IG-01) revealed intense construction work through an extended period. Dendrochronological research also revealed that pile-dwelling settlements existed on several locations in the Ljubljansko barje simultaneously during this period. The most attractive finds from the 3rd millennium BC are creatively decorated pottery vessels, among which the most outstanding are the vessels on cruciform stems and a hollow cult vessel (perhaps representing half human and half animal deity wearing clothing and with a highly visible pattern). Copper axes, daggers and needles are equally interesting, as are the single and block-moulds and the crucibles. The Ljubljansko barje had, for the second time in its history, clearly become an important metallurgical centre again during this period.

Bronze Age

There is only one known pile-dwelling settlement at Ljubljansko barje from the second half of the 3rd millennium (in which we find rough pottery similar to the Early Bronze Age cultures in the Pannonian plain, Istria and in some cave sites in Slovenia). Human subsistence in the Ljubljansko barje ends with only a few individual finds from the 2nd millennium BC. These are the so-called 'Litzen' pottery and a dagger similar to a Sauerbrunn type sword. Quite possibly these finds represent the last prehistoric settlements around the ancient lake, as demonstrated by the discovery a few years ago of remains of a pile-dwelling settlement in the small River Bistra on the south-western side of the Ljubljansko barje. Reliable data on the matter is lacking. However, it is known that by the end of the 2nd millennium BC, settlement of the Virovitica group moved to surrounding dry grounds and later to dominant hills around the Ljubljansko barje. We also know that by this time (the late 2nd and 1st millennium BC), the area that was formerly a lake during the pile-dwelling period, had now become probably for the most part an impassable swamp.

2.b.3 Development in historical times

Switzerland

Lake Geneva (Swiss shoreline)

The pile-dwelling sites on the foreshores of Lake Geneva are generally located at greater depths than those on the other lakes across Switzerland. This impeded observations and systematic surveys until the adequate diving equipment became available.

Discoveries were made from boats, usually during winter months when visibility was better, and the gathering of objects was only possible by using rakes and shovels to bring finds to the surface.

Between 1854 and 1921, more than 60 pile-dwelling sites were recorded on the submerged foreshores of Lake Geneva, both on Swiss shorelines and in Upper Savoy. Several archaeological maps were compiled showing these settlements, including one compiled by François-Alphonse Forel, published in 1904, which lists 47 lakeside settlements dating from the Stone and Bronze Ages. According to the observations recorded by Forel, it was not until the spring of 1921, when an exceptionally dry period caused the level of Lake Geneva to decrease by approximately 1 m, that it was possible to carry out the first documentation of the lakeside settlements located along the Geneva waterfront. In stark contrast to the research carried out since the 1960s at Lakes Zurich and Neuchâtel, the lakeside settlements on Lake Geneva subsequently sank back into oblivion.

It was not until 1976 in canton Vaud and 1978 in canton Geneva that rescue excavations at a very modest scale compared to the Neuchâtel operations were carried out in connection with the national road construction, bringing to light the sites La Poudrière near Morges and Corsier–Port (CH-GE-02) in canton Geneva. Based on these two investigations, a programme of survey and inventory was launched in order to record the lakeside settlements located on the Swiss shoreline of Lake Geneva.

Three Lakes Region

The developments regarding the three Lakes Neuchâtel, Bienne and Morat in historical times were closely linked. Even before the Jura Waters Correction, the lakes were connected by rivers (Broye, Upper and Lower Zihl). These rivers were channelled and widened during the First Jura Waters Correction (1868–1891) and the three lakes were combined in a hydrological system. The aim of the project was to protect the land around Lakes Morat, Neuchâtel and Bienne and along the River Aare between Aarberg and Solothurn from flooding and to drain the area. However, flooding still occurred despite these measures, and in 1939 a dam was built at Port on the Nidau-Büren Canal, which regulates the outflow from Lake Bienne. The Second Jura Waters Correction (1962–1973) mainly aimed to reduce the variations of the level of the Zihl Canal and the River Aare below Lake Bienne.

Due to the lowering of the level of Lake Neuchâtel up to 2.7 m pile fields were exposed ↘ Fig. 2.74. Thirty years after, the lowering of the lake level brought about further erosion which exposed additional lakeside settlements hitherto unknown. Numerous areas (and sites) were subsequently used as dumping grounds, filled up and then built upon; a programme to clean up this waste and to study its effects on the groundwater is currently being evaluated.

The final major impact on the northern shoreline of Lake Neuchâtel was the construction of the A5 motorway which initiated a series of rescue excavations car-

↘ p. 164

Fig. 2.74 Due to the Jura Waters Correction, lowering the level of Lake Neuchâtel up to 2.7 m pile fields were exposed (final Bronze Age village of Cortaillod–Les Essert in 1884).

ried out practically without interruption between 1964 and 1988 in the area dams enclosing the artificially drained lake areas.

Another large-scale excavation was undertaken between 1995 and 2000 on the Vaudois shoreline in the bay of Concise (Corcelles-près-Concise–Stations de Concise, CH-VD-05). Because of a change in the course of the railway tracks it was necessary to carry out archaeological investigations of some of the prehistoric settlement remains in the bay.

The southern shore of Lake Neuchâtel is only very slightly inclined, so the fore-shore is particularly vast. For a long time, these new areas of land were held in little esteem by the local population as they were deemed to have limited agricultural value. The year 1930 saw the construction of the first holiday cottages. Since the end of the war, residences and piers for boats have been built in these areas.

In the 1970s and up to 1982, the region between Yverdon-les-Bains and Estavayer-le-Lac was threatened by a motorway construction project. These plans made it necessary to launch an archaeological survey of the area. Numerous settlements were recorded and some of these were partially excavated (Yvonand–Le Marais, CH-VD-16). The motorway project was subsequently abandoned and a process of protection was initiated, resulting in the entire southern lakeshore being declared a nature reserve called Grande Cariçaie (www.grande-caricaie.ch). A vast archaeological survey project on the southern shoreline started in the 1990s at Yverdon-les-Bains and ended in 2007 at Cudrefin. Prehistoric sites were identified and mapped in order to ensure their protection.

During the First Jura Waters Correction, the levels of Lake Bienne were lowered by approximately 2 m. Due to the massive impact these measures had on the stability of the embankments, the levels were subsequently raised by around one metre. The short period during which the level had been very low was utilized for the reclamation of land. The original lakeshore was moved into the lake, new embankment walls were built and backfilled. Today, the tendency is to replace these embankment walls by near-natural flat shores.

Before the first Jura Waters Correction took place, the area of Lake Morat was characterised by alternate phases of sedimentation and processes of erosion. Natural erosion was the only factor responsible for gaps in the sedimentation. Because of the Jura Waters Correction projects, the level of Lake Morat, for the first time in its history, suffered an artificial lowering of almost 6 m. Naturally, this new imposed water table had consequences on the general ecology of the lake (lowering of the groundwater table, creation of new lakeshores, development of a shoreline vegetation, changes in the sedimentation etc.) and on the archaeological sites. Covered by just a few centimetres of water, and sometimes even exposed to the air, the wearing down and disappearance of the piles from the Late Bronze Age sites is symptomatic of the effect these changes are having.

Until today, the basin of Lake Seedorf has only experienced drainage along its shores. The centre of the lakebed, where the site is located, has to date remained relatively far removed from these processes. Nevertheless, the gradual drying out of the terrain to promote agriculture is having grave consequences on the preservation of the archaeological layers and the organic materials, particularly since the remains are situated at only 0.7 m below the surface of the water. A new augering project is planned for the near future with the aim to trace the development of the sedimentation of the basin that has occurred since the end of the 1980s.

Small lakes of the Swiss Plateau

As in almost all the small lakes of the Swiss Plateau, the level of Lake Moossee was also lowered in the 19th century in order to achieve an improvement of the adjacent

farmland and increase its yield. The lowering of the lake level caused some of the sites to be exposed. Lake Moossee is today privately owned and is being used for fishing and bathing. It is a listed nature reserve.

The amelioration of the areas around Lake Lobsigen started rather late, in the 1940s. The lake, which had originally not had an effluent, was lowered by approximately one metre. However, this did not result in the yield increase hoped for. While the area around the lake is today being used as grassland, the archaeological site is located in a nature reserve.

Lakes Burgäschisee and Inkwil had also been much larger originally. As a result of natural silting up since the last Ice Age, they have shrunk to probably about a fifth of their size. In recent times, the level of Lake Burgäschisee was lowered by approximately one metre in the 1850s and again in 1943 in order to gain farmland. During the course of this process, the old effluence from the lake was filled in and replaced by a new canal.

As seen in the earliest maps dating from around 1700, Lake Inkwil probably had neither an affluent nor an effluent. A map of 1718 gives the earliest indication that there was probably a manmade effluent at that time. Lake level lowering is said to have been carried out in 1818/19. When the Centralbahn railway was built in the 19th century, a large amount of dug out material and gravel was deposited in or near the lake. The earliest drainage constructions were probably also installed at that time. The effluent was regulated in 1892. Improvement work was carried out all around the lake in 1961. The construction of a dam wall in the 1960s finally completed the regulation of the lake.

Central Swiss Plateau

Since the Middle Ages, the lake level of Lake Wauwil had repeatedly been lowered until the lake completely dried out around the mid 19th century. During the subsequent period of intensive peat cutting, pile-dwelling settlements were either discovered or fell victim to those activities. The late 19th and early 20th centuries saw excavations being mounted by museums and collectors specifically targeting pile-dwelling finds.

Lakes Sempach, Baldegg and Hallwil are all located in areas of intensive farming. On the other hand, vast shorelines have to date remained undeveloped and have escaped development pressures.

Contrary to most Swiss lakes, however, large parts of the shores of Lake Sempach are not publicly accessible but closed off as private property. Lake Baldegg is owned by the nature protection organisation Pro Natura, which aims to preserve the natural shorelines and conserve them as nature reserves and recreation areas.

As in many other small lakes in Switzerland, the levels of Lakes Sempach and Baldegg were also lowered in the 19th century by about 2 m in order to reduce the threat of flooding. In contrast, Lake Hallwil is and has always been extremely stable. No artificial lake level lowering has taken place over the past number of centuries. While very little development has occurred on the shorelines of Lake Hallwil, public swimming baths and shipping piers do exist in certain areas and scheduled shipping as well as private boating traffic is rather busy. The lakeshores have been protected since 1986 ↘ cf. Chapter 5.b and their use is strictly regulated. When test excavations were being carried out at the site Seengen–Riesi (CH-AG-02) in the 1920s, the area was still practically unforested. Nowadays it is overgrown with trees and bushes.

Central Switzerland

The northern shoreline of Lake Zug in the community areas of Baar, Steinhausen and Zug was located several hundred metres further inland at least during the Neolithic period and the Bronze Age. Based on the locations of the various lakeside settlement sites known today, one may reconstruct a complex topographic system with bays and peninsulas or islands. These bays were later gradually filled in by rubble brought in by the River Lorze.

In 1591/92, the town architect of Zug, a man called Jost Knopfli, had removed a rocky ridge from the effluent of the lake and thus lowered its level by around 2.5 m. This caused various incidences of landslides along the shoreline, some of which are better documented than others. This artificial lowering of the lake level caused numerous sites to dry out.

The land thus gained was initially used as a litter meadow or as pastureland. It was subsequently further drained. This process led to the discovery of various sites from the mid 19th century to the 1940s. From the 1980s onwards, a lot of development took place in Zug. Nowadays, new sites are mainly found because of construction projects.

Initially, Lake Lucerne extended as far as Erstfeld, approximately 10 km south of today's lakeshore. Over the course of the millennia, this area was filled in by the River Reuss. Drastic changes were brought over the millennia by earthquakes, which caused landslides and deposited huge cones of debris in the basin of the lake. A large section of the site Stansstad–Kehrsiten (CH-NW-01) broke off during at least one of these earthquakes and its stratigraphic sequence is now exposed along a ledge.

Region of Lake Zurich

During the Neolithic period, Lake Zurich / Obersee extended approximately 13 km and around 1000 BC about 5 km further southeast. The surface of the lake decreased more and more due to silting up (rubble deposited by the River Linth). The area of the isthmus between Rapperswil SG and Hurden SZ is situated in a shallow zone and has been the location of the current causeway since 1880. Depending on the lake levels, this zone with its islands and shallows remained partially dry and was often used in prehistoric times for the construction of footpaths and bridges.

The area around the effluent near Zurich has seen numerous changes throughout the millennia. One of the changeable features was the River Sihl, whose course repeatedly changed and which at times flowed into Lake Zurich and not as today into the River Limmat. Moreover, large parts of present-day Zurich are built on artificial landfills, which were brought in over the past 100 years.

12,000 years ago Lake Greifensee, now 6.5 km long, was still almost 13 km long. Due to filling in and silting up processes and because of lake level lowering in the 19th century the lake has gradually shrunk. Correction projects mounted on the River Glatt in two stages between 1812 and 1895 caused significant shore erosion on Lake Greifensee, which also harmed the sites. The current shape of the lake is characterised by several stream deltas. Many areas of the shoreline of Lake Greifensee are flat and are located only slightly above the lake level. Vast areas are today nature reserves. With the exception of the port facilities, the shoreline has remained practically undeveloped.

By blasting off the rocky outcrop in the Aa effluent in the mid 19th century the level of Lake Pfäffikon was lowered by 1–1.5 m. The Kemptner stream was also diverted to flow directly into the lake instead of the River Aa. A silted up area (Robenhauserried) is located at the southeastern end of the lake. The process of silting up must have begun with the appearance of the earliest lakeside settlements. Peat cutting carried out in this area in the mid 19th century led to the discovery of some important

pile dwellings including for instance Wetzikon–Robenhausen (CH-ZH-08). Neither the shoreline nor the silted up area have been built on because they were protected as nature reserves.

Small lakes and bogs in northeastern Switzerland

Innumerable small lakes and bogs were dotted throughout northeastern Switzerland up to the mid 19th century. Over the past 100 years, these vast wetland areas were drained and dried out mainly due to agricultural land improvement measures. These works led to the discovery of numerous wetland settlements of international importance. Particularly worth mentioning here are the sites Wetzikon–Robenhausen (CH-ZH-08), Gachnang-Niederwil–Egelsee (CH-TG-05) and Pfyn–Breitenloo. Peat cutting and drainage projects in the 1940s in particular were detrimental to the state of preservation of the bog settlements. Nowadays, these are largely located in nature reserves and thus less threatened.

Like other typical bog settlements, Thayngen–Weier (CH-SH-01), was originally also situated in a small lake that has since silted up. The discovery of this settlement coincided with the earliest improvement works carried out in 1914. Several excavations were mounted and directed by K. Sulzberger until 1921. Further improvement works led to Walter Ulrich Guyan directing six more excavation campaigns from 1950 to 1963 with the support of the Swiss National Science Foundation.

Lake Constance (Swiss shoreline)

The first pile-dwelling settlements in canton Thurgau were discovered in the second half of the 19th century. These were mainly represented by stray finds from naturally eroded archaeological layers. Lake Constance is the only large lake in Switzerland that was never regulated. As a consequence, the annual lake level fluctuations of several metres are posing a threat to its pile-dwelling sites. Most sites located on the shorelines of the upper part of the lake are badly eroded, whereas the situation is less severe around the lower part of the lake, where most of the component parts of the *Prehistoric Pile Dwellings around the Alps* are situated. These sites still contain thick units of archaeological layers. Some of the port constructions and the shoreline development on the lower part of the lake began to affect the lakeside settlements from the 20th century onwards. The shorelines of Lake Constance are constantly being developed. However, efficient landscape protection laws, spatial planning measures and ecological regulations are now protecting the sensitive shore areas with lakeside settlements.

Austria

Lake Keutschach

The lakes in the Keutschach Valley (Lake Keutschach, Lake Hafner, Lake Rauschele and Lake Bassgeigen) were created by a side arm of the Drau Glacier which covered the whole valley during the Würm glaciation. The former connection between the lakes is also evident in the marshy areas to the South and West of Lake Keutschacher See, which are part of a Ramsar conservation area. Even today, there is a siltation tendency on the lake shores left in their natural state. The archaeological examinations of the pile dwelling in Lake Keutschacher See (AT-KT-01) allow the deduction of a lower lake level in prehistoric times. The knoll of the shallows – in which the pile dwelling is located – was quite possibly above water occasionally in historical times.

According to local inhabitants, the knoll (which today lies at a depth of nearly 2 m) was covered with reed and easily discernible as late as the 20th century. The shores are mostly unspoilt, and the natural shore vegetation is largely preserved. Tourism increased considerably after the 1930s and, in its wake, camping site and holiday camps with lido baths were built around the lake. In the course of renascent tourism after 1945, there was a rise in construction along the northern shore. Since the 1960s and 1970s the building of touristic facilities and residential houses has increased. Building activities and land utilisation were regulated as early as 1969 in a first land development plan ↘ cf. Volume II, Id-files.

Salzkammergut

Lake Attersee, Lake Mondsee and the adjacent Lake Irrsee lie in a u-form basin cut into the Flysch zone with its southern end delimited by the limestone Alps. They have been popular tourist destinations since the 19th century. Villas, summer houses, bathing huts etc. were built, and steam navigation was introduced. After World War II, tourism increased markedly. During construction of the motorway and the federal road in the Mondsee area at the end of the 1950s and the beginning of the 1960s, large amounts of excavation were dumped into the lake. This destroyed a considerable number of spawning sites and fish habitats, as well as reed populations.

Large sections of the shore zones have been compromised through different construction activities and utilizations, and were heavily developed with residential and other buildings (mainly during the 1970s and 1980s). Development of the shore edge followed, with footbridges, boat houses, boot slides, steps, walls, wooden boardings and palisades, rock armours and stone embankments. In general, the reed belt has been retreating since the 1970s.

About 90% of the shores of Lake Attersee are clearly compromised. Particularly affected are the eastern and northern shores and the northern part of the western shore, as well as the section between Misling and Unterach – namely those areas favouring settlement and which were already colonized in Neolithic times. The shore areas of Lake Mondsee have also undergone extensive change. Compared to Lake Attersee, there are significantly longer stretches of semi-natural shore areas.

France

French Jura Lakes

The eastern part of Lake Chalain is dominated by wooded limestone cliffs, while lower hills frame the western part. The landscapes of the western sector – huge emergent beaches, vast reed beds, pastures and farmed fields – have been evolving since the beginning of the 20th century. This distinctive setting makes it a major feature of the Jura landscape. The forest occupies half of the surface of the basin, the rest being essentially given over to animal husbandry. When work started in 1904 on harnessing the lake waters for electricity, the old outflow was short-circuited and the lake was abruptly lowered to 3 m below its natural level. Prior to this date it had been subject to slight seasonal fluctuations. Subsequently, the electricity scheme sometimes involved a difference in level of over 6 m detrimental to the stability of the banks (several sites were demolished by the collapse of the shelf). At the present time, a convention between the Department (administrative division) of the Jura and EDF authorises moderate fluctuations of ±2 m. In fact it is not easy to control the major floods which often sweep through the entire peat bog.

For the Clairvaux Lakes the Grand Lac basin succeeds that of the Petit Lac from South to North. They are connected by a 300 m channel which ensures their communication. The limestone landscape is characteristic of the *reculées* (geographical term typical of the Jura and refers to a valley ending in a cul-de-sac). The forest dominates the catchment basin (60% in the case of the Grand Lac and 70% for the Petit Lac); grassland occupies second place (10%); the immediate perimeter is a peat bog. The control of the level of the Grand Lac by means of an electric sluice is satisfactory at the present time. However, the drainage of the low-lying marshes over several centuries gives rise to real problems in terms of the protection of the sites and plant coverage in the wetlands.

The communes of the Lake Chalain catchment basin have fewer than 1000 permanent inhabitants. In summer, however, the lake is a major attraction and some 3,500 persons frequent the camp sites on its shores. Clairvaux-les-Lacs, the main commune, has a registered population of only 1374. In the sector of the Clairvaux lakes tourism is well developed and the summer population comes to 5170 (1990 figures). The camp sites are installed around the Grand Lac and take in 10,000 summer visitors; camping around the Petit-Lac, a drinking water reservoir, is prohibited.

Savoyan Lakes

Lake Aiguebelette, at the gateway to Savoy, lies in a landscape of water and greenery, bordered by wooded hills and mid-high mountains. To the east its shores are steep while they slope more gently to the South and West. The lake has been partially preserved from human disruption and retains a high-quality natural environment and landscape. Despite the development of tourism and sports activities its surroundings have been preserved along with a quite outstanding group of natural environments (wooded islands, reed beds, wet grasslands, submerged aquatic plant colonies). It is an integral part of the network of wetlands, fields, heaths and cliffs of the Avant-pays Savoyard. The lake is private property and belongs partly to Electricité de France which uses it as a reservoir (west sector).

The depression in which Lake Le Bourget lies was formed by the meeting of the last Alpine glaciers from the Isère to the south and the Rhône to the north. It is classified among the sub-Alpine lakes because of the geographical location of its catchment basin. Since the western bank is steeper (it is known as the Côte sauvage or wild shore), the beach face is found in the interior of the wide bays of the eastern bank and at the two extremities of the lake. Since the level of the lake has fluctuated a number of times in the last few thousand years, it is on this still shallowly submerged lacustrine terrace that the archaeological remains are to be found. Despite hydraulic improvements which have contributed to altering its functions, the lake and its peripheral wetlands constitute a complex of major ecological, biological and landscape importance. At the present time the level of the lake has been stabilised, but there can be considerable seasonal fluctuations in level: 3 m before regulation and 5 m if reference is made to the limnometric readings made in the twentieth century.

Lake Annecy occupies the transverse valley (*cluse*) of the same name. The lake today accounts for only a small part of a vast and considerably more extensive post-glacial stretch of water. Since 1874 the average water level has been artificially maintained (maximum difference in level of 0.5 m.). To the North the outlet is formed by the Thiou and Vassé canals which flow through Annecy; it feeds into the Fier before rejoining the Rhône upstream of the alluvial plain of Chautagne (at the northern extremity of Lake Le Bourget). Since the 1960s, the lake, situated in a densely populated basin and at one time threatened by eutrophication, has been the object of an exemplary safeguard programme. Despite a significant decline of its reed beds, the submerged aquatic plant colonies and the relicts of wetlands still form a quite remarkable ecological complex.

Lake Geneva is divided into two main parts: the Grand-Lac upstream with its steep sides and the Petit-Lac downstream where the shelf is broader and examples of lake dwelling occupation are thus more numerous. At the present time the water level has been stabilised (with a controlled variation in level of 0.5 m) except in leap years when the level of the lake is lowered by approximately 0.8 m so that work can be carried out on the banks; this intensifies the deterioration. With a few rare exceptions, such as wide bays, residual reed beds, delta cones, etc., the French shore of Lake Geneva is now almost devoid of natural features, the main causes being urbanisation and recreational boating activities (the Haute-Savoie bank has sixteen lakeside communes). The lake's natural shores have undergone considerable damage since the nineteenth century; today, 74% are artificial (walls, riprap constructions, quays, harbours, roads), 23% are semi-natural (meadows and cultivated land) and only 3% are natural.

Germany

Lake Constance (German shoreline)

Lake Constance belongs to the few peri-Alpine lakes whose water level was not regulated during the historical period. Extensive parts of the Baden-Württemberg shore still remain in a near natural state. 46 km of the shoreline are covered by large reed beds, though 80 km have been subject to change by settlement or land reclamation. The first large scale changes to the shore took place in late medieval Constance, where parts of a sizeable pile-dwelling site vanished under the land reclamation tipping of the expanding town. In the 19th century, the construction of the railway, promenades and a lakeside wall changed the shore zone radically. Also in the 19th century, harbor building intruded into the flat water zone and impinged upon parts of the pile-dwelling settlements in Konstanz-Rauenegg, Bodmann-Weiler and Unteruldingen-Stollenwiesen (DE-BW-10). The encroachment into the flat water zone increased substantially in the 1960s. New harbours were built for private boats. The new yachting marinas in Konstanz, Wallhausen, Bodmann, Ludwigshafen and Sipplingen negatively influenced the pile-dwelling sites. Only after the introduction of the new Cultural Heritage Protection Act in Baden-Württemberg in 1972 was it possible to gradually limit the building activity and gain acceptance for heritage protection.

Federsee and Upper Swabia

The Federsee region has long been well known for its natural landscape as well as its archaeological finds spots. With its 33 km^2 it is considered the largest continuous bog in South West Germany. The Federsee lies on the northern edge of the Upper Swabian moraine region. With an original water surface of around 30 km^2, it belonged to the larger peri-Alpine lakes. Aggradation already began in the prehistoric period. Artificial reduction of the water level in 1787/88 and 1808/09 reduced its area to 2.8 km^2. Since 1972 the surface area has remained unchanged at 1.4 km^2. The reduction of the water level was accompanied by systematic drainage of the newly created wetlands.

Peat cutting began in 1765 on monastery land in the Steinhaus reed bed (Steinhauser Ried). From 1854 onwards, peat was industrially extracted, exhausting almost all of the raised bog. This activity was stopped only at the end of the 1960s, though draining of the area and therefore of the archaeological sites continued. The peat free areas were leveled and used as meadows, pastureland or spruce plantations.

Parts of the Federsee area were put under protection as early as the beginning of the 20th century. In 1911, Lisa Hähnle the chairwoman of the society for the protec-

tion of birds, bought areas to the North of Bad Buchau and put them under 'private' protection. The designation of 1410 ha as the 'Federsee Nature Conservation Area' followed in 1939. Today the whole Federsee lake basin is virtually protected. Circa 2350 ha are under nature conservation. Further nature conservation areas are planned. The paucity of modern development makes this possible. Bad Buchau, the only town in the area, is situated on what used to be an island in the Federsee and only touches the wetlands on its outskirts.

Many of the small Upper Swabian lakes today lie in a near natural landscape beyond developed areas. They have stable water levels ensuring that the bordering bogs are well wetted. The sites at Olzreute-Enzisholz (DE-BW-16) lie on working agricultural or forestry land in small silted lakes in which the water table has been lowered by drainage. The wetlands are in need of restoration. The first steps have been taken: hydrological analysis in Reute-Schorrenried (DE-BW-20) and felling of the trees in Olzreute-Enzisholz (DE-BW-16).

Swabian Jura

Topographically, the settlement Ehrenstein (DE-BW-21) is uniquely situated in a water meadow on the River Blau (a tributary of the Danube) in a steep rocky valley on the Swabian Alb. In the Middle Ages the site was dissected by a mill stream. The settlement was discovered in 1952 while excavating a sump for sludge from a quarry. The sump has also created the conditions necessary for the coverage and conservation of the site. Now out of use and tree covered, it protects the settlement area. The Blau canal flowing nearby guarantees a constantly high water table.

Loosbach Valley

In 1934 the Reich Labour Service (Reichsarbeitsdienst, RAD) undertook measures to straighten the course of the Loosbach brook in its floodplain. As a result, the groundwater level in the area sunk by about 70 cm, which led – and still leads – to the successive drying-out of the soil layers nearest the surface. Since this change, the Loosbach has run through the prehistoric settlement in Pestenacker (DE-BY-01). Today, the Loosbach floodplain is mostly boggy; originally, an eastern distributary of the river Lech ran through the area. For this reason, the region is also known as the 'Valley of the Lost Brook' (Tal des verlorenen Baches).

The regions around the Pestenacker and Unfriedshausen (DE-BY-01; DE-BY-02) sites contain either no, or very few, modern buildings. For the most part they are used for agricultural purposes – or rather, in the case of cadastral district 1240 in Unfriedshausen (subdistrict Walleshausen, Community of Geltendorf), as a bird sanctuary ↘ cf. Chapter 4.b. The Pestenacker site lies in a hayfield for growing forage that is bordered at the North by an isolated farm and at the East by the country road St. 2052 which was constructed in 1929. The long-distance pipeline Leipheim-Unterpfaffenhofen, an element of the NATO Central Europe Pipeline System (CEPS), crosses the 'Valley of the Lost Brook' at the area of the Unfriedshausen site, running in a north-northwest – south-southeast direction. The construction of the pipeline in 1986 has led to the discovery of the site and the drainage of some areas with archaeological features.

Lake Starnberg

Lake Starnberg has a relatively constant water level due to an extremely long time span required for the water to completely circulate. As a result, no measures were

taken to change the water level in historic times. The tongues of various glacier movements formed the terrain at the West of the ground moraine lake ↘ cf. Chapter 2.b.1 in the Würm Ice Age into terraces and left the east with steep drops. The particular topography of the western shoreline presents more settlement and transportation opportunities than the opposite shore.

Beginning at the end of the 19th century with the establishment of a rail connection, Lake Starnberg became increasingly attractive as a settlement area – especially the western and northern shore – and recreation grounds for the nearby residents of Munich. Today there are many swimming areas and docks around the lake. Plenty of private and public shipping traffic can be observed on the water. Nowadays the lake is a protected nature reserve of international importance. It is recognised for example by the Ramsar Convention since 1976 and in the Habitats Directive of the European Union ↘ cf. Chapter 5.b.

From 1853 to 1856 the former fisherman's island called 'Wörth' was transformed into Rose Island (DE-BY-03) for the use of the Bavarian royalty. These construction activities disturbed the archaeological features in the core of the island considerably. As part of the measures undertaken by the reigning House of Wittelsbach the architect Franz Jacob Kreuter organised gravel landfills. Two peninsulas located in the shallow-water regions at the Southeast and Southwest of the island and the shore zones, especially the eastern shore, were filled up. The material was taken from a gravel bank bordering the island at the South. The island, which at the beginning of the 19th century originally measured 1.27 ha, then grew to an area of 1.72 ha. Today Rose Island has reached the size of 2.56 ha. Parts of former shallow-water zones bearing archaeologically-relevant features have been covered by gravel landfills over the past 150 years. Natural silting processes, in contrast, almost never occur at Lake Starnberg because there are no significant tributaries that could bring sediment into the lake.

Italy

Small lakes and rivers of eastern Veneto and Friuli Venezia Giulia

Pile dwellings identified with certainty, or simply through clues, are extremely scarce in Friuli Venezia Giulia, and particularly in the Carnic and Julian Alps. Lakes are extremely rare and water courses are either torrents or water courses which tend to burst their banks and flood the surrounding area. The only site which once played host to a large scale settlement is the area of Palù di Livenza (IT-FV-01) close to the Veneto border, while clues which indicate the presence of potential pile dwelling locations have also been detected in the peat bog of Sequals (PN) and Qualso (UD), now threatened by the effects of increasingly destructive agricultural techniques. The discovery of Palù di Livenza was first made in the 1960s, during the digging of a drainage channel. The area is not subject to threats of urban expansion, but is threatened by the effects of increasingly destructive agricultural techniques.

Small lakes or bogs of Berici and Euganei Hills

The area of the Euganei Hills has been explored since the late 19th century, up to the beginning of the 20th century, and led to the identification of a site close to the small lake Laghetto della Costa (IT-VN-07), not far from Arquà Petrarca. In the area of the Berici Hills the first discoveries of pile dwellings in the areas around Lake Fimon date back to the second half of the 19th century, and are the final result of P. Lioy's successful research; new settlements were discovered during the last decades of the 19th century as peat extraction activity first started, and then during

World War II, when new discoveries were made. Research on pile dwellings was also carried out during the 1970s.

Both are scarcely urbanized and prevalently agricultural areas, there has been a marked increase in the impact of agriculture where since the 1980s.

Region of Lake Garda

Pile-dwelling sites are diffusely present along the banks of Lake Garda and in the inframorainic basins. Submerged sites along the lake's coastal areas have long been subjected to erosion caused by waves, and by the re-deposition of mud layers, while human activity did not have any significant impact for a long time. Wooden piers dating from Roman and Medieval times are known to have been located in the area of the ancient pile dwellings, but on the whole human presence remains negligible up to the 20th century. Since the 1980s the building and enlargement of ports, the building of piers and buoy fields have seriously endangered these sites, causing the relevant Soprintendenza to implement repeated projects to monitor and safeguard the sites. Also during the second half of the 20th century, particularly from the 1970s these previously ignored sites were subject to research activities. Unfortunately, since then the activity of unauthorized scuba divers have caused an unknown quantity of materials to be lost, so much so that among the entirety of the finds which are known to us today, a large part consists of elements seized by the Italian authorities (Sirmione dwelling sites).

Small inframorainic lakes have been generally reduced in size, when they have not completely disappeared during the course of drainage work. The earliest drainage work was carried out during the Renaissance period by digging underground channels, for example, at Lucone (IT-LM-05), while the most recent activities date back to the 19th century and are linked to the early peat extraction works for industrial purposes (at Polada). These activities date to the second half of the 19th century; extraction enjoyed a later revival in the period between the two World Wars. On one hand, these activities stimulated research, but on the other hand they also caused grave damage to the pile-dwelling deposits. Entire sites seem to have been totally or very badly compromised, as in the cases of Polada di Lonato and Barche di Solferino. In general these sites were shielded from the threats of urban expansion thanks to their particular location, but during the 1980s they have witnessed an increase of ever-deeper ploughing for agricultural work, the flattening of hillocks and the building of infrastructure for agricultural uses such as irrigation and drainage channels.

During the second half of the 19th century, peat extraction and the discoveries made on the Swiss side of the border, first attracted researchers to the lakes and wetlands of Lombardy. A fruitful season of research began, and was characterized from the very start by an inter-disciplinary approach between the human and natural sciences, which ensured pile dwellings became the focus of interest at international level.

At the moment, research on pile-dwelling sites is characterized by research projects on single sites of particular significance, and sponsored by Museums or Universities, or by area projects or rescue activity coordinated by both the Soprintendenza per i Beni Archeologici of the two regions. This research is conducted by inter-disciplinary teams making use of the most advanced technologies.

Small lakes or bogs of Trentino

Although the presence of pile dwellings has been pinpointed in various areas in the Province of Trento, the two most well known sites are Fiavé (IT-TN-02) and Ledro (IT-TN-01) in western Trentino. Although Fiavé (IT-TN-02) was discovered during the second half of the 19th century on account of the peat extraction being carried out at

the time in the area of a former lake, called Lago Carera, this type of activity proved less destructive compared to other areas. The site of Ledro (IT-TN-01) instead was discovered in 1927 following a marked lowering of the lake's water levels, due to the construction of the electrical plant of Ponale. A further decrease in the lake water levels, caused by human management of the water levels has surely altered the site dwelling's deposits. During the 20th century Lake Ledro's coastline witnessed an increase in tourism, causing the Soprintendenza to step up archaeological control over public and private building projects. During the last few years enhancement activity has been increased at the two sites (namely, by setting up the archaeological park of Ledro and planning another one at Fiavé).

Fiavé (IT-TN-02) pile dwelling site is first mentioned in 1886 by Paolo Orsi. During the first half of the 20th century, researches at Molina di Ledro (IT-TN-01) received great attention and resulted in finds dating from the Early Bronze and Middle Bronze Age. In 1937 Raffaello Battaglia had begun a large scale excavation measuring about half a hectare, with the purpose of clarifying doubts as to the nature of structures which had first been discovered in 1927 and excavated by Ettore Ghislanzoni in 1929.

Between 1967 and 1976 important excavation campaigns were carried out in different areas of the Fiavé peat bog, under Renato Perini. These works revealed the presence of different structural types, ranging from lakeside drainage works to pile dwellings rising within the lake's basin, which document different phases of stable settlement, from Late Neolithic to Early Bronze Age. Research continued up to the 1990s, and was characterized by a global approach to natural history and human settlement history in the ancient lake area, thanks to an international team including Franco Marzatico.

During the last few years actions have been focused on enhancing the sites (an archaeological park has been set up at Ledro, and another is being planned at Fiavè), while archaeological monitoring of public and private works are being increased along the banks of lake Ledro.

Small lakes, bogs and rivers of eastern Lombardy

Since the 19th century the area of Lake Iseo, its surrounding marshes and the nearby chain of morainic hills were all transformed by peat extraction activity, which destroyed various sites and caused the dispersion of material remains, which were only collected in 1883 by F. Ruffoni. Later research has identified sites which were still intact, but the general picture remains as yet unknown. Sites such as Valle delle Paiole, lying in inframorainic basins, or others such as Lagazzi (IT-LM-06), placed in peaty plains, are threatened by aggressive modern cultivation methods but – except for their uppermost layers – appear well preserved. Sites located close to rivers on the other hand are subject to very significant erosion (as is the case at Canneto), where in some cases we know hydraulic damming work has led to the destruction of sites (Isolone del Mincio). At the moment research takes place through joint cooperation of different institutions, Museums, Universities, and the Soprintendenza per i Beni Archeologici.

Region of Lakes Maggiore and Varese

This macro-area also includes submerged sites located along the banks of the biggest lakes and a series of small peat-covered basins which developed in different ways over time. The small basins were also interested in peat extraction during the second half of the 19th century, so much so that this type of activity led to the discovery of Mercurago (IT-PM-02) site in 1860, the first pile-dwelling site ever found in Italy. At that time peat extraction called for the digging of a drainage channel, as in the case of Lagozza di Besnate (IT-LM-11).

Coastal pile dwellings along the banks of the lakes of Varese and Monate were largely investigated during the second half of the 19th century, and then taken up again during the 1950s. These are mostly submerged and are threatened by the erosive action of waves. In some areas the impact of human activity has decidedly affected sites, as small urban centers along the lakeside have gradually expanded.

At the moment research takes place through joint cooperation of different institutions, Museums, Universities, and the Soprintendenza per i Beni Archeologici.

Small lakes or bogs of Piedmont

In Piedmont lakes are not very numerous and the smaller ones are often covered by layers of peat. At various peat bogs in the area there is evidence of peat extraction activity in the area is datable between the second half of the 19th, and the first half of the 20th century. The peat deposits however were already exhausted in the course of the 19th century, and their removal sometimes led to the discovery of material (as in the case of Trana and Avigliana). However, the finds were often not preserved, while in other cases there are finds completely lacking any sort of documentations whatsoever, which makes it difficult to determine how much has actually been destroyed during this period. Excavation works were often preceded by drainage works. Viverone Vi.1 site (IT-PM-01) is a submerged site, identified only after the introduction of modern scuba diving investigation (1966). The sites identified on the lake floor show well preserved wooden structures, but the layers appear to have suffered due to erosion and re-deposition. In general Piedmontese sites are not threatened directly by urban expansion, but are sometimes negatively affected by agricultural activity. At the moment research takes place through joint cooperation among different institutions, Museums, Universities, the Soprintendenza per i Beni Archeologici. Possible research developments indicate the few peaty areas not affected by extraction work still hold some potential, and so it is vital that the layers of these areas are properly protected.

Slovenia

At the end of the Ice Age a so called 'Holocene' lake was formed at Ljubljansko barje. During the 2nd millennium BC this lake disappeared and peat started to grow and covered the remains of prehistoric dwellers. In the 18th century the first efforts were undertaken to reclaim the land; the peat-cutting process started, finishing at the beginning of 20th century. Today the Ljubljansko barje area is covered by periodically wet meadows, small forests, fields and very small peat patches protected by law.

Currently the Ljubljansko barje basin is affected by its fast growing population notably on the north-eastern side around the city of Ljubljana (some 280,000 inhabitants). Due to low land prices the city limits have over recent decades extended rapidly into marshy areas. However, some efforts have been undertaken to control this process ↘ cf. Chapter 4.b.

2.b.4 History of research

General

The beginning of pile-dwelling research

Consistently cold and dry weather in the winter months of 1853/54 led to exceptionally low water levels at various lakes throughout the Swiss Midlands, which provided an opportunity to gain land and extend port facilities. On the occasion of such work being carried out in Meilen–Rorenhaab (CH-ZH-06) on Lake Zurich in 1854, a large pile field was discovered including considerable amounts of archaeological finds dating from the Neolithic period and the Bronze Age lodged between the timbers. Ferdinand Keller ↘ Fig. 2.75, antiquarian and founder of the Zurich Antiquarian Society, described these discoveries in the first pile-dwelling report (Keller 1854), thus launching his 'pile-dwelling theory'. Basing his theory on source material by the Greek writer Herodotus, who left a description of ancient pile dwellings in Lake Prasias in Thrace, and on contemporary accounts by the French explorer Jules-Sébastien-César Dumont d'Urville of pile dwellings in New Guinea ↘ Fig. 2.76, Keller interpreted the features in Meilen–Rorenhaab (CH-ZH-06) as the remains of a pre-Roman and therefore Celtic village, which had been built on a wooden platform supported by numerous piles in the lake.

Many more pile dwellings were subsequently discovered not only in Switzerland but throughout the entire Alpine region. These finds led to a veritable pile-dwelling fever and to the discovery of numerous pile-dwelling settlements around the Alps. Ferdinand Keller collected the information and published it in his pile-dwelling reports – by 1930 the Zurich Antiquarian Society had published a total of twelve such pile-dwelling reports. The sixth report, published in 1866, was translated into English (Keller 1866), which led to research also being pursued in other countries.

↘ p. 165

Fig. 2.75 Ferdinand Keller, antiquarian and founder of the Zurich Antiquarian Society, described the large pile field of Meilen–Rorenhaab (CH-ZH-06) in the first pile-dwelling report, thus launching his 'pile-dwelling theory'.

↘ p. 165

Fig. 2.76 Contemporary accounts from the South Pacific inspired Ferdinand Keller to interpreat the features as the remains of a Celtic village, which had been built on a wooden platform supported by numerous piles in the lake.

Natural sciences as part of pile-dwelling research

Pile-dwelling archaeology played a pioneering role in the development of European prehistoric research. Thanks to the excellent state of preservation of the finds in waterlogged conditions experts in natural history and physics were invited from the very beginning to take part in pile-dwelling research. Archaeobotanical, archaeozoological and palaeometallurgical analyses were also carried out. Ludwig Rütimeyer wrote his work on the fauna of the pile dwellings in Switzerland as early as 1862, and Oswald Heer published his work on the plants of the pile dwellings in 1865.

Pile-dwelling research inspired the collaboration and mutual stimulation of the humanities and the natural sciences. The first congresses where the most influential researchers convened were organised as early as 1864 and 1877 in Constance and in 1899 in Lindau (Lake Constance, Germany) and in 1878 in Varese (Italy).

19th century prehistory had almost exclusively consisted of burials, religious sites or military bases. The discovery of the pile-dwelling settlements profoundly changed the field of archaeology by introducing the world of the living in a detailed and multi-facetted manner.

Ever since the first discoveries were made in the 19th century, pile-dwelling archaeology has continued to inspire the research community. New scientific fields such as dendrochronology or micromorphology have come into being and there has been an ongoing exchange between archaeologists from around the Alps and from many other countries with wetland sites. The astounding amount of scientific publications available today is an impressive reflection of these activities.

The pile-dwelling dispute

Doubts about Keller's theory of villages on a wooden platform over the lakelevel were first expressed in scientific circles in the 1920s and started the so-called pile-dwelling dispute ↘ Fig. 2.77. The discovery in the Federsee bog of buildings which were constructed on the ground level and the unclear function of some piles both on Lake Constance and the Federsee led Reinerth to speak of contemporaneous waterfront pile buildings (Uferpfahlbauten) as well as bog communities (Moorsiedlungen). This reanimated the discussion on 'stilt villages'. Of central importance was the controversy surrounding the Wasserburg Buchau. Reinerth was convinced it had stood on an island in the lake while in 1942, the director of the Altertümersammlung of the *Landesmuseum Stuttgart* O. Paret and the bog geologist W. Staudacher believed it had been built on the peat surface, and cut off later by erosion and rising water. Paret condemned the stilt village theory as a 'romantic illusion' and from 1945 onwards the Swiss research establishment supported him.

Different kinds of construction have since been accepted as scientific fact and the current more differentiated view of the archaeological reality does more justice to the various cultural groups, the geographical conditions and the long period covered by the pile-dwelling phenomenon. The conditions that prevail at Lakes Geneva and Neuchâtel, for example, where severe storms can cause waves of up to 1.5 m in height, bear no similarities with the relatively calm surfaces of smaller lakes and also require different kinds of safety measures against floods.

↘ p. 166

Fig. 2.77 Changing models: village on a platform in a lake (1884); raised individual houses along the shoreline (1922); houses built directly on dry land (1942); different house types existing beside each other (2009).

Underwater excavations

The fact that the sites are sometimes submerged has always been a challenge. Adolphe Morlot, Fréderic Troyon and François Forel launched the earliest experiments involving diving and excavating in Lake Geneva in 1854 – these were the earliest, albeit unsuccessful attempts at pursuing underwater archaeology ↘ Fig.2.78. The diver wore an iron helmet filled with air from above the water surface. The experiment was unique in the history of pile-dwelling research and was not followed up because the contraption was probably not suited to making archaeological observations.

From 1937–1938 onwards, scuba diving equipment invented around 1930 was used for archaeological investigations at Lake Annecy (France) and on the French shore of Lake Geneva. From the 1950s onwards, further developments on scuba diving gear allowed researchers to investigate the features *in situ*. The techniques of underwater archaeology were further developed and employed from 1953–1954 and during the next 20 years in the Savoyan lakes. First underwater excavations in Lake Constance carried out in 1955 and in Lake Zurich in 1967–68. Underwater excavation methods have since been further refined and specialist scuba diving teams are carrying out and documenting these challenging investigations.

In 1929/30 Hans Reinerth was the first to use double-walled excavating boxes in Sipplingen (DE-BW-09) on Lake Constance. This cassion, 22 x 22 m big, was lowered onto the lakebed and the water was then pumped out of it. In this manner substantial areas of a pile-dwelling village on the bottom of the lake were excavatted. Smaller caissons were also used by Paul Vouga at Lake Neuchâtel (Switzerland).

↘ p. 167

Fig. 2.78 The first experience of 'diving' on a submerged prehistoric site by Adolf Morlot in August 1854 at the site la Grande Cité in Morges (Morges–Stations de Morges, CH-VD-12).

Switzerland

Pile-dwelling research has had a long tradition. The earliest mention of a pile dwelling dates back to 1472. The document is a contract which mentions the place name 'In den Pfählen' (*In the Piles*), referring to the pile dwelling in Nidau on Lake Bienne

(Switzerland). Abraham Pagan, town clerk of Nidau, also referred to these piles in 1767/68, describing them as several fathoms deep and interpreting them as remains of buildings or as a contraption for catching fish. He was correct in concluding that the lake had to have been smaller when the complex had been erected. The pile field was mapped in 1811. Piles were also observed elsewhere in modern times. In 1684, for instance, the earliest piles of Bronze Age settlements were discovered in Lake Geneva between L'Ile and Cologny, but interpreted as the remains of a bridge built by Julius Caesar.

In the 19th century, pile dwellings, found in almost all parts of Switzerland, played an important role in promoting Swiss identity. When the current modern federal state was founded in 1848, the civil war (Sonderbund War) of 1847 had not been forgotten. Given its several languages, various cultures and religions, one of the tasks faced by the new federal state government was to forge a new identity, which could not be based too strongly on Alpine images because the Catholic conservative cantons of Central Switzerland were the very cantons that had a hostile attitude towards the new federal state. The new state government was thus grateful for any elements that might prove unifying, identity-promoting and balancing. Against this background the pile dwellings took on great importance in representing Switzerland abroad, for instance at the World Fairs in Paris (1867, 1889) and Vienna (1873).

An important Figure in this earliest period of pile-dwelling research was the farmer and antiquarian Jakob Messikommer, who excavated sites in Cantons Zurich and Thurgau and made sensational textile finds particularly in the Robenhauserried at Lake Pfäffikon (among other sites in Wetzikon–Robenhausen, CH-ZH-08). In Western Switzerland Adolphe von Morlot, Fréderic-Louis Troyon, François Forel, Johann Uhlmann, Friedrich Schwab, Edouard Desor, Victor Gross and Edmund von Fellenberg made major contributions to the pile-dwelling research.

The pile dwellings were extraordinarily popular in 19th century Switzerland. Numerous paintings were created and disseminated via school books, newspapers, almanacs and illustrated calendars ↘ Fig.2.79. Pile-dwelling songs and poems were composed. Citizens dressed up as pile dwellers marched through the streets during public festivals and at fairs.

↘ p. 166

Fig. 2.79 The pile dwellings were extraordinarily popular in 19th century in Switzerland. Numerous paintings were created and disseminated via school books, newspapers, almanacs and illustrated calendars.

Fishermen trying to gather artefacts with so-called pile-dwelling tongs found this to be a lucrative sideline. Due to the lack of appropriate legislation, numerous finds assemblages were sold in the 19th century, which is why many museums of history, ethnography or natural history around the world are still housing objects from old pile-dwelling collections. Business was going so well that some unscrupulous craftsmen even specialised in forging pile-dwelling artefacts.

Some local authorities, for instance Thurgau, started to introduce bylaws to ban the wild looting of sites as early as 1861, but it was not until the early 20th century and the enactment of the Swiss Civil Code that the foundations were laid for the administrative legislation and organisation of modern archaeology. On this occasion, the cantons were put in charge of preserving the cultural heritage.

While the observations made during the emergency excavations at the site Zürich–Alpenquai carried out in 1916 and 1919 were duly noted, the excavation method of using a mechanical excavator involved what one may call brute force. The systematic recording of observations regarding stratigraphic sequences became a standard in the period between the wars, for instance at Auvernier–La Saunerie (CH-NE-06) where P. Vouga defined the evolution of the Neolithic periods in Western Switzerland ↘ Fig. 2.80, and at other large excavations carried out in the Cantons Aargau, Lucerne, Thurgau and Zug. The extensive excavation at Twann–Bahnhof (CH-BE-07) in 1974–76 was the first occasion at which neighbouring disciplines such as archaeobotany, sedimentology and dendrochronology were systematically and comprehensively applied. The publication of this site, which comprises 23 volumes, was viewed for a long time as exemplary in prehistoric archaeology. From the 1970s onwards, large-scale rescue

↘ p. 167

Fig. 2.80 Paul Vouga defined the evolution of the Neolithic periods in Western Switzerland. Systematic recording of observations regarding stratigraphic sequences became a standard in the period between the wars (Auvernier–La Saunerie, CH-NE-06 in 1919).

excavations carried out on the routes of the national road network (for example in the bay of Auvernier) and the development of the cantonal departments of archaeology during a period of economic growth – hence the number of construction projects – resulted in a number of more and more extensive interventions, both on the lakeshores and beyond. Some of the largest projects in recent decades were the excavations at Zürich–Mozartstrasse (Lake Zurich), Hauterive–Champréveyres, Saint-Blaise–Bains des Dames (Lake Neuchâtel), Steinhausen–Sennweid (Lake Zug), Arbon–Bleiche 3 (CH-TG-01; Lake Constance) and Corcelles-près-Concise–Stations de Concise (CH-VD-05; Lake Neuchâtel).

The techniques developed and employed in underwater excavations at Lake Zurich facilitated the creation of numerous scuba diving teams working at a growing number of lakes both in Eastern and Western Switzerland. Various inventories were also compiled over the past number of years, for instance at Lake Constance (1982–83), Lake Bienne (1985–87), Lake Zug (1996/97) and at the large lakes in canton Zurich (1996). These projects involved discovering new sites and monitoring their preservation at regular intervals over the subsequent years with the aim of putting in place targeted measures for their protection. Various such measures have already been implemented ↘ cf. Chapter 4.b and ↘ Volume II.

Austria

Although the Salzkammergut in Upper Austria can claim by far the most prehistoric pile-dwelling sites in Austria, the first settlement was in fact discovered in Carinthia. The first search began in 1863, most probably initiated by a lecture by Adolf Morlot ↘ cf. Chapter 2.b.4, Switzerland) in Vienna. And as early as 1864 – ten years after Keller's first report on pile dwellings in Switzerland – the village of the Keutschacher See (AT-KT-01) was discovered and reported by Josef Ullepitsch.

In 1870, Ladislaus Gundacker Graf Wurmbrand, Johann Graf Wilczek and Hans Kopp made the first discoveries in the Salzkammergut. Kopp was a fisherman from Lake Bienne in Switzerland, and experienced in the search for pile dwellings. He was hired especially to help in the search for pile-dwelling sites in Austria. Wurmbrand and his team had already prospected at a couple of places in various lakes in the surrounding area, and finally the site of Seewalchen was found. It is situated in the north of Lake Attersee, where the Ager forms the outflow to the River Traun. On the other side, at the southern end of Lake Attersee, the Seeache forms its primary inflow from Lake Mondsee. There – again situated next to the outflow – lies the pile-dwelling site of Mondsee (AT-OÖ-07) which was discovered two years later in 1872 by Matthäus Much. This is the eponymous site of the Neolithic Mondsee Group.

The first years of pile-dwelling research at the end of the 19th century brought several other sites to light, including those of Aufham (AT-OÖ-04) and Litzlberg Süd (AT-OÖ-05). As well as the sites at Lake Keutscha, Lake Attersee and Lake Mondsee, sites had also been discovered in Lake Traunsee. However these were destroyed during building activities in the first half of the 20th century. The early years of the 20th century were characterized by a flourishing cooperation between the Museum of Natural History in Vienna and the lakehauler and dredger Theodor Wang, who salvaged many objects – not only for the museum, but also for private collectors like Max Schmidt. Schmidt had a large collection of pile-dwelling objects, but most were destroyed during World War II. Wang also found two new sites in Lake Attersee in the early 20th century.

Kurt Willvonseder – first member of the Department of Prehistory of the University of Vienna and later of the Department for Monument Protection (later Austrian National Heritage Agency / Bundesdenkmalamt) – started to work on the pile-dwelling sites in 1931, but was able to proceed with his research only after World War II.

After the war, Kurt Schaefer undertook his first attempts in underwater archaeological research under the supervision of Willvonseder. Walter Kunze, until recent years director of the Austrian Pile Dwelling Museum in Mondsee , also conducted research with the support of local diving groups in the 1960s.

New sites and first scientific underwater research came with the involvement of Johann Offenberger of the Austrian National Heritage Agency (Bundesdenkmalamt) between 1970 and 1986. Offenberger aimed to record all existing sites and search for new sites in potential settlement areas, so as to gain a basis for future protection measures and further research. More than one dozen new sites have been found, among them the site of Abtsdorf I–III (AT-OÖ-01, AT-OÖ-02, AT-OÖ-03) and Nussdorf (AT-OÖ-06). Other interesting sites – such as the Roman inland harbour at Weyregg (Attersee) – have been discovered by Offenberger and his crew of sports divers. Offenberger mostly undertook surveying and archaeological prospecting work, but also small scale underwater excavations; and he started using radiocarbon dating.

After the termination of Offenberger's research, a working group under the leadership of Elisabeth Ruttkay of the Department of Prehistory at the Museum of Natural History in Vienna started research on the collected material and data. Over the course of this project – funded by the Austrian National Bank – the University of Vienna revived its activities in the Keutschacher See (AT-KT-01). These activities, started in 1993, focus strongly on dendrochronology and are still ongoing.

France

French Jura Lakes

Since 1830 the polished axes from the draining of the Clairvaux marsh have been inventoried at the Museum of Archaeology at Lons-le-Saunier. J. Le Mire discovered the first Jura lakeside villages in 1869 in *Lake Clairvaux*, around the Grand-Lac, during an exceptional drought; the fame of these finds, which attracted French pre-historians, was the result of a survey on the peaty La Motte-aux-Magnins peninsula. Already in 1889, L.-A. Girardot had identified piles visible in the waters of *Lake Chalain*. The real discovery of the Chalain pile dwellings, however, took place in May 1904 when work was in progress on harnessing the waters for the hydroelectric scheme. A trench exposed thousands of stakes and quantities of Stone and Bronze Age objects which rapidly brought the region archaeological renown. As from June 1911, three sites were classified as historical monuments. After a few somewhat disorganised excavations, the remains were forgotten until around 1955/56 when F. Bourdier attempted the first stratigraphic and chronological approaches at Chalain.

As from 1970 further research took place on the Neolithic villages of the Jura thanks to the development of the Direction des antiquités pré-historiques de Franche-Comté (Franche-Comté Department of prehistoric antiquities), now the Service régional de l'archéologie (Regional archaeology service), underwater prospecting was undertaken by P. Pétrequin in 1972, while drilling cores were taken and layouts of stakes were recorded by M. Magny during the winter of 1978/79 when the lake was artificially lowered by more than 7 m. The work of these groups was to lead to a genuine awareness of the archaeological potential and the establishment of a Neolithic chronology for the Jura.

In 1986, as part of a huge research project on the lacustrine Neolithic period in the north-west Alps directed by P. Pétrequin, specialists from every discipline, employing diving for the submerged sites and pumping for land excavation, applied all the known techniques of excavation, analysis and study to understanding the lakeshore sites.

Lastly, at Chalain in 2000 and Clairvaux in 2001, P. Pétrequin and the team from the Centre de recherches archéologiques de la vallée de l'Ain (CRAVA) (Archaeologi-

cal research centre of the Ain Valley) undertook an overall archaeological assessment of the low-lying marshes. Their work correlates with current problems of heritage management of the archaeological reserves (definition of zones in terms of scientific importance, soil sensitivity to farming and environmental fragility) and scientific research (in particular, the bringing to light of occupation phases on the upper shores during lake level transgression episodes).

Savoyan Lakes

The remains of prehistoric villages buried along the shores of the Savoyan Lakes have been known since the mid-nineteenth century. The first series of remains in *Lake Annecy* were brought to light in 1856 by members of Chambéry's Société savoisienne d'histoire et d'archéologie (SSHA) and Annecy's Académie florimontane, their attention drawn by the wealth of the villages discovered in Lake Zurich during the winter of 1853/54 ↘ **see Chapter 2.b.4, above**. At *Lake Le Bourget* pile dwellings were mentioned for the first time at Grésine in 1856 when piles were brought to light during the building of the railway. The earliest research on the shores of *Lake Aiguebelette* goes back to 1863 when L. Rabut, a member of the commission appointed by the SSHA to carry out excavations relating to the lake dwellers, submitted a report on his work. From that time on countless remains from numerous sites have turned up in the lake. Between 1854 and 1875, objects from the Stone and Bronze Ages were identified from over forty prehistoric settlements, several of them on the French shore of Lake Geneva.

Expeditions 'to fish for antiquities' from boats, using pincers, led to the creation of the lacustrine collections of the Musée-Château d'Annecy and the Musée-Savoisien de Chambéry. From very early on the discoverers of the lake settlements provided inventories and general maps of the submerged sites. In 1908, the year of the Congrès préhistorique de France in Chambéry, there were numerous contributions on lacustrine finds. M. Le Roux, curator of the Musée d'Annecy and P. Guinier, professor of botany, for the first time demonstrated the need to study material finds and organic remains preserved in lake sediments in their publications on the flint tools, fauna and plant remains of the Le Thiou canal in 1884. In the first half of the 20th century interest in lacustrine research declined.

Since 1980 research has gained a new impetus following the creation of the Centre national de recherches archéologiques subaquatiques (CNRAS), a body of the Ministry of Culture relocated in Annecy (Director A. Bocquet), which in 1996 became the Département des recherches archéologiques subaquatiques et sous-marines (DRASSM) (Department of underwater and submarine archaeological research). In the context of its missions in inland waters, the Department undertook the recording of the location of deposits identified in earlier times. However, it was not until the systematic prospecting campaigns conducted by DRASSM Annecy between 1995 and 2001 (under A. Marguet) and the programmed test borings for the stratigraphic assessment of Late Bronze Age deposits from 1997 to 2009 (under Y. Billaud) had been carried out that our knowledge of littoral occupations became considerably more specific. During this research, a deliberate policy of analysis and dating enabled a number of key deposits to be incorporated into the problem areas of paleoclimatic reconstructions (lake level fluctuations, human impact on plant cover, etc.) in the laboratories of the Centre Nationale de Recherches Scientifiques (CNRS) (National Centre for Scientific Research) attached to the University of Franche-Comté in Besançon and the University of Savoie in Bourget-du-Lac. On Lake Annecy, in the context of Climasilac (a pluridisciplinary programme of environmental studies of the catchment basin), studies have made it possible to identify clearly the lake's infill history; archaeological data and analyses of sedimentological and palynological data and of numerous radiometric datings of drilling cores have thus made it possible to retrace the fluctuations of this stretch of water over the last thirteen thousand years.

Germany

Baden-Württemberg

In 1856, K. Löhle discovered the first pile dwellings in Wangen (DE-BW-01) on the Höri Peninsula and in the same year in Hemmenhofen–im Leh (DE-BW-02). Up until the end of the 19th century most of the known sites were discovered. From 1895 onwards, E. v. Tröltsch pressed for systematic exploration of the pile dwellings on the Badensian shore of Lake Constance. In 1898, K. Schumacher, from the Grand Ducal Collection Karlsruhe (Grossherzogliche Karlsruher Sammlung), carried out systematic excavations in Bodman and Sipplingen and recorded multiple occupation layers separated by lake marl. By 1900, the zeal for collection begun to ebb off and the opinion that uncontrolled digging would lead to the loss of potential sources of knowledge asserted itself. In 1905, uncontrolled excavation was forbidden, at least on the Badensian shore.

In the Federsee area, the Reed Warden Aberle reported to his superior District Forester and Director of the State Peat Administration E. Frank that the pile dwellings were hindering peat cutting in the State reed beds. Frank immediately ordered excavations. They were however quickly suspended and the sale of finds stopped until experts from Stuttgart could assess the situation. E. Paulus and Th. V. Krauss were trusted with a four week excavation and its documentation. More house plans were revealed by Frank and O. Fraas in a further excavation in 1877. In 1879, they discovered what would for many years be the only bog house plan in Europe near the original excavation site. In contrast to the then prevailing opinion that buildings were constructed on platforms over open water (see general part), Frank's view was that the buildings were at ground level on top of the soft peat. Frank's work was, from the beginning, interdisciplinary. He sent samples to experts all over Europe. After his death his considerable collection was sold to Berlin.

The scene changed dramatically in 1919 when the newly created Institute of Prehistoric Research at the Tübingen University started to excavate on the Federsee. For the first time, professional archaeologists were at work, and they had a profound impact on the development of archaeological techniques. Major influence was exercised by R. R. Schmidt, founder of the Institute, his student H. Reinerth and his rival O. Paret in Stuttgart.

The Federsee, a shallow silted lake, lies just to the north of the Alpine foothills. As it had already been drained for peat cutting and land reclamation, it was technically ideal for excavation. Five settlements were discovered in the bog to the South of the Federsee. Work began at Aichbühl and Riedschachen, sites known since the 19th century, and continued at the newly discovered Neolithic villages near Taubried and Dullenried and at the Late Bronze Age site Wasserburg Buchau. Complete village complexes, sometimes palisaded, were uncovered for the first time. They were accompanied by remains of dugout boats, wagons and plank trackways.

In 1929 and 1930, a watertight caisson was used for the first time on Lake Constance (see general part above). Systematic site photography and survey methods, both on the Federsee and Lake Constance, also were of the highest standard. Another outstanding first was the cooperation with the botanist K. Bertsch, one of the most important pioneers of palynology and macrobotany in South West Germany. In 1939, attempts to date the well preserved wood of the palisades of the Wasserburg Buchau using dendrochronology were made by the Institute of Forest Botany in Tarant. This was the first systematic attempt to use this method in central European archaeology.

The most extensive excavation so far on the Federsee took place on the site 'Wasserburg Buchau' in 1937. It was directed by Reinerth, by then professor at the University of Berlin and director of the Imperial Association for German Prehistory (Reichsbund für Deutsche Vorgeschichte). From the very beginning this second stage of research in South West Germany under Schmidt and Reinerth had been

associated with nationalism and by then it was fully under the control of the National Socialist propaganda.

The level achieved by pile-dwelling archaeology in South-West Germany during the 1920s was unsurpassed. Work at the Federsee had resulted in a micro-regional survey which was almost uniquely coherent and impressively demonstrated settlement history in prehistoric times (Reinerth 1936). The arguments, however, were characterised by both evolutionary and ethnocentric prejudice. Attempts had been made to coordinate the biostratigraphy correctly with settlement history during the Neolithic Period, but the results were disregarded because they did not 'fit'. The dynamics of the communities themselves, whose finds indicated different settlement phases, were largely ignored in order to create an idealised world. Various construction phases were grouped together to form one static scene.

After 1945, wetland archaeology in South West Germany recovered slowly. Settlement studies on the Federsee and Lake Constance had been strongly associated with National Socialism and therefore now stigmatised. Reinerth, who was not allowed to return to the university, was limited to minor activity as head of the private open air museum at Unteruhldingen. Meanwhile, Paret became curator of the Stuttgart Collection of Antiquities and guardian of ancient monuments. In 1952 he excavated at the newly discovered wetland settlement Ehrenstein (DE-BW-21) in a valley near Ulm. Once again this project included collaboration with botanists and zoologists. On the Federsee, a group of natural scientists lead by E. Wall, who were critical of pre-war data, reanimated the research. Their efforts ultimately led to the current exploration and conservation in the wetlands of Baden-Württemberg.

In the 1970s a new generation of archaeologists began to study the pile dwellings in South West Germany. The Baden-Württemberg State Cultural Heritage Department founded the Project 'Lake Constance-Upper Swabia Project' in 1979 as a response to this renewed interest. Its aim was to take stock of all settlement in the wetlands. Private collections, open country surveys, underwater reconnaissance, measurement and core drilling facilitated the rediscovery of old sites as well as the discovery of new ones. Stratigraphic sampling, usually limited to no more than a few square metres and the collection of surface finds permitted better understanding of the level of conservation and the significance of the settlements than core drilling. Most importantly, such samples provided material for scientific dating and bioarchaeological analysis

The German Research Foundation (Deutsche Forschungsgemeinschaft, DFG) supported work until 1983 with annual trial trenches in Upper Swabian wetlands in summer and at Lake Constance in winter. After that, the DFG provided for intensive settlement studies in the Alpine foothills until 1993. This included large-scale excavation of the Neolithic site Hornstaad-Hörnle I (DE-BW-03) on Lake Constance and the Early - Middle Bronze Age site Siedlung Forschner at the Federsee (DE-BW-15). It also allowed surrounding areas to be systematically surveyed. Pile dwelling research in South-West Germany was greatly strengthened by the establishment of an independent bureau at Lake Constance for archaeologists and natural scientists with laboratories, offices and storage space. The underwater archaeology section of Baden-Württemberg's Office for the protection of Ancient Monuments in Hemmenhofen at Lake Constance grew from this. The three laboratories for dendrochronology, archaeobotany and sedimentology and pedology are together with the archaeological base for underwater and wetland research.

Bavaria

The start of pile-dwelling research in Bavaria was a reaction to the discoveries of pile-dwelling settlements in the mid-19th century in Switzerland and southwest Germany. Soon after these finds were made, the Bavarian Academy of Sciences and Humani-

ties (Bayerische Akademie der Wissenschaften) also began to search for prehistoric pile dwellings along the shores of the lakes in the pre-Alpine landscape of Bavaria. Together with the Swiss geologist and pile-dwelling expert Edouard Désor, the two Munich professors Moritz Wagner, an ethnologist, and Carl Theodor von Siebold, an anatomist, were able to locate prehistoric settlement remains in the shallow waters of Rose Island (DE-BY-03) by 1864. From 1864 to 1872 they probed numerous additional lakes in what was then the Kingdom of Bavaria. Nevertheless, no concrete evidence of pile dwellings was found.

In 1864 and 1865 the Starnberg judge (Landrichter) and self-taught archaeologist Sigmund von Schab (1817–1887) began the first small trial trench on Rose Island. His activities did not, however, result in spectacular finds like those already well-known in Switzerland and Southwestern Germany. In the end, the absence of further discoveries along the lakeshores between Allgäu and Chiemgau led to the rapid dissolution of the original pile-dwelling euphoria in Bavaria.

After harsh winter storms in December 1872 uncovered extensive pile accumulations in front of Rose Islands Eastern shore, von Schab again launched months-long excavation campaigns. Working at periods of low water levels from 1873 to 1874, he dug a total of 76 pits with an over-all area of 1295 m² in the temporarily dry shallow-water zones of the island. To date, von Schab's activities represent the most comprehensive archaeological examinations carried out at Rose Island. In the course of his work, he even made use of a helmeted diver. This was the first time underwater archaeology was applied in Bavaria.

Sigmund von Schab can without doubt be considered a pioneer and the most important protagonist of Rose Island- and thus also of pile-dwelling research in Bavaria. It is worth noting that he always applied an interdisciplinary approach and took advantage of a wide range of related sciences such as wood identification, macrobotany, and palaeoanatomy. His interpretations of the features at Rose Island reflected the predominant expert opinion of the time which was based on the famous 'Pile-Dwelling Theory' (Pfahlbautheorie) of Ferdinand Keller from 1854 ↘ **cf. Chapter 2.b.4, general**.

The short-lived blossoming of pile-dwelling research in Bavaria ended with von Schab. Afterwards various researchers only gave cursory consideration to the question of whether prehistoric pile dwellings could be expected to have existed in the Free State of Bavaria or not. Their answer was consistently negative – in harmony with the spirit of the time. In 1926 Paul Reinecke, Chief Archaeologist of Bavaria from 1908 to 1937, categorically rejected the existence of prehistoric pile dwellings respectively wetland settlements at Lake Starnberg and correspondingly in all of Bavaria. He interpreted the features in the shallow water of Rose Island as medieval. A series of additional researchers held up this line of thought, for example Ferdinand Birkner, 1936, or Heinrich Geidel, 1938. It was Reinecke, too, who inspected the Neolithic wooden structures detected by the Reich Labour Service (Reichsarbeitsdienst) in 1934 in Pestenacker (DE-BY-01). However, he did not recognize the importance of the finds ↘ **cf. Chapter 2.b.3**.

Pile-dwelling research in Bavaria was a Sleeping Beauty until the development of modern underwater and wetland archaeology in the past 20 to 30 years. The founding of the Bavarian Archaeological Divers Group in 1984 – renamed 1996 as the Bavarian Society for Underwater Archaeology (Bayerische Gesellschaft für Unterwasserarchäologie e.V.) – as well as measures taken by the Bavarian State Conservation Office (Bayerisches Landesamt für Denkmalpflege) in Pestenacker and Unfriedshausen (DE-BY-01, DE-BY-02) set new accents in archaeological research. Since then, the focus has been set on prospections, specifically-targeted excavations and on topics concerning the preservation of, and dangers to the respective settlement sites. Systematic research has been undertaken at the Bavarian sites since the mid 1980's. In 1986 a dugout canoe was found at Rose Island embedded in layers dating from the Urnfield period. This was examined and documented by means of underwater archaeology

from 1987 to 1989. From 2005 to 2007 measures were taken at the northeastern tip of the island. In 1985, 1986, and from 1997 to 2000 the pile-dwelling site at Kempfenhausen in Lake Starnberg was examined ↘ cf. Chapter 2.b.2.

The site at Unfriedshausen (-West) was discovered in 1986. During pipeline constructions a rescue excavation had to be carried out ↘ cf. Chapter 2.b.3. Research excavations followed in the years 1994 to 1999. In 2000 and 2002, further archaeological measures were conducted at Unfriedshausen (-Ost). In Pestenacker comprehensive excavations were carried out between 1988 and 1993 as well as from 2000 to 2004 as part of a programme financially supported by the German Research Foundation (Deutsche Forschungsgemeinschaft) with the emphasis on settlement archaeology in the pre-Alpine landscape (DFG-Schwerpunktprogramm 'Siedlungsarchäologie im Alpenvorland').

Italy

The research on pile-dwelling settlements in northern Italy dates back to the second half of the 19th century as a direct consequence of the discoveries in Swiss lakes and the theory developed by Ferdinand Keller ↘ cf. Chapter 2.b.4, general. A few years after the Obermeilen discovery the Swiss researchers Edouard Desor and Gabriel De Mortillet suggested that the pile-dwelling phenomenon could be present in the southern Alpine region too. Exploitations along the Italian lake shores led to the identification of the site at Isolino Virginia (IT-LM-09) in 1863 at first, Bodio (IT-LM-10) and Bardello on Lake Varese in the same year and, in 1864, of Sabbione (IT-LM-12) and Pozzolo on the Lake Monate (Varese) and of the two sites Porto and Bor di Pacengo (IT-VN-01) on the Lake Garda (Verona). In this time, the site of Peschiera (Verona), discovered already in 1850 during construction work carried out by the Austrian Military Engineering Corps, was officially recognized as a pile dwelling. In the same way, finds had already been gathered from the famous peat bog of Fiavé (IT-TN-02) in 1853, but the site was definitely confirmed as a pile dwelling only in later times, (1884) by Paolo Orsi, one of the 'fathers' of Italian archaeology.

The second half of the 19th century also was a period of exploitation of the peat bogs in northern Italy. This intense use led to the identification of dozens of settlements, from Piedmont over Lombardy and Veneto to Trentino. Already in 1856, at Bosisio Parini (Como) and at the Brabbia Marsh (Varese), the brothers Quaglia gathered a collection of artefacts which received awards at the exhibitions in Varese in 1871 and in Como in 1881. In the peat bog of Mercurago (IT-PM-02) (Novara) in Piedmont, the research was undertaken in 1860 by Bartolomeo Gastaldi, who at first had accompanied Desor in the research on the Lake Maggiore without success in the same year. In 1870 and in 1875 archaeological evidence was also gathered respectively from La Lagozzetta and the Lagozza of Besnate (IT-LM-11) (Varese): the latter has given its name to a 'facies' of the Recent Neolithic period identified by Pia Laviosa Zambotti in 1939. In 1872, in a small inframorainic basin a few kilometers away from Lake Garda, the pile dwelling of Polada was discovered by Giovanni Rambotti. This site gave his name to the Early Bronze Age culture but flourished between c. 2200 and 1600 BC and coincides with the great spread of pile dwellings in northern Italy.

In the same decades further discoveries were made in the peat bogs of Iseo (1863), in the small lakes of the morainic hills of Lake Garda (1873–1878) and of Euganei and Berici Hills (1864, 1871, 1885).

An important step in the research on lake dwelling was a series of 'First Prehistoric Exposition' held between 1871 and 1881 in many towns in northern Italy (Varese, Brescia, Verona and Como), where both European scholars and the local public could see the artefacts found in pile-dwelling settlements for the first time.

The first phase of pile-dwelling research was characterized by a strong impulse

in the investigations, carried out mostly by natural scientists, who collected a lot of archaeological, palaeo-economic and environmental data from the sites. The following period, in the first half of the 20th century, on the contrary, was characterized by a sort of stasis in the field research, and by a weaker interest in scientific aspects. We can nevertheless quote the studies carried out at Laghetto della Costa (IT-VN-07), and on the Isolino di Varese (IT-LM-09), in the first decade of the 20th century and at Feniletto (Verona) in 1918. Between other important sites discovered in this period is the pile dwelling of Molina di Ledro (IT-TN-01), (Trento), excavated in 1929 and 1937, where Raffaello Battaglia could record the presence of more than 10,000 piles.

From the Second World War to the 1980s, it is possible to identify a renewed and increasing interest in the investigation of wetland sites. In addition to the discovering of new sites, new research was carried out at sites already known in Piedmont, Lombardy, Veneto and Trentino. Mainly from the seventies on, excavations started again in some important already known sites, such as the Isolino Virginia (Varese) (IT-LM-09), Lavagnone (Brescia) (IT-LM-01), Ledro (Trento) (IT-TN-01), Peschiera (Verona) and Fiavé (Trento) (IT-TN-02). New sites were discovered in the fifties at Isolone del Mincio (Mantua) and Tombola di Cerea (Verona) (IT-VN-06), subsequently at Lucone (Brescia) (IT-LM-05) in 1965; near the Lake Fimon (Vicenza) at Molino Casarotto in 1969 and Fondo Tomellero in 1970, at Palù di Livenza (Pordenone) (IT-FV-01) in 1965, at Canàr (Rovigo) in 1970, at Castellaro Lagusello (Mantua) (IT-LM-08), in 1977, at Cà Nova di Cavaion Veronese (Verona) in 1980 and more recently at Dossetto di Nogara (Verona) (IT-VN-03), in 1996.

The well-known excavations carried out by Renato Perini in Fiavé (IT-TN-02) between 1969 and 1976, with extensive stratigraphical investigations and the study of palaeoenvironmental aspects, have been the turning point and a stimulus for Italian archaeological research in the wetlands. This site subsequently became a milestone of wetland archaeological research in Europe. Another pile-dwelling settlement of fundamental importance is Lavagnone (IT-LM-01) near Desenzano (Brescia), situated on the shores of an ancient small lake in the morainic amphitheatre of Lake Garda, where systematic research was carried out by Renato Perini in the years between 1974 and 1979. Both the sites constitute the main point of reference for distinguishing the phases of the Early and Middle Bronze Age.

A strong impulse to pile-dwelling research in the second half of the 20th century was given by the introduction of diving archaeology and with the establishment of the STAS (Technical Services for Underwater Archaeology) in 1986. Fresh research incentive came and led to a map of submerged pile-dwelling villages. Diving investigations carried out between 1994 and 2003 along the shores of the Lake Garda allowed the discovery of other new archaeological sites. In studying the submerged site, preminence was given to the topographic survey and the absolute dating of the wooden remains; the most important research being those at Viverone VI.1 (IT-PM-01) (in Lake Viverone), Sabbione (IT-LM-12) (in Lake Monate), West-Garda (IT-LM-03), San Francesco, Belvedere (IT-VN-04) and Bosca di Pacengo (in Lake Garda), Frassino (IT-VN-05) (on the small lake Frassino).

Diving excavations were conducted at the submerged Bronze Age pile dwelling of La Quercia di Lazise (IT-VN-02) (Verona) on Lake Garda (1983–2000), and in the Late Neolithic site of Palù di Livenza (IT-FV-01) (Pordenone) (1989–1999). Recently the research has focused on a small number of settlements, with deeper attention to the spatial analysis of the structures of the village and to relationship with nearby environment: Isolino di Varese (IT-LM-09), since 2005, Bodio Centrale (IT-LM-10), since 2006, Il Sabbione (IT-LM-12) on Lake Monate, since 1991, Lavagnone (IT-LM-01), since 1989, Lucone di Polpenazze (IT-LM-05), since 2005, Castellaro Lagusello (IT-LM-08), since 1998, Belvedere (IT-VN-04) – Peschiera, since 1994, Molina di Ledro (IT-TN-01), since 2003. Different types of scientific analysis, such as dendrochronology, palinology, archaeobotany, archaeozoology and sedimentology are employed for the purpose.

Slovenia

Probably the first reported prehistoric find from the Ljubljansko barje was a wooden dugout. It was discovered as a chance find between 1826 and 1828. During the 1850s, due to discoveries on Swiss lakes, the locals began recording the prehistoric finds from the Ljubljansko barje. The first pile dwelling was discovered in 1875 near Ig. A few days later, Karl Deschmann – Curator of the Krainian Nationalk Museum in Ljubljana – organized the first official archaeological excavation in Carniola (central Slovenia). Over the following two years he searched an area of almost 10,000 m^2.

In 1907 and 1908, Walter Schmid excavated the pile-dwelling settlement of Notranje Gorice. And in the period before World War II Rajko, Ložar undertook pile-dwelling research. In 1953, Josip Korošec began research work at Ljubljansko barje. He excavated the pile dwellings on the western part of Ljubljansko barje and Resnikov prekop. Between 1970 and 1977, Tatjana Bregant excavated an area of 1200 m^2 at the pile-dwelling of Maharski prekop. Due to the interdisciplinary research approach, these investigations are still considered the most modern large-scale excavations carried out in the Ljubljansko barje.

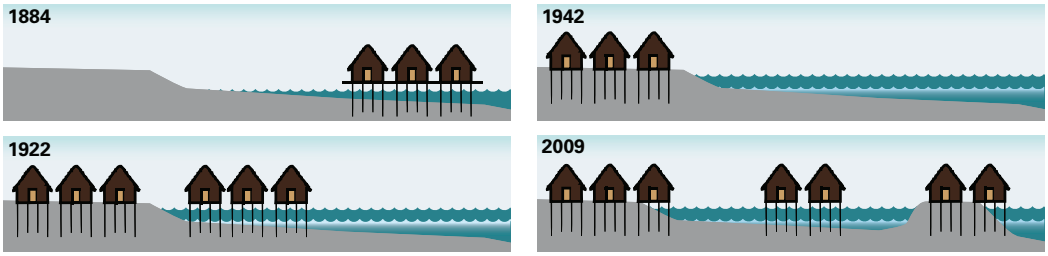
The major step forward was done about 15 years ago. Since then, intense ongoing interdisciplinary research has been conducted at Ljubljansko barje. This research is supervised by the Institute of Archaeology ZRC SAZU, in close cooperation with the Dendrochronological Laboratory of the Department of Wood Science & Technology at the Biotechnical Faculty of Ljubljana University. First a precise topography of the area was carried, revealing several new sites of pile-dwelling settlements. Introducing dendrochronology into the research efforts generated fresh data on the chronology of the area and data regarding the appearance of the settlements. Since 1996 research has extended to the river beds.

↖ **p. 139 Fig. 2.74** Due to the Jura Waters Correction, lowering the level of Lake Neuchâtel up to 2.7 m pile fields were exposed (final Bronze Age village of Cortaillod–Les Essert in 1884).

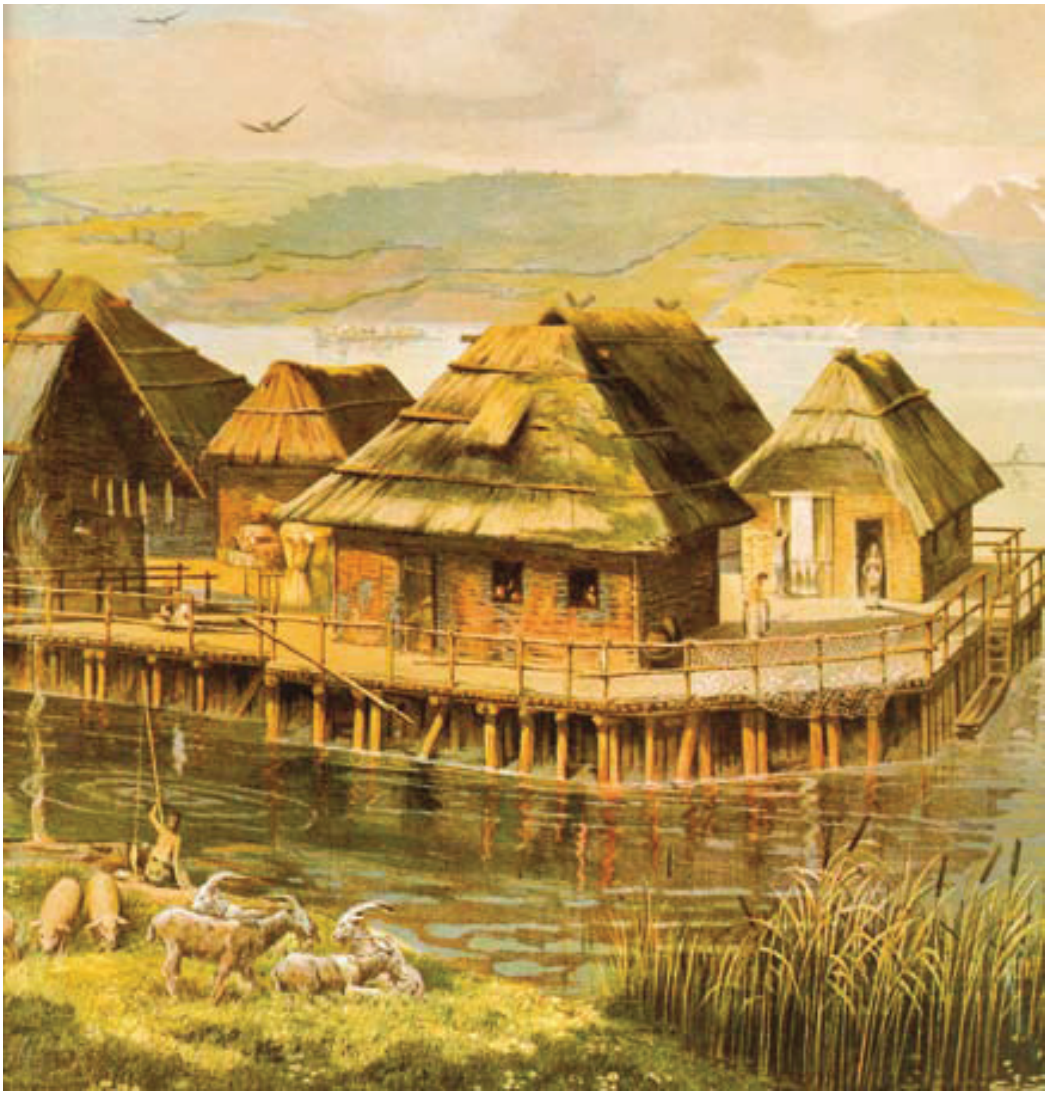
↖ **p. 152 Fig. 2.75** Ferdinand Keller, antiquarian and founder of the Zurich Antiquarian Society, described the large pile field of Meilen–Rorenhaab (CH-ZH-06) in the first pile-dwelling report, thus launching his 'pile-dwelling theory'.

↖ **p. 152 Fig. 2.76** Contemporary accounts from the South Pacific inspired Ferdinand Keller to interpreat the features as the remains of a Celtic village, which had been built on a wooden platform supported by numerous piles in the lake.

↖ **p. 153 Fig. 2.77** Changing models: village on a platform in a lake (1884); raised individual houses along the shoreline (1922); houses built directly on dry land (1942); different house types existing beside each other (2009).



↖ **p. 154 Fig. 2.79** The pile dwellings were extra-ordinarily popular in 19th century in Switzerland. Numerous paintings were created and disseminated via school books, newspapers, almanacs and illustrated calendars.



↖ **p. 153 Fig. 2.78** The first experience of 'diving' on a submerged prehistoric site by Adolf Morlot in August 1854 at the site la Grande Cité in Morges (Morges–Stations de Morges, CH-VD-12).

↖ **p. 154 Fig. 2.80** Paul Vouga defined the evolution of the Neolithic periods in Western Switzerland. Systematic recording of observations regarding stratigraphic sequences became a standard in the period between the wars (Auvernier–La Saunerie, CH-NE-06 in 1919).

Volume I

3. Justification for inscription

3.a Criteria under which inscription is proposed

The States Parties propose to inscribe the property under the following criteria:

(iii) bear unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared

The serial of the prehistoric pile dwellings along the shores of the lakes, banks of rivers and in marshy areas around the Alps is one of the most important archaeological source for the early agrarian societies in Europe between 5000 and 500 BC. The exceptional waterlogged conditions preserved organic matter so the sites give an exceptionally detailed image of the living conditions of these prehistoric populations, providing unique knowledge of their social and economic development and their ecological interactions. The results of over 150 years of research on the pile-dwelling sites had a considerable influence on the understanding of the development of the early agrarian societies of the Neolithic and the Bronze Age in general, and the interactions between the regions around the Alps in particular.

(v) be an outstanding example of a traditional human settlement, in a dry or wet environment (...), which is representative of a culture (or cultures), or human interaction with the environment especially when has become vulnerable under the impact of irreversible change

The serial of the prehistoric pile dwellings give excellent evidence of the early farmer's settlements, providing outstanding well preserved remains of wooden prehistoric architecture and reflecting building traditions over very long periods. The excellent state of conservation of wooden building elements in these villages and their most precise and detailed dating permit the reconstruction of architectural organization and development of these early human settlements and allow the writing of a history of architecture covering the span between 5000 and 500 BC.

3.b Proposed Statement of Outstanding Universal Value

The serial of *Prehistoric Pile Dwellings around the Alps* comprises a selection of 156 out of the 937 known archaeological pile-dwelling sites in six countries around the Alps (Switzerland, Austria, France, Germany, Italy and Slovenia). The serial site is composed by the remains of prehistoric pile-dwelling settlements dating from 5000 to 500 BC which are merely situated under water, on lake shores, along rivers or in wetland, offering exceptional conservation conditions for organic materials.

The serial of prehistoric dwelling structures, thanks to the exceptional number and importance of scientific results, most due to exceptional wealth of organic archaeological remains, provides an outstanding detailed perception of the world of the early agrarians in Europe, giving precise information on their agriculture, animal husbandry and the development of metallurgy. The period of more than four millennia covered by the serial of pile dwellings indubitably coincides with one of the most important phases of recent human history: the dawn of modern societies. In view of the excellent possibilities of exact dating of the remains of wooden architectural elements (annual resolution by dendrochronology) of the serial property, the understanding of entire prehistoric villages and their detailed spatial development over very long periods can be followed on the pile-dwelling sites, giving the best known archaeological sources for prehistoric dwellings. The unique preservation of organic material from prehistoric times is as well an exceptional opportunity for research in many fields of natural science, such as archaeobotany and archaeozoology.

Criterion iii

The serial of the prehistoric pile dwellings along the shores of the lakes, banks of rivers and in marshy areas around the Alps are the most important archaeological sources for the early agrarian societies in Europe between 5000 and 500 BC. The exceptional waterlogged conditions preserved organic matter so the sites give an exceptionally detailed image of the living conditions of these prehistoric populations, providing unique knowledge of their social, economic and ecological interactions. The results of over 150 years of research on the pile dwelling sites had a considerable influence on the understanding of the development of the early agrarian societies of the Neolithic and the Bronze Age in general, and the interactions between the regions around the Alps in particular.

Criterion v

The serial of the prehistoric pile dwelling give excellent evidence of the early farmer's settlements, providing outstanding well preserved remains of wooden prehistoric architecture and reflecting building traditions over very long periods. The excellent state of conservation of wooden building elements in these villages and their most precise and detailed dating permit the reconstruction of architectural organization and development of these early human settlements and allow the writing of a history of architecture covering the span between 5000 and 500 BC.

Authenticity

The understanding of prehistoric wooden dwellings and their use, function and development are displayed by the proven results of archaeological investigation of a great number of pile-dwelling sites. Research has established credible hypotheses on the life of early agrarian societies in Europe and provided exceptional data for natural science. The organic nature of the remains makes possible particular authentic testimony on prehistory. The remains of settlements and their archeological strata preserved in the ground or under water are absolutely authentic in structure, material and substance, without any later or modern additions. Modern legal and physical protection measures ensure the conservation of vulnerable property and its authenticity.

Integrity

The serial of prehistoric pile-dwelling sites – situated around the Alps and dating from 5000 to 500 BC – represents the well defined geographic area to its full extent, as well as all the cultural groups in it during the whole period of prehistoric pile dwellings. It therefore comprises the complete cultural context of the archaeological phenomena, making available the high density of scientific data necessary for reliable information on the life of early prehistoric societies. The individual components of the serial are included to their entire extent and comprise settlement structures, as well as abundant archaeological strata. The integrity of the property is enhanced by the inclusion of associated sites in the management.

Protection and Management

The *Prehistoric Pile Dwellings around the Alps* are legally protected according to the legal systems applying in the correspondent States Parties. Any proposed action that may have a significant impact on the heritage values of the archaeological areas nominated for inscription are restricted. The common management system of the nomination is comprehensive and transversal: it integrates all States levels and competent authorities, including the local communities, in each country, and connects the different national systems to an international management system, through an already implemented International Coordination Group, based on a Management Commitment signed by all States Parties. Common visions and aims are translated into concrete projects on international, national and regional/local level in a regularly adapted action plan. Funding is provided by Switzerland for the Secretariat and all States Parties for the different projects.

LONDON'S GLOBAL UNIVERSITY

UCL

2 October 2009

To Whom It May Concern

I write to express my very strong support for the candidature of the Prehistoric Pile Dwellings around the Alps for inclusion in the UNESCO World Heritage List.

These sites represent a fragile and unique resource for the understanding of the prehistoric past of Europe, all the more fragile for their lack of immediate visibility and their vulnerability to social, economic and climatic change. The evidence they provide, with their remarkable conditions of preservation, tells us more about the detail of prehistoric daily life in Europe than any other available source anywhere, and without understanding this we can never understand the prehistoric stone monuments of Europe which are much more visible and immediately spectacular. These waterlogged sites also provide an irreplaceable archive of past climate change and its human impacts.

As the candidature document states, only World Heritage designation can provide the basis for the comprehensive protection of these sites and make the world aware of their remarkable uniqueness and importance.

Yours faithfully,

Professor Stephen Shennan
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6 October 2009

To whom it may concern

UNESCO World Heritage Candidature "Pile-dwellings around the Alps

As someone who has made a career in wetland archaeology, I am pleased to offer my wholehearted support for the UNESCO World Heritage Candidature "Pile-dwellings around the Alps". Since the mid-19th century, the prehistoric settlements of the Alpine lakes have been known around the world, and they have inspired many generations of archaeologists and members of the public – on my own travels in Europe and to North America and Japan, people have talked of this inspiration, and I know from my reading that its influence is genuinely felt world-wide. The pile-dwelling sites themselves are exceptional, and the cooperation of the circum-Alpine countries in developing research, presentation and protection strategies sets an example to the rest of us for care of the heritage, both cultural and environmental.

Wetland and waterlogged archaeological sites hold a range of evidence which is often lacking on dry land sites, and what is particularly interesting and significant about the circum-Alpine wetland settlements is the evidence for the daily lives of ordinary people, lived out over many centuries. So much of archaeology focuses on the evidence for elite groups, because it was the wealthy who lived in fortified places, built ceremonial centres and had elaborate burials – and often it is predominantly this 'hard' evidence which survives in dry land contexts. But in the wetlands, where organic materials such as wood are preserved, much of the evidence comes from what the general population did in the course of their lives, and the bias to the elite is avoided. It is this, I think, which makes the circum-Alpine settlements so interesting and absorbing for such a wide range of people from around the world.

Together with my colleagues at Exeter University, I have for many years taught wetland archaeology to undergraduate and post-graduate (Masters) students, and the University is well-known for its teaching and research in this area. In my own lecture courses, and several of my research papers and books, I have made use of the excellent work which has been published on the pile-dwelling sites and their regional context. The circum-Alpine researchers have developed a number of new areas of investigation into prehistory and demonstrated the values of integrating economic, environmental and cultural evidence. Perhaps most significantly, they have led the world in the development of dendrochronology, and diversified its use beyond dating (which itself has huge importance internationally) to address questions of fundamental importance

concerning human strategies in the face of natural environmental change, as well as enabling the analysis of settlement patterns in ways that dry land archaeology can only dream of.

Both of these aspects, the evidence for daily lives and the precision of dendrochronology, are due to the preservation of organic material, which can be astonishingly good in the prehistoric lake-shore settlements. It is what makes wetland archaeology so valuable, and at the same time so vulnerable, because it depends on water – on having enough water, and water of the right quality, at all times. Modern demands for water are causing fluctuations in the burial conditions for wetland sites around the world, and it is very important that this is recognised, and that sites are protected from drying out and decay. One of the main difficulties here is that the damage takes place out of sight, underground, and many people are not aware of it. Fortunately, in the circum-Alpine region, steps were taken at an early stage to protect some sites, and research is now underway on the most effective strategies for protection. There are many threats to consider in addition to fluctuating water levels and water quality, including underwater erosion and lake-shore developments. Undoubtedly, the award of World Heritage status would make a major contribution to the long-term protection of the vulnerable organic settlements around the Alps, and the adoption of a regional approach will greatly strengthen the effectiveness of the strategies adopted.

The countries and organisations involved with the protection of the pile-dwellings, that are seeking World Heritage status, have an excellent record of presenting their sites to the public, and of making this important part of humanity's heritage accessible both physically and intellectually. They have set an example to the rest of us through the many museums, visitor centres, special exhibitions, films, publications and a host of activities aimed at diverse sections of the public. This is no fantasy world that they present, but interpretations of the past based on rigorous research, and carefully targeted at different audiences. Their appeal is evident, whether to local school parties and families, or to students and researchers, or to visitors from around the world – the heritage of the pile-dwellings is genuinely relevant to all comers. It undoubtedly deserves the World Heritage designation, and it undoubtedly will benefit from it in the face of current and future threats to its survival.

Bryony Coles
Fellow of the British Academy
Emeritus Professor of Prehistoric Archaeology


GLE – 80
PROFIL
160

3.c Comparative analysis

3.c.1 Introduction

The Comparative Analysis should compare the property to similar properties on the World Heritage List and on the Tentative Lists or otherwise known. It should outline the similarities the nominated property has with other properties and the reasons that make the nominated property stand out: It needs to determine first whether the combination of value and attributes of the pile dwelling proposal is already represented on the World Heritage List; and secondly whether a comparable series might be nominated in the future. As a serial nomination, it also needs to justify the selection of sites.

To summarize, we have to compare this nomination to sites representing similar values and attributes as the following ↘ Chapter 2.a.3:

a. properties that provide great increase of knowledge about early agriculture societies in temperate zones and people's everyday life, trade, farming, and social structures,
b. properties that are important examples of the development of architecture and the building construction of early villages and of wooden or other organic remains of agricultural prehistoric settlement structures,
c. properties that provide excellent dating possibilities,
d. properties that provide extremely rich and broad scientific data due to the high density of archaeological phenomena and the special conservation of anthropogenic organic objects,
e. properties that provide outstanding opportunities for the natural sciences due to rich organic finds such as archaeobotanical and other remains, which allow conclusions in relation to the economy and the environment.

Following the system outlined in ↘ Fig. 3.1, ↘ Chapters 3.c.2–3.c.4 compare the qualities of the pile dwellings around the Alps with other sites that show similar typological, chronological and thematic features and provide a commentary on them ↘ Figs. 3.2–3.3; 3.6. The basic focus with regard to all the reference sites is placed on the knowledge on early agrarian societies (based on the definition proposed by ICOMOS 2005, ↘ cf. Chapter 3.c.2).

	a. great increase in knowledge about early agriculture societies and people's everyday life	b. important examples of the development of architecture and the building construction	c. excellent dating possibilities	d. extremely rich and broad scientific data	e. outstanding opportunities for the natural sciences due to rich organic finds
■ (fully comparable)	Long periods of time in regions comparable with the moderate climate zones in the Alpine region.	Architectural structures (e.g. timber and clay constructions) that can be compared with the pile dwellings or evidence of the settlement structures and the organisation in rural settlements.	Precise dating, e.g. by dendrochronological means, is possible and is carried out.	Large series of comparable sites or large density of archaeological data in one place. Good conservation of anthropogenic organic objects.	Exceptional opportunities to carry out natural scientific studies that allow conclusions to be drawn regarding economic and environmental aspects.
□ (partially comparable)	Long periods of time in regions that cannot be compared with the moderate climate zones in the Alpine region or relatively short periods of time in regions that are comparable with the moderate climate zones in the Alpine region.	Architectural structures that cannot be compared directly with the pile dwellings (e.g. different construction techniques, different types of settlements).	Precise dating, e.g. by dendrochronological means, is generally possible but cannot yet be carried out.	One of a large series of comparable sites or large density of archaeological data in one place. Conservation of anthropogenic organic objects possible, but not the rule.	Limited opportunities to carry out natural scientific studies.
– (not comparable)	No early agrarian societies that can be compared with the circum-alpine pile dwellings around the Alps.	Lack of architectural structures and evidence of settlement structures.	Only inaccurate absolute dating (C14), relative chronological dating based on stratigraphic observations or dating by typological comparison of the finds.	Individual site without comparable finds and features in the wider surroundings with a moderate density of finds and no conservation of anthropogenic organic objects.	Lack of opportunities to carry out natural scientific studies.

Fig. 3.1 System of evaluating sites that can be compared with the pile dwellings around the Alps.

3.c.2 Comparison with sites already inscribed on the World Heritage List

Comparison with same type of properties

There is no other site on the World Heritage List representing a prehistoric pile-dwelling settlement site, neither as a single site, nor as a serial site.

Typological analysis

From a typological point of view, prehistoric pile-dwelling sites must be considered archaeological properties. Archaeological heritage comprises all types of archaeological sites or individual monuments, including earthworks, burial mounds, cave dwellings, settlements (towns, villages, farms, villas), temples and other public buildings, defensive works, cemeteries, routes, etc., that are not in use or occupied (ICOMOS 2005). This definition includes many World Heritage properties, inscribed for values and attributes, however, with which a comparison with prehistoric pile dwellings would be totally meaningless. In fact, archaeological properties in this general sense are very well represented on the World Heritage List: Almost a quarter of all sites inscribed can be considered 'archaeological sites'. It is therefore necessary to further specify the typology of 'archaeological sites', to focus on the specific values and attributes of these sites and to examine this typology in combination with other criteria. A two-pronged approach must be adopted, focusing firstly on chronological and regional features and secondly on thematic criteria.

Furthermore, the *Prehistoric Pile Dwellings around the Alps* are proposed as a transnational serial nomination: their (scientific) value lies in the high density of archaeological remains in a defined geographic area, reflected by the serial, providing exceptional scientific data and therefore permitting the scientific interpretation and very precise knowledge about prehistoric societies.

The typological analysis should therefore also seek out archaeological sites that will show related features because they belong to the same cultural group and / or to the same type of property which is characteristic of a defined geographical zone: Most of these archaeological serial sites inscribed on the World Heritage List are rock art sites. Their value is based mainly on the evidence of artistic representations of scenes of prehistoric life, animals or hunting. Some of these rock art sites can thus be compared at least partially and from this specific point of view with the prehistoric pile-dwelling sites. Thus they will appear in the thematic analysis of the inscribed sites. Apart from these sites, the only archaeological serial site that represents some sort of 'settlements', is the Frontiers of the Roman Empire. However, from a chronological point of view, this property is not comparable with the Prehistoric Pile Dwellings around the Alps (see below).

Chronological and regional analysis

The ICOMOS study proposes different chronological categories, taking into consideration the overlapping cultural and regional diversity of the world. The *Prehistoric Pile Dwellings around the Alps* belong to the category 'Early Evolution of Man', and there to subchapters '2. Mesolithic and Neolithic' and '3. Bronze Age and Iron Age'. No regional difference is made for these early periods. Only 20 sites on the World Heritage List belong to these two categories (including two properties nominated after 2005). These will be the most important criteria for selecting sites to carry out a meaningful comparison.

The 20 sites on the World Heritage List representing cultural properties from the same era as the *Prehistoric Pile Dwellings around the Alps* are:

- 79, Paphos (Cyprus)
- 94, Rock drawings in Valcamonica (Italy)
- 132, Megalithic Temples of Malta
- 179, Tassili n'Ajjer (Algeria)
- 306, Matobo Hills (Rock paintings, Rock shelters, Zimbabwe)
- 373, Stonehenge, Avebury and Associated Sites (United Kingdom and Northern Ireland)
- 476, Chongoni Rock-Art Area (Malawi)
- 514, Heart of Neolithic Orkney (United Kingdom and Northern Ireland)
- 557, Rock Carvings in Tanum (Sweden)
- 575, Ban Chiang Archaeological Site (Thailand)
- 579, Bronze Age Burial Site of Sammallahdenmäki (Finland)
- 848, Choriokoitia (Cyprus)
- 849, Archaeological Site of Troy (Turkey)
- 886, State Historical and Cultural Park (Turkmenistan)
- 925, Rock Shelters of Bhimbetka (India)
- 954, Saint Catherine Area (Egypt)
- 968, Agricultural Landscape of Southern Öland (Sweden)
- 1006, Neolithic Flint Mines at Spiennes (Mons, Belgium)
- 1145, Petroglyphs within the Archaeological Landscape of Tamgaly (Kazakhstan)
- 1226, Stone Circles of Senegambia (Gambia, Senegal)

Thematic analysis

The ICOMOS study outlines a list of issues considered universal and potentially applicable to all humanity. Seven main headings (expressions of society, creative responses and continuity, spiritual responses, utilizing natural resources, movement of people and developing technologies) are further divided into sub-themes. The properties inscribed on the World Heritage List have been correlated with this thematic structure according to their Outstanding Universal Value. We must first define which thematic (sub-)structure the *Prehistoric Pile Dwellings around the Alps* may be correlated with so that we can identify the inscribed properties with which the pile dwellings could potentially be compared.

The themes selected are:

– creative responses and continuity (monuments, groups of buildings, sites):
  domestic habitat (44 properties), agricultural architecture (6 properties), rural settlements (32 properties), rock art, monumental painting (31 properties)
– Utilizing natural resources:
  crop and flock farming (30 properties), hunting, gathering, and fishing (5 properties)

148 properties on the World Heritage List belong to these thematic groups. Since they belong to a variety of chronological and geographical contexts, it would prove meaningless to compare the *Prehistoric Pile Dwellings around the Alps* with all these properties. Therefore, it will be necessary to combine the thematic selection with a chronological approach: the selection of properties identified in the typological, chronological, regional and thematic approach must be analysed individually in a more detailed manner to show that the combination of values and attributes of the *Prehistoric Pile Dwellings around the Alps* is not yet represented on the World Heritage List.

The sites selected are:

– Rural settlements:
  Paphos (79, Cyprus), Bang Chiang Archaeological Site (575, Thailand), Choirokoita (848, Cyprus), Rock Shelters of Bhimbetka (925, India)
– Rock art, monumental painting **:**
  Rock drawings in Valcamonica (94, Italy), Tassili n'Ajjer (179, Algeria), Matobo Hills (306, Zimbabwe), Rock Carvings in Tanum (557, Sweden), Petroglyphs within the Archaeological Landscape of Tamgaly (1145, Kazakhstan)
– Crop and flock farming:
  Agricultural Landscape of Southern Öland (968, Sweden)

In contrast to the ICOMOS study, Heart of the Neolithic Orkneys (United Kingdom and Northern Ireland) will be incorporated in the comparison as well ↘ **Fig. 3.2**. Although with its chambered tomb it belongs to the category of 'religious and commemorative architecture' the World Cultural Heritage site also encompasses a settlement (Skara Brae), which means that at least parts of this property also belong to the category of 'rural settlements'. Because Skara Brae has yielded radiocarbon dates from the period between 3200 and 2200 BC, the site is also comparable with the pile dwellings from a chronological point of view.

In theory, a considerable number of other cultural goods could be added to the ICOMOS study. A more detailed analysis ↘ **Fig. 3.2**, however, shows that there are four main reasons why the *Prehistoric Pile Dwellings around the Alps* cannot be compared with these:

– From a chronological point of view, the World Heritage sites are sometimes only partially compatible with the pile dwellings, and often correspond only to their final phase.
– Evidence of the construction techniques employed in the rural settlements of early agrarian societies, where obtainable, often points towards different types of settlement with stone and clay constructions.

– There is a complete lack of accurate dates obtained by dendrochronological means. Rock paintings in particular are very hard to date due to their lack of material even for radiocarbon dating.
– Organic finds that provide tangible evidence of pile-dwelling everyday life and are such characteristic pile-dwelling finds are not available.
– As outlined, the pile dwellings cannot be compared with any of the inscribed World Heritage sites. Rather than providing material for comparison, one must see them as an addition: the Valcamonica rock paintings, for instance, mainly represent the spiritual world, which is underrepresented in the pile dwellings. The Agricultural Landscape in Öland adds the aspects of a cultural landscape to the pile-dwelling settlements. Therefore, *Prehistoric Pile Dwellings around the Alps* can be considered as a valuable addition to the World Heritage List.

Property	Criteria	Description of the archaeological property
2038 Prehistoric Pile Dwellings around the Alps (Switzerland, Austria, France, Germany, Italy, Slovenia)	iii, v	The serial of *Prehistoric Pile Dwelling around the Alps* comprises a selection of 156 out of the 937 known archaeological pile-dwelling areas in six countries around the Alps (Switzerland, Austria, France, Germany, Italy and Slovenia). The serial site is composed by the remains of prehistoric pile-dwelling settlements dating from 5000 to 500 BC which are merely situated under water, on lake shores or in wetland, offering exceptional conservation conditions for organic materials. The serial of prehistoric dwelling structures, thanks to the exceptional number and importance of scientific results, most due to exceptional wealth of organic archaeological remains, provides an outstanding detailed perception of the world of the first agrarians in Europe, giving precise information on their agriculture, animal husbandry and the development of metallurgy. The period of more than four millennia covered by the serial of pile dwellings indubitably coincides with one of the most important phases of recent human history: the dawn of modern societies. In view of the excellent possibilities of exact dating of the remains of wooden architectural elements (annual resolution by dendochronology) of the serial property, the understanding of entire prehistoric villages and their detailed spatial development over very long periods can be followed on the pile-dwelling sites, giving the best known archaeological sources for prehistoric dwellings. The unique preservation of material matter from prehistoric times is as well an exceptional opportunity for research in many fields of natural science, such as archaeobotany and archaeozoology.
Property	**Criteria**	**Description of the archaeological property**
79 Paphos (Cyprus, 1980)	iii, vi	Paphos has been inhabited since the Neolithic period. It was a centre of the cult of Aphrodite and of pre-Hellenic fertility deities. Aphrodite's legendary birthplace was on this island, where her temple was erected by the Myceneans in the 12th century BC. The remains of villas, palaces, theatres, fortresses and tombs mean that the site is of exceptional architectural and historic value. The mosaics of Nea Paphos are among the most beautiful in the world.
94 Rock Drawings in Valcamonica (Italy, 1979)	iii, vi	Valcamonica, situated in the Lombardy plain, has one of the world's greatest collections of prehistoric petroglyphs – more than 140,000 symbols and figures carved in the rock over a period of 8,000 years and depicting themes connected with agriculture, navigation, war and magic.
179 Tassili n'Ajjer (Algeria, 1982)	i, iii, vii, viii	Located in a strange lunar landscape of great geological interest, this site has one of the most important groupings of prehistoric cave art in the world. More than 15,000 drawings and engravings record the climatic changes, the animal migrations and the evolution of human life on the edge of the Sahara from 6000 BC to the first centuries of the present era. The geological formations are of outstanding scenic interest, with eroded sandstones forming 'forests of rock'.
306 Matobo Hills (rock shelters, rock paintings), Zimbabwe	iii, v, vi	The area exhibits a profusion of distinctive rock landforms rising above the granite shield that covers much of Zimbabwe. The large boulders provide abundant natural shelters and have been associated with human occupation from the early Stone Age right through to early historical times, and intermittently since. They also feature an outstanding collection of rock paintings. The Matobo Hills continue to provide a strong focus for the local community, which still uses shrines and sacred places closely linked to traditional, social and economic activities.
514 Heart of Neolithic Orkneys (United Kingdom and Northern Ireland, 1999)	i, ii, iii, iv	The group of Neolithic monuments on Orkney consists of a large chambered tomb (Maes Howe), two ceremonial stone circles (the Stones of Stenness and the Ring of Brodgar) and a settlement (Skara Brae), together with a number of unexcavated burial, ceremonial and settlement sites. The group constitutes a major prehistoric cultural landscape which gives a graphic depiction of life in this remote archipelago in the far north of Scotland some 5,000 years ago.
557 Rock Carvings in Tanum (Sweden, 1994)	i, iii, iv	The Rock carvings in Tanum, in the north of Bohuslän, are a unique artistic achievement not only for their rich and varied motifs (depictions of humans and animals, weapons, boats and other subjects) but also for their cultural and chronological unity. They reveal the life and beliefs of people in Europe during the Bronze Age and are remarkable for their large numbers and outstanding quality.
575 Bang Chiang Archaeological Site (Thailand, 1992)	iii	Ban Chiang is considered the most important prehistoric settlement so far discovered in South-East Asia. It marks an important stage in human cultural, social and technological evolution. The site presents the earliest evidence of farming in the region and of the manufacture and use of metals.
848 Choirokoitia (Cyprus, 1998)	ii, iii, iv	The Neolithic settlement of Choirokoitia, occupied from the 7th to the 4th millennium BC, is one of the most important prehistoric sites in the eastern Mediterranean. Its remains and the finds from the excavations there have thrown much light on the evolution of human society in this key region. Since only part of the site has been excavated, it forms an exceptional archaeological reserve for future study.
925 Rock Shelters of Bhimbetka (India, 2003)	iii, v	The Rock Shelters of Bhimbetka are in the foothills of the Vindhyan Mountains on the southern edge of the central Indian plateau. Within massive sandstone outcrops, are five clusters of natural rock shelters, displaying paintings that appear to date from the Mesolithic Period right through to the historical period. The cultural traditions of the inhabitants of the twenty-one villages adjacent to the site bear a strong resemblance to those represented in the rock paintings.

a	b	c	d	e	Comment
–	–	–	–	–	The importance of Paphos as a World Heritage site is closely linked with the worship of Aphrodite, preceded in Neolithic times by a fertility cult. However, this means that Paphos only has limited value as a 'rural settlement'. While palaces, theatres and mosaics provide evidence of an exceptionally rich history, they do not date from prehistoric times but from Antiquity and the Middle Ages. Neither architectural timber elements nor the abundance of organic finds provide insight into everyday life in prehistoric Paphos.
■	–	–	□	–	The Valcamonica petroglyphs cover a long period of time, which extended beyond the pile-dwelling period into the Iron Age. The images (for instance geometric patterns reminiscent of cereal crops, anthropomorphic depictions with crowns or sun worshippers as well as depictions of objects such as daggers), however, do not provide much information about everyday prehistoric life but rather add to the information gained from the pile dwellings by giving an impression of the spiritual world. There is also a lack of evidence regarding architecture. The well-known depictions of houses date from the Iron Age. Rock art in general and the examples from Valcamonica in particular are extremely difficult to date. The pile dwellings in the vicinity can potentially offer invaluable insight here.
■	–	–	□	□	The scenes of everyday life are characterised by great realism and give an extremely colourful depiction of the fauna and of everyday life at a time when it was possible to live in the Sahara. Contemporaneous settlement structures that may have been associated with these rock paintings, however, are missing, as is the option of dating the petroglyphs.
□	□	–	–	–	The Matobo Hills cannot be compared directly with the pile dwellings: on one hand they obviously represent a totally different type of settlement (rock shelters). On the other the symbols in the rock paintings provide more evidence of the religious sphere rather than everyday life.
■	□	–	–	□	The Heart of Neolithic Orkneys is a group of sites that together represent a wide range of aspects that define Neolithic life. The settlement Skara Brae can be compared with the pile dwellings, both from a chronological and thematic point of view. However, because the site was excavated in the 19th century and in the 1920s, all that remains is the architectural shells, reconstructed after excavation. Cultural layers, which would provide insight into the lives of the inhabitants and which can be seen as a scientific archive for the future and in the case of the pile dwellings represent a significant component of their cultural value, no longer survive. Moreover, as wood was practically only available in the form of flotsam, the buildings were constructed in stone, clearly different from the pile dwellings built from timber and clay.
□	–	–	□	–	The petroglyphs in Tanum show impressive scenes from life from the Late Bronze Age onwards, which covers the final phase of the pile-dwelling period. However, there is no comparison with the abundance of finds or the dating accuracy that is offered by the pile dwellings. Overall, the rock carvings are more accurately placed in the category of 'spiritual responses' and as such not directly comparable with the pile dwellings.
□	–	–	□	?	The settlers of the early phase at Ban Chiang (3600–1000 BC) lived from rice farming and animal husbandry (cattle, pigs, chickens). Because Thailand is located in the tropics and not in the temperate zone of Western Central Europe, the site has only limited scope for comparison with the pile dwellings, even for geographical reasons alone. However, irrespective of this aspect, Ban Chiang as an example of the development of an early prehistoric agrarian society could indeed be compared with the pile dwelling sites. On the other hand, Ban Chiang lacks the abundance of organic finds and the opportunities of accurate dating associated with these.
□	■	–	■	□	The site is undoubtedly important for the understanding of the earliest agrarian societies and – much like the pile dwellings – covers a long period of time. Due to the dryness of the ground, however, the site did not yield the abundance of organic finds and the associated opportunities of accurate dating which are characteristic of the pile dwellings.
□	□	–	–	–	The Rock Shelters of Bhimbetka cannot be compared directly with the pile dwellings: on one hand, the dwellings dating from the Mesolithic period obviously represent a totally different type of settlement (rock shelters). On the other, the rock paintings belong in the religious world, which makes them unsuitable for comparison with the pile dwellings.

↓

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Property	Criteria	Description of the archaeological property
968 Agricultural Landscape of Southern Öland (Sweden, 2000)	iv, v	The southern part of the island of Öland in the Baltic Sea is dominated by a vast limestone plateau. Human beings have lived here for some five thousand years and adapted their way of life to the physical constraints of the island. As a consequence, the landscape is unique, with abundant evidence of continuous human settlement from prehistoric times to the present day.
1145 Petroglyphs within the Archaeological Landscape of Tamgaly (Kazakhstan, 2004)	iii	Set around the lush Tamgaly Gorge, amidst the vast, arid Chu-Ili mountains, is a remarkable concentration of some 5,000 petroglyphs dating from the second half of the 2nd millennium BC to the beginning of the 20th century. Distributed among 48 complexes with associated settlements and burial grounds, they are testimonies to the husbandry, social organization and rituals of pastoral peoples. Human settlements in the site are often multilayered and show occupation through the ages. A huge number of ancient tombs are also to be found including stone enclosures with boxes and cists (middle and late Bronze Age), and mounds (kurgans) of stone and earth (early Iron Age to the present). The central canyon contains the densest concentration of engravings and what are believed to be altars, suggesting that these places were used for sacrificial offerings.

3.c.3 Comparison with sites inscribed on the Tentative Lists

In contrast with the World Heritage List, the Tentative List contains one property that is actually a pile dwelling: the Lacustrine Site of Ganvié (Benin), however, it is a modern settlement that is still inhabited. Therefore, it cannot be identified as an archaeological site from a typological point of view, which makes it unsuitable for comparison with the sites around the Alps.

For the selection of proposed properties that present similar values and attributes to the nomination from a point of typology, chronology and theme, the Tentative Lists of the States Parties to the World Heritage Convention can be analyzed in the same way as the World Heritage List. Analogous as ↘ **Fig. 3.2** in the World Heritage List reference analysis, ↘ **Fig. 3.3** only lists properties that correspond with the pile dwellings from a typological (archaeological goods), chronological (Mesolithic and Neolithic or Bronze and Iron Ages) and thematic point of view ↘ **Chapter 3.c.2**.

Overall, this analysis also clearly reveals that the Tentative List does not contain a property which is comparable with the *Prehistoric Pile Dwellings around the Alps*. While numerous sites were occupied for a long or even a very long time, this period only partially corresponded with the pile-dwelling period. Others, for instance the Rock paintings at Astuyansalmi (Finland) or the Jōmon Archaeological Sites in Hokkaidō and Northern Tōhoku (Japan) were associated with more or less settled hunter gatherers and not with agrarian societies. This shows that the same absolute chronological date does not necessarily also mean the same subsistence strategies. Most of the petroglyphs in the Central Asian steppes were also usually created by a population that bred livestock but did not lead a sedentary lifestyle, which makes the sites unsuitable for comparison with the pile dwellings.

With the exception of some sites of the Jōmon Culture and the Ceide Fields in Ireland, hardly any of the properties possessed the qualities of wetland preservation. In the case of prehistoric Japan, however, one cannot speak of an actual 'pile-dwelling culture'. Moreover, as regards the possibilities of dendrochronological dating, the Japanese master chronologies to date only reach back as far as 1313 BC (Cryptomeria japonica, sugi cedar), which means that as yet, no dendrochronological dates are available for the period of the Jōmon Culture. The Ceide Fields, on the other hand, provide excellent opportunities to analyse the prehistoric landscape using the finds; compared to the pile dwellings, however, they yielded rather moderate settlement structures and a limited density of finds.

a	b	c	d	e	Comment
☐	–	–	–	■	The Agricultural Landscape of Southern Öland is an impressive example of a cultural landscape that developed over the course of thousands of years. The prehistoric fortified settlements such as Eketorp, which are parts of the cultural heritage, however, date from the Iron Age and thus existed at a later date than the pile dwellings. Some of the stone passage graves and cairns are the only features dating from the same period as the pile dwellings, but were not features that could be compared directly with the lakeside settlements.
–	☐	–	■	☐	The Petroglyphs and Archaeological Landscape of Tamgaly date from the last stages of the pile-dwelling period. The human depictions wearing sun crowns date from the Middle Bronze Age and belong in the religious world, which makes them unsuitable for comparison with the pile dwellings. The scenes showing nomadic herders of the steppe region in Central Asia, which was characterized by a continental climate, neither can they be viewed alongside the settled farming communities of the pile-dwelling period in the temperate zone of the foothills of the Alps.

Fig. 3.2 List of properties inscribed in the World Heritage List deemed suitable for comparison with the serial site of *Prehistoric Pile Dwellings around the Alps* by the chronological-regional and thematic analyses.

Overall, only a small number of sites have yielded tangible evidence concerning architectural features of prehistoric dryland settlements. These include the two Neolithic houses of Stara Zagora (Bulgaria), which, however, did not show any features of wetland preservation.

The comparison with sites from the Tentative List thus also reveals that the serial site *Prehistoric Pile Dwellings around the Alps* is an addition to other sites rather than it being particularly similar. From that point of view, this candidature can be considered important and unique.

Property	Criteria	Description of the archaeological property
2038 Prehistoric Pile Dwellings around the Alps (Switzerland, Austria, France, Germany, Italy, Slovenia)	iii, v	The serial of *Prehistoric Pile Dwelling around the Alps* comprises a selection of 156 out of the 937 known archaeological pile-dwelling areas in six countries around the Alps (Switzerland, Austria, France, Germany, Italy and Slovenia). The serial site is composed by the remains of prehistoric pile-dwelling settlements dating from 5000 to 500 BC which are merely situated under water, on lake shores or in wetland, offering exceptional conservation conditions for organic materials. The serial of prehistoric dwelling structures, thanks to the exceptional number and importance of scientific results, most due to exceptional wealth of organic archaeological remains, provides an outstanding detailed perception of the world of the first agrarians in Europe, giving precise information on their agriculture, animal husbandry and the development of metallurgy. The period of more than four millennia covered by the serial of pile dwellings indubitably coincides with one of the most important phases of recent human history: the dawn of modern societies. In view of the excellent possibilities of exact dating of the remains of wooden architectural elements through dendrochronology of the serial property the understanding of entire prehistoric villages and their detailed spatial development over very long periods can be followed on the pile-dwelling sites, giving the best known archaeological sources for prehistoric dwellings. The unique preservation of organic material from prehistoric times is as well an exceptional opportunity for research in many fields of natural science, such as archaeobotany and archaeozoology.

Property	Criteria	Description of the archaeological property
44 Two neolithic dwellings with their interior and household furnishings and utensils completely preserved (Bulgaria, 01/10/1984)	iii, iv	They are located in the city of Stara Zagora.The two dwellings stand side by side. They date back to the 6th millennium BC. By a rare chance, all the furnishings and household utensils have been preserved intact since discovery. At present, they are the best preserved dwellings of that period found in Bulgaria. The furnaces, hand-grinders, the numerous ceramic vessels, stone implements, ornaments and the like are in a very good condition. The dwellings offer a complete idea of the life of a neolithic family – its number, economic life and everyday occupations, the nature of home furnishings and utensils, the manner of building, maintenance, the preparation of food, etc. The neolithic dwellings of Stara Zagora are a unique monument of culture in Europe and Hither Asia from that early era.
45 The Magoura cave with drawings from the Bronze Age (Bulgaria, 01/10/1984)	–	The cave is located near the village of Rabisha, in the district of Vidin. The beginnings of the formation of the cave go back 15 million years ago. The cave has a number of accessible halls and galleries which were inhabited during the Bronze Age and which contain remnants of settlements and drawings on the walls. The remnants in the largest hall bear evidence to the existence of life from 3100 years to 900 years before our era – i.e. the Early Iron Age. In one of the side galleries a large number of ritual drawings can be seen, which are among the masterpieces of late prehistoric art in Europe. In all probability, this gallery was a cult shrine of the cave prehistoric settlement.
220 The Rock paintings of Astuvansalmi at Ristiina (Finland, 01/10/1990)	i, iv	The paintings were made on a special outcrop of bedrock resembling a human head. At present, the rock face is roughly 30 m above the surface of a lake. The bedrock consists of several types of rocks, predominantly granite and migmatite. At present, over 90 rock painting sites are known from Finland. Of these, the Astuvansalmi paintings are the largest and most diverse entity. They are also the largest ensemble of painted rock art in Scandinavia and the regions of the hunter-gatherer cultures of the northern coniferous zone. The paintings were executed on an area of slightly overhanging bedrock roughly 16.5 m long and 5.5 m high. Over 80 designs and figures painted in red ochre have been identified on the rock face. They include representations of humans, elks, and boats, as well as hand and paw prints. The paintings appear to have been made over a long period, as in many places the designs overlap. Archaeological excavations carried out on the terrace formation beneath the paintings revealed two fragmentary, arrowheads, dating from the late Stone Age and the Early Metal Period respectively. The arrowhead fragments beneath the painted rock face may indicate ritual archery performed at the site. The Astuvansalmi paintings are dated with reference to the history of the Lake Saimaa water system to ca. 3800–2200 BC.
305 Western Stone Forts (Ireland 28/09/1992)	–	There are up to forty large stone forts spread throughout the western counties of Ireland. They span a period of time from the Bronze Age through to the Medieval Period. The forts are of dry-stone construction, with massive walls of large quarried blocks of stone. The forts display a variety in both form and location. They can be found on hilltops, plains or perched on a cliff edge as at Dun Aonghasa on the westernmost extremities of Europe. They vary also from single to triple enclosures with a variety of assiociated structures and field systems. However, what they have in common is the massive nature of their masonry.
308 Burren (Ireland 28/09/1992)	–	The *Burren* is an area of limestone karstland characterised by terraced hills of bare limestone with a well developed underground system of caves. The environment supports a rich variety of rare plants and insects. Its distinctive flora includes a variety of plants with normally very widely differing habitats. A huge number and variety of archaeological sites are preserved here. They represent each cultural phase of life in Ireland, from the Mesolithic period onward. In particular, the wealth of monuments from the prehistoric and Early Christian periods is unsurpassed.
309 Ceide Fields (Ireland 28/09/1992)	–	Situated on the North Coastal region of County Mayo, Ceide Fields is a fossilized Neolithic landscape which has been preserved beneath an expanse of blanket bog. This landscape consists of extensive tracts of land enclosed by stone walls, a landscape which was formally laid out on a predetermined and organised basis. Assiociated with these field systems are a wealth of megalithic tombs and farmsteads. A series of radiocarbon and dendrochronological dates securely place this fossilized landscape within the Neolithic period. Coupled with this is the important natural phenomenon of the boglands and the rare geological formations in the area.
465 Swifterbant – Visvijverweg / Noordertocht (Netherlands, 26/09/1995)	–	This property comprises an area in which traces of habitation associated with Early Neolithic Swifterbant culture are to be found in the subsoil of the banks and river dunes along a fossilized tidal system.
868 Kalambo falls archaeological site (Zambia, 11/06/1997)	i, ii	The Kalambo falls prehistoric settlement is located about 30 km North-West of Mbala district, Northern province. The site was excavated by professor John Desmond Clark during the period 1956–1959. The excavations conducted in the lake-beds revealed exposed a stone age sequence extending from the Early Stone Age through to the Iron Age, most of it stratified in living floors.

a	b	c	d	e	Comment
■	■	–	□	□	Because the settlement was destroyed by fire, the artefacts remained in situ and the furnishings of the house, such as an oven or a loam platform survived. Stara Zagora is definitely unique evidence of a simple dryland settlement dating from the earliest Neolithic in Europe and – taking into account known but excavated and thus destroyed ground plans of tell settlements – should not be analysed in isolation. The preservation of organic materials – one of the most significant qualities of the pile dwellings – is, however, missing.
□	□	–	□	□	From the point of view of absolute dating, the drawings in the Magoura Cave coincided with the late period of the pile dwellings. However, the inhabited caves as a type of settlement cannot be compared with the pile dwellings. The rock paintings must be interpreted mainly as ritual features and do not offer any information about everyday life. The Magoura Cave did not contain the same abundance of finds nor did it provide the excellent dating opportunities of the pile dwellings.
–	–	–	□	–	The rock paintings of Astuvansalmi date from the 4th and 3rd millennia BC and were thus contemporaneous with the pile dwellings. While the depictions of humans, boats and hand prints on the rock face are impressive artistic manifestations, they represent a world of hunters and gatherers whose subsistence strategies strongly differed from those of the pile dwellers.
□	□	–	□	■	The Western Stone Forts cover an extensive period of time, which corresponded with the later pile-dwelling period. They represent a special but frequently found type of settlement, which, however, cannot be compared with the timber and loam constructions in pile-dwelling villages. Moreover, the Stone Forts do not yield the same abundance of organic finds and excellent dating opportunities as the pile dwellings.
■	□	–	□	■	The Burren contains impressive traces of long-lasting occupation. Many sites, however, are megalithic tombs – as opposed to settlements – and ringforts which date from the Middle Ages and are thus not prehistoric structures.
■	□	□	□	■	The Ceide Fields are a unique Neolithic ensemble of enclosures, megalithic tombs and a regular stonewall field system extending over an area of more than 1000 ha. In addition, the area also serves as an excellent plant fossil archive (pollen and macrofossils). Incidentally, the pine timbers can be used for dendrochronological analyses. However, the cultural property shows a lack of finds that would directly represent the cultural manifestations of prehistoric society.
□	–	–	□	■	The site coincided chronologically with the beginning of the pile-dwelling period and represents the earliest beginnings of the Neolithic period in this region. Therefore, similar to the pile dwellings, the site represents one of the most important stages of development in human society: the transition from hunter gatherers to sedentary farmers. However, neither the abundance of finds, nor the excellent dating opportunities or the density of sites provided by the pile dwellings is given here.
□	–	–	■	□	The site covers and immensely long period of time from the Acheulian period to the Iron Age. While the archaeological layers from the Later Stone Age and the Iron Age are well stratified, they have yielded mainly stone artefacts and pottery and due to the absence of wooden finds do not offer the opportunities of accurate dating provided by the pile dwellings.

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Property	Criteria	Description of the archaeological property
909 Graves of Basse Selca (Albania, 11/10/1996)	iii	Archaeological excavations carried out from 1964 to 1972 on a hill adjacent to the village of Basse Selca, exposed an Illyrian city. The settlement was founded in the 3rd millennium BC and continued to be occupied well into the Iron Age. In the 6th to 5th centuries BC the city grew into a proto-urban centre on the route along the Shkumbini River. In the 4th century, it was fortified by a curtain wall consisting of ashlars. At that stage it spread over 30,000 m2. In the 5th and 4th centuries BC Selca was an important centre of production, trade, commerce and administration in the Illyrian region of Desareti. In the 3rd century four monumental princely graves were carved into the rock similar to original creations of the Ionic order. A rich assemblage of weapons, bronze and pottery vessels, gold jewellery and badges showing mythological scenes of combat was found in one of the graves, which had been reused at the end of the 2nd century. The construction of the Via Egnatia in the 1st century brought the demise of the city. The Illyrian city of Basse Selca was demolished around the mid 6th century.
934 Tsagaan salaa rock painting (Mongolia, 01/08/1996)	ii, iii, vi	The Tsagaan salaa and related Baga Oigor rock paintings consist of about 10,000 Figures on the anti-sunrise side of mountain rocks covering an area of 15 square km. The Tsagaan salaa and Baga Oigor rock paintings date back to the Neolithic period (6000–3000 BC) and the Bronze age (3000–1000 BC). The principal subject matter represented in the Tsagaan salaa and Baga Oigor rock paintings are livestock and game animals, singly and in herds often of more than 100. Hunting scenes are also featured prominently. These rock paintings are rich not only in their numbers, but also in meanings, expressiveness, subject and compositions. They are important monuments of the art of the transition from ancient huntersgatherers' society to livestock breeding and beginning of the classic nomadic economy in Mongolia.
1135 Petroglyphs of Arpa-Uzen (Kazakhstan, 24/09/1998)	ii, iii, iv	Because of a favorable climate and landscape, the many suitable rock surfaces, and the position on a corridor of ancient migrations, Arpad-Uzen has been chosen by ancient inhabitants as a main place for petroglyphs. It houses more than 3500 images and constitutes the most important testimony of the culture and way of life of the people inhabiting and crossing the steppes and semi-deserts of the region during the Late Bronze and Early Iron epochs. Their stylistic analysis gives information on the centers of formation and ways of diffusion of the pastoralist cultures of the steppes, and on their interchanges with the settled centers of the southern regions. Images of animals peculiar of steppe shepherds (domestication, harness and sacrifice of camels; horses with fringes analogous to the representations of the Seismino-Tubino bronze castings, etc.) can be detected, together with southern influences from Transoxiana, Zagros mountains and Mesopotamia. Furthermore, the fact that the petroglyphs of the Iron epoch have been engraved with organic attention on the same surfaces of the Bronze epoch ones, the Saka animal style covering the early styles in such a way to form an indivisible composition and palimpsest, that fact permits the study of the successive unbroken inheritance of the sanctuary, and gives information about the genesis and formation of the culture and arts of the Saka tribes as rooted in the early epochs.
1434 Neolithic Settlement Sarazm (Tajikistan, 19/06/2000)	i, ii, iii, iv	The archaeological complex of settlement Sarazm were excavated in 9 excavation trenches and in 12 probe trenches. As a result now we have some dwelling houses, monumental buildings, cult centres and the row of handicraft blocks. The discovery of the settlement Sarazm led not only to finding of the centre of early agricultural culture of Central Asia situated in Zarafshan valley on the territory of Sogd but brought again the archaeological science's attention to the problem of studying of various centres of development of Central Asia in epoch of origin of the first civilization of the Near East type.
1512 Saimaly-Tash Petroglyphs (Kyrgyzstan, 29/01/2001)	iii, iv, vi	Situated high up in the Ferghana mountain range, Saimaly-Tash is a grandiose natural sanctuary, containing one of the biggest collections of rock pictures in the whole world. About 10,000 stones with pictures have been identified, the earliest dating back to the third to early second millennia BC, that is to the Eneolithic and Bronze Ages. Saimaly-Tash is remarkable in that it has been in continuous use as a sacred site by the populations of Tien-Shan and Pre Ferghana from the third millennium BC until the Middle Ages, and even until the present day. It is thus a rich source of knowledge about the everyday life, mentality, history and culture of the ancient tribes of hunters, cattlebreeders and first peasants in Central Asia, about the development of their spiritual culture, their religious beliefs and their worship of mountains, nature, totems and solar-cosmic images.
1876 Archaeological Site of Mehrgarh (Pakistan, 30/01/2004)	iii, iv	The archaeological site of Mehrgarh consists of a number of low archaeological mounds in the Kachi plain, close to the mouth of the Bolan Pass. Covering an area of some 250 ha, most of the archaeological deposits are buried deep beneath accumulations of alluvium although in other areas 'in situ' structures can be seen eroding on the surface. Currently exposed excavated remains at the site comprise a complex of large compartmental mud-brick structures. Built of hand-formed plano-convex mud bricks, the function of these sub-divided units is still uncertain but it is thought that many were for storage rather than residential. Mounds, MR3 and MR1 also contain formal cemeteries, parts of which have been excavated. The archaeological sequence at the site of Mehrgarh is over 11 m deep, spanning the period between c. 6500–2500 BC. The site represents a classic archaeological tell. The focus of the occupations shifted between localities but by 2600 BC it had relocated at the site of Naushero, some six kilometres to the south. During this period the settlement was transformed from a cluster of small mudbrick storage units with evidence of the on going domestication of cattle and barley to a substantial Bronze Age village at the centre of its own distinctive craft zone. The absence of early residential structures has been interpreted by some as further evidence of the site's early occupation by mobile or transhumant groups possible travelling through the nearby pass seasonally.

a	b	c	d	e	Comment
☐	–	–	☐	☐	While the occupation of the site began in the Early Bronze Age, its significance – made obvious by the title of the candidature – stems from the Illyrian settlement and from the contemporaneous graves. As regards the Early Bronze Age, there is a lack of well-dated finds which would provide insight into the everyday lives of the early agrarians.
–	–	–	☐	☐	The Tsagaan salaa rock paintings were created over a rather long time span covering the same period as the pile dwellings. The paintings, however, are the artistic expressions of a society that, while breeding livestock, led a nomadic lifestyle which cannot be compared with the sedentary lifestyle of the farmers throughout the foothills of the Alps.
☐	–	–	☐	☐	The Petroglyphs of Arpa-Uzen covered a long sequence but only coincided with the final phase of the pile dwelling period. The natural surroundings – steppes and semi-deserts – cannot be compared with the foothills of the Alps. In contrast to the sedentary pile dwellers the inhabitants of this site were steppe nomads. Moreover, the site also lacks the huge abundance of finds common in pile dwelling sites and rock paintings do not provide the same accurate dating opportunities.
☐	☐	–	☐	☐	Sarazm is an important complex of finds and features of an early agrarian society in Central Asia. However, the site does not contain the same abundance of organic finds or the opportunities of accurate dating that the pile dwellings offer.
☐	–	–	■	–	The site was used from the 3rd millennium BC onwards and therefore covers a longer period of time than the pile dwellings. The petroglyphs show wagons, animals, hunting scenes, sun symbols and also ritual and religious scenes that belong to the category of 'religious responses' according to the ICOMOS analysis. Nevertheless, Saimaly-Tash is an important witness to the cultural development of the population throughout the region. On the other hand it does not have the same density of sites and the enormous abundance of finds as the pile dwellings with their opportunities of accurate dating – in contract to rock paintings.
■	☐	–	■	☐	This site impressively allows us to study the development of crop farming and animal husbandry over the course of several thousand years, starting with probably nomadic animal herders and leading to a Bronze Age centre of specialised crafts. Beyond this, however, the site cannot be compared with the pile dwellings around the Alps. On one hand it remains uncertain whether the early structures were actually dwellings and on the other Mehrgarh did not yield organic finds, nor does the site offer any opportunities of accurate dating.

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Property	Criteria	Description of the archaeological property
1877 Archaeological Site of Rehman Dheri (Pakistan, 30/01/2004)	i, ii	The archaeological site of Rehman Dheri consists of a rectangular shaped mound covering some 22 ha and standing 4.5 m above the surrounding field. The final occupational phase consisted of a large walled rectangular area with a grid iron network of streets and lanes dividing the settlement into regular blocks. Walls delineating individual buildings and street frontages are clearly visible and it is also possible to identify the location of a number of small-scale industrial areas within the site marked, as they are, by eroding kilns and scatters of slag. The surface of the mound is littered with thousands of shreds and artefacts. The archaeological sequence at the site is over 4.5 m deep, and covers a sequence between c. 3300–1900 BC. It is generally accepted that the settlement received its formal plan in its earliest phases and that subsequent phases replicated the plan over time. Although its excavators have cut a number of deep trenches or soundings into the lower levels, the areas exposed have been too limited to undertake a study of change in layout and the spatial distribution of craft activities. The site was abandoned at the beginning of the mature Indus phase by the middle of the third millennium BC and subsequent activities, greatly reduced, are only recorded on the neighbouring archaeological mound, Hisam Dheri. The plan of the Early Harappan settlement is therefore undisturbed by later developments and, as such, represents the most exceptionally preserved example of the beginning of urbanisation in South Asia.
2017 Lubenice (Croatia, 01/02/2005)	v	Lubenice is a fortified urban settlement from prehistoric times which is confirmed by the surrounding tumuli from the Bronze and Iron Ages that have been found. It has continuously been settled throughout the ancient times and Middle Ages. Among the existing built structures, along with medieval sacral buildings, a dominant role is played by structures they are from the medieval period. The fusion of the settlement into the surrounding humanized landscape is certainly one of its more important aspects. The settlement is situated on a high cliff and constructed of the same material making it an almost natural amalgamation of man-made and natural elements.
5011 Karstic caves in prehistoric Apulia (Italy, 01/06/2006)	i, ii, iii	The Salento peninsula is a uniform lowland area on the southeastern tip of Apulia. It is composed of limestone and the karstic phenomena have given rise to several natural caves such as the Grotta Romanelli which is one of the best caves from an archaeological viewpoint on account of their artistic findings (mid and Upper Palaeolithic) or the Grotta delle Verneri with its two small-sized female Figurines carved in bone. The Grotta dei Cervi contains the largest set of paintings from the European Neolithic, thanks to the hundreds of pictures painted on the walls of its galleries and in the many chambers it is composed of. The archaeological finds show that human dwellers started inhabiting the cave between the mid-Neolithic and the early Chalcolithic – when some corridors became obstructed. The paintings were created during this time span (about 4000–3000 BC), although it is difficult to determine their precise chronological sequence; however, many graphic elements (cross-shaped, comb-shaped, spiral-shaped, etc.) are especially similar to the decorations that feature in the Neolithic facies of Masseria La Quercia and Serra d'Alto. Figurative elements in the shape of human beings, dogs, and deer – often giving rise to hunting scenes – are especially frequent in the area that is closest to the entrance of the cave. The galleries are separated by narrowings, deposit conoids, dry-stone walls, and steps. Their distribution shows that the different sections of the cave were intended for different purposes, bears testimony to the use of the cave as a place of worship, and is an outstanding example of the spiritual sphere of the populations from the Neolithic Age.
5054 Parc national du 'W', sites archéologiques (Niger, 26/06/2006)	i, iii, iv	From a cultural point of view, the Parc du W in Niger, until recently a little known archaeological region has revealed itself to have been a highpoint of prehistory in the Sahel zone. The environment is a favourable savannah landscape which, since time immemorial, has offered attractive opportunities to numerous succeeding prehistoric populations along the Mekrou River. All the eras are represented in a long continuous sequence starting in the Acheulian period, covering the Upper Palaeolithic and Neolithic and ending with the advent of iron metallurgy. The palaeogeographic study of the lithic technologies has already provided insight into the Quaternary environment in the region. The considerable density of sites dating from both the Palaeolithic and Neolithic periods illustrates the importance of the societies in the region. Acheulian artefacts occur in the lower gravel layers, while the well-defined Middle Palaeolithic finds concentrated in the middle gravel layers and the Upper Palaeolithic and Neolithic finds as well as the historical occupations were mixed together in the upper gravel.
5019 Neolithic Shell Midden Sites in Lal-lo and Gattaran Municipalities (Philippines, 16/05/2006)	ii, iii, iv, v	Neolithic shell midden sites are located along the banks of the Cagayan River in the Municipalities of Lal-lo and Gattaran, about 500 kilometers northeast of Manila. The shell middens are in varying sizes and extent and made up mostly of one type of freshwater clams, Batissa childreni. The biggest deposits of shells are found in Magapit and Bangag in Lal-lo. The thickest is more than six feet. Associated with these shell middens are polished stone tools, chert flakes, bones and teeth, and red slipped earthenware with incised and impressed designs. In some areas, burial grounds are found associated with earthenware in varying forms and designs. Carbon dating indicates 2nd and 1st millennium BC for limestone shell midden and ca. 100 AD in the river banks shell midden. The size and intensity of the shell deposit yielded valuable information as to the nature of Neolithic in Cagayan Valley. Studies on the shell middens of Lal-lo and Gattaran revealed that the ancient people who exploited their environment gathering shells as well as hunting animals like deer and pig. Pottery shards were decorated not only at the exterior surface but also at the exposed interior surface of the vessel.

a	b	c	d	e	Comment
☐	☐	–	■	☐	From an absolute chronological point of view Rehman Dheri coincided with the final stages of the Neolithic period and the beginning of the Bronze Age in the foothills of the Alps. However, a significant part of the occupation in Rehman Dheri belonged to the Indus Valley Civilisation and based on the regular city plan the important earliest phase was also closely associated with this culture. In any case, Rehman Dheri cannot be associated with early farmers and animal breeders and thus cannot be compared with the pile dwellings.
☐	–	–	☐	☐	The site covers a long period of time and coincided with the later phase of the pile-dwelling period. While the site was occupied from the Bronze Age onwards, its outstanding value lies mainly in its medieval buildings.
☐	☐	–	■	☐	Dating from the 4th millennium BC, the Grotta dei Cervi also covers parts of the pile-dwelling period and is one of only a few examples of Neolithic cave paintings. Their limited numbers make them even more important. The motifs – mainly crosses, anthropomorphic depictions and hunting scenes – make reference to the religious world of prehistoric societies. However, neither the paintings nor the settlement type can be directly compared with the pile dwellings.
■	–	–	■	☐	The site shows an extraordinarily long period of occupation extending from the Acheulian to the Iron Age. However, the Neolithic finds, which would be suitable for comparison with the pile dwellings, are mixed with the Upper Palaeolithic and historical finds which clearly limits the value of these late strata.
☐	–	–	☐	☐	The most important site covers a considerable period of time which coincided with the later phases of the pile-dwelling period. Settlement structures were not found and from a typological point of view the site would be better suited to a comparison with the – albeit Mesolithic – shell middens found along the European Atlantic Coast rather than with the pile dwellings around the Alps.

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Property	Criteria	Description of the archaeological property
5075 Archaeological Site 'Stone Tomb' (Ukraine, 11/08/2006)	iii, vi	The central part of this property presents a mound like hill of 12 m in height and 2.5 ha in area. It is known under the name of 'Stone Tomb'. This mound is made up of individual somatic sandstone clods or blocks, with a great number of caves and grottoes between them. On the grottoes' stone wall, there are over 1000 petroglyphs with symbolic, anthropomorphic and zoomorphic images. The oldest of them – a mammoth – without any doubt could be referred to the Late Stone Age. Most of the petroglyphs were created in the Bronze Age. On the whole, the Stone Tomb images represent traces of religious exercises of the hunters and cattle-breeders of this steppe zone of southeast Europe from the 20th century BC to the 17th century AD. Sorne caves are of artificial origin; their cultural strata have been fixed as the Neolithic, Bronze and Early Iron Ages as well as of Middle Ages. So we have all the grounds to consider the Stone Tomb one of the oldest megalithic temples of the world which had been functioning many thousand years. The property has survived in a good condition, some caves and grottoes have not been dug up yet. In the vicinity of this rock mound, there are remains of several sites and settlements of the Mesolithic and Neolithic periods making up, beyond any doubts, a single whole.
5330 Liangzhu Archaeological Site (China, 28/03/2008)	i, ii, iii	Liangzhu Site, located to the northwest of Hangzhou, Zhejiang Province, is a famous archaeological site dating from the late Neolithic Age. Liangzhu culture is one of the most important archaeological cultures in China. Dating back to 5300–4200 years ago, it is characterized by well developed plough-rice agriculture, professionalized handicraft reflected by exquisite jade ware, pottery, and lacquer ware, carved symbols like word, large artificial structures, and a pyramid-shaped social structure. It has been dubbed 'the dawn of oriental civilization' in the academic circle, and the site is an important piece of evidence that the Chinese civilization has multiple origins. Altogether 135 heritage spots have been discovered, including a cemetery of aristocrats, other altars and cemeteries, remains of the foundations of a large structure, large defensive structures and the site of a village. Archaeological research and excavation indicate that the site is dense in distribution, exquisite in layout and covers a total area of 42 km2. The layout resembles that of a big primitive yet well designed town, with a central settlement, a sub-central settlement, and a common settlement.
5398 Jōmon Archaeological Sites in Hokkaidō, Northen Tōhoku and other regions (Japan, 05/01/2009)	iii, iv	This Jōmon property is a group of unique archaeological sites representing a culture that continuously occupied the Japanese archipelago for nearly 10,000 years in the natural environment sustained by the humid temperate climate of the Holocene epoch, living in permanent settlements supported primarily by hunting, fishing, and gathering. This makes it distinct from Neolithic cultures in other regions of the earth which were established on agriculture and animal husbandry. While Jōmon culture spread throughout the Japanese archipelago, it displayed particularly noteworthy development in eastern Japan during the era in which broadleaf deciduous forests extended through much of the region, as stable food supplies and the evolution of the techniques used in securing them led to the expansion of areas of permanent settlement, larger communities, and a sudden increase in the number of earthen Figurines and stone ritual implements. Especially in the region centering on Hokkaidō and northern Tōhoku, a number of the distinct cultural zones representative of the Jōmon period flourished, now characterized by their pottery types, such as the Entō, Tokoshinai, and Kamegaoka cultures. The Jōmon sites under consideration are located in a variety of different topographical areas from the seacoast to river watersheds and hill country, and include the remains of villages, shell mounds, stone circles, and archaeological sites remain in wetlands and give dramatic evidence of the process of establishment of permanent settlements and the adaptation of these cultures to the abundant food resources of the broadleaf deciduous forests, the seacoast, and rivers and streams.
5406 Archaeological Site of Perge (Turkey, 06/02/2009)	ii	Archaeological finds in Perge date back to the beginning of the Late Chalcolitic Ages. It's revealed through the rarely found remains that Perge had been settled permanently in Early Bronze Ages. One of the remains belonging to early periods of settlement has been excavated in Bogazköy. 'Parha' name written on a bronze plate by cuneiform script and documenting an agreement in 13th BC is associated with the name of Perge. Any remains contemporary with the bronze plate has not been found yet. City Walls of the Hellenistic period and a part of the city enlarged through the campaign in the South (South Gate-the circular shaped tower) have been unearthed. The women were very active on the administrative level of the city. This is also emphasized with the fine sculptures of the important women such as Platia Magna. Perge reigned by the Romans beginning from 133 BC by the legacy of Pergamon. An inscription excavated in Perge reveals the state organizations in the 1st century AD and the location of Perge within this organizational scheme. According to this inscription, a federal state of Lykia and Pamphylia has been founded and Perge partook within this administration. The city benefited from the prosperity and built monumental structures, while welfare period last until the mid of the 3rd century AD. The city remained under the Eastern Roman domain beginning from the 5th century AD, and then reigned by the Seljuks, Hamidogullari and the Ottomans respectively.
5410 Neolithic Site of Catalhöyük (Turkey, 06/02/2009)	ii, iii, iv	Çatalhöyük East consists of 21 m of Neolithic deposits dating from 7400–6200 BC with some later deposits consisting mainly of Byzantine burials and rubbish pits. Çatalhöyük West is 6 m high and is almost exclusively Chalcolithic (6200–5200 BC), again with the presence of some Byzantine burials. The two mounds built up on either side of the Çarşamba Çay River which ran between the two mounds during the Neolithic period. Çatalhöyük was discovered in the 1950s by James Mellart. Çatalhöyük East is 450 m in length and 275 m in width, approximately 23 acres. The site represents significant social change and development: hunting taking place alongside the domestication of plants, the invention of pottery, and coming together of 1000s of people in a permanent settlement. Furthermore the two mounds span over 2000 years and indicate a high degree of continuity though time. Excavations which restarted in 1993 and continue today have reached the bottom of the East Mound and have discovered a total of 18 levels of occupation.

a	b	c	d	e	Comment
☐	–	–	☐	☐	Although the dating of the mammoth depiction is controversial, the site undoubtedly contains petroglyphs from a long period of time, which coincided at least with the latter phases of the pile dwellings. The rock paintings of this period, however, were created by hunters and cattle breeders living in a steppe region and can thus be compared with pile dwellers only to a limited extent. No settlement evidence has been found at this site. In addition the density of sites is rather low and there is also a lack of accurate dating opportunities.
☐	☐	–	■	☐	From the point of view of absolute chronology, Liangzhu coincided with the Final Neolithic in the foothills of the Alps and the site has yielded an extraordinary abundance of finds. However, these are the only aspects suitable for a comparison between the pile dwellings and this highly interesting assemblage of settlement structures and burials, which bear witness to an already very hierarchical and technologically highly developed society it can no longer be identified as an 'early' agrarian society.
☐	■	☐	■	■	The series of sites comprises all areas of life in the Jōmon Culture and also coincided with the period of pile dwellings. Recent excavations – a veritable archaeological boom has taken place in Japan since 1970 – have added to the picture of the Jōmon Culture which had been neglected by research for a long time. Because Northern Japan in particular is also located in a temperate climate zone, the Jōmon Culture offers interesting opportunities for comparison with the pile dwellings around the Alps. Due to the fact that some of the Jōmon Culture sites also have wetland preservation, this is an excellent opportunity to reconstruct the natural environment and the prehistoric landscape. However, because the economic subsistence of the Jōmon Culture was based mainly on hunting and gathering, it cannot be directly compared with the pile-dwelling sites.
☐	–	–	–	☐	The occupation of this important site began as early as the Late Chalcolithic period and lasted until the Early Middle Ages. The remains of the earliest phase, however, are rather sparse. In Turkey, the Bronze Age can no longer be associated with early agrarians and chronologically already belongs to the category of 'Hittite kingdoms and empire' according to the ICOMOS analysis. Since the main significance of the site actually dates back to Antiquity, Perge is not suited for comparison with the pile dwellings, neither with regard to chronology, nor from a thematic point of view.
■	☐	–	■	☐	Çatalhöyük and its excavations undoubtedly represent a milestone in prehistoric archaeological research. The site was occupied over a period of 3000 years and also shows the evolution of the earliest farmers and cattle breeders. However, Çatalhöyük has not yielded any organic finds and does not offer the same opportunities of accurate dating as the pile dwellings. From the point of view of settlement type Çatalhöyük cannot be compared with the pile dwellings either.

Fig. 3.3 List of properties inscribed in the Tentative List deemed suitable by the chronological-regional and thematic analyses for comparison with the serial site of the *Prehistoric Pile Dwellings around the Alps*.

3.c.4 Comparison with properties otherwise known

The observations outlined above dealt with prehistoric sites from all over the world, some already declared World Cultural Heritage, others candidates for the inscription on the World Heritage List. This chapter will compare the pile dwellings with properties that neither appear on the World Heritage List nor on the Tentative List, but may have the potential to become candidates. In addition to the points made above, which revealed on the one hand a lack of serial properties and on the other a lack of direct evidence of rural settlements of early agrarian societies, this section will place its focus on large series, and in particular on sites with wetland preservation.

Large series of sites on mineral soils

It would overstretch the scope of this analysis to include all the archaeological cultures dating from prehistoric times and representing early agrarian societies. Therefore, a particular cultural group, which is the most comprehensively researched group in Europe besides the pile dwellings, shall act as a representative for others: the Linear Pottery Culture.

Disregarding the subsequent cultural groups of the Middle Neolithic period, the available sources for which are much more limited due to large-scale erosion processes, the Linear Pottery Culture covered roughly the second half of the 6th millennium BC. At the time of its largest expansion, it spread from the Paris Basin almost as far as the Black Sea and from the High Rhine to the North German Plain. The Linear Pottery cultural group was the earliest phase in Central Europe that unquestionably belonged to the Neolithic. Numerous finds recovered from Linear Pottery pits indicate that they were still in touch with groups that were still living a hunter-gatherer lifestyle or had already started the process of Neolithisation.

The source material is extraordinarily abundant: thousands of Linear Pottery house plans and burials are known. These were in the past and are still today the objects of comprehensive archaeological and natural scientific studies. Not only fully excavated villages but also detailed analyses of all the settlements in an entire micro-region have been carried out, the latter thanks to large-scale lignite surface mining (e.g. Merzbach Valley near Cologne, Germany).

Because numerous house plans have been excavated, the house types are very well known. However, there is a complete lack of piles, doors, roof coverings or clay from walls, which could provide direct indications as to the type of construction used. A further hindrance is the fact that occupation surfaces are missing due to large-scale erosion processes and that only structures have survived which were dug into the ground (pits, post holes). The only witness to a highly developed timber construction technology discovered to date are some wells in Germany (e.g. Erkelenz-Kückhoven, North Rhine-Westphalia), which also produced the only Linear Pottery Culture tree-ring dates known so far. The Linear Pottery Culture always yields a vast array of finds made of pottery, stone or flint, but organic finds are extremely rarely found. For this reason, the reconstruction of everyday life and the crafts pursued by its population is based on a range of assumptions.

In conclusion one may state that the Linear Pottery Culture provides an extremely rich body of archaeological finds and features spread across a vast geographical region. Architectural elements comparable with the pile dwellings or artefacts made of organic materials, however, are rare occurrences. Wood, on the other hand, was a material of outstanding importance in prehistoric Central Europe, which greatly increases the value of wetland sites.

Large series of wetland sites

The Linear Pottery Culture example shows that pile dwellings can only be directly compared with a large series of wetland sites, which are included neither in the World Heritage List nor the Tentative List.

The pile dwellings around the Alps are not the only series of wetland sites. Northern Europe in particular has numerous lakes where many wetland sites were preserved. These can be subdivided into the following groups:

– Wetland settlements around the Baltic Sea
– Crannògs in Ireland and the British Isles
– Bog trackways in northwestern Europe
– Terramare in the middle Po Valley
– Early Neolithic pile dwellings in the Mediterranean region

Excluded from this list are the pile dwellings from Ezerovo near Varna on the Bulgarian Black Sea coast. They may be connected in some way with a cemetery, which, due to its rich gold and copper grave offerings dating from the 5th millennium BC, is possibly the most spectacular burial ground in prehistoric Europe. In contrast to the cemetery, which at this stage has been excavated in its entirety and has thus been destroyed, the pile dwellings have not yet been investigated well enough to determine their actual significance and true value.

The pile dwellings on Lake Ohrid located on the border between Albania and the Republic of Macedonia have also only recently been investigated using modern methods in underwater excavations and can not yet be fully assessed either.

Other sites that can not be combined to form 'groups' of more than three sites at least, such as Mesolithic Star Carr (Great Britain) or Palaeolithic/Mesolithic Ahrensburg, Stellmor (Germany), will also be excluded from the deliberations outlined here. They are individual cases, either due to their chronological position and/or their geographical and cultural environment and do not provide any further aspects that should be included in this reference analysis.

↘ p. 204

Fig. 3.4 Distribution of groups of wetland sites in Europe.

Of course, wetland archaeology is not restricted to Europe alone. All wetland areas in the world basically offer the same favourable preservation conditions for organic materials. It is impossible within the framework of this analysis, however, to give an overview of all these archaeological sites. Therefore, two examples will be highlighted here ↘ Fig. 3.5:

– Wetland sites in Florida (USA)
– Pile dwellings on the lower reaches of the River Yangzi (China)

The chronological distribution of the various groups mentioned shows only a small number of overlaps ↘ Fig. 3.5. The pile dwellings in the Mediterranean region predate the pile dwellings around the Alps and actually mark the earliest agrarian societies in Europe. Both the Crannògs and the wetland settlements in Poland began to be built when the occupation of the lakesides around the Alps came to an end. Substantial overlaps can only be seen in the wetland sites in the Baltic and the bog trackways in northwestern Europe, which, together with the pile dwellings, also covered the longest period of time. The bog trackways, however, played a special role as they were not actually settlements but traffic routes.

Years (BC/AD)	Prehistoric Pile Dwellings around the Alps	Terramare in the middle Po Valley	Early Neolithic pile dwellings in the Mediterranean region	Wetland settlements aruond the Baltic Sea	Crannògs in Ireland and the British Isles	Bog trackways in northwestern Europe	Wetland sites in Florida	Pile dwellings on the lower reaches of the River Yangzi
5500–5000								
5000–4500								
4500–4000								
4000–3500								
3500–3000								
3000–2500								
2500–2000								
2000–1500							?	
1500–1000								
1000–500								
500–0								
0–500								
500–1000								
1000–1500								

Fig. 3.5 Table of chronological periods covered by the series of wetland sites.

By applying natural scientific methods in the study of wetland settlements in the Baltic, a similar degree of insight into the interaction between humans and their environment can be gained as with the pile dwellings around the Alps. However, due to the fact, that a lot of wetland sites around the Baltic Sea are located mainly near seashores, this refers to a completely different kind of natural environment. Moreover, one must take into account that the settlements in the Baltic are mainly represented by layers of waste which contain organic finds but no architectural structures like in the case of the pile dwellings. Consequently, the dendrochronological methods cannot be used to their full potential and with the same degree of success as in the Prehistoric Pile Dwellings around the Alps.

Outside of Europe there is no actual 'pile-dwelling archaeological tradition' which could be compared with the setup that exists around the Alps. While it consists of an extremely dense network of sites that have been researched continuously over the past 150 years and where the most recent research methodology is being applied, in Florida for instance the archaeological body only consists of old finds and recent research projects are extremely scarce. In China, on the other hand, the study of the pile dwellings on the lower reaches of the River Yangzi only commenced quite recently and the importance of the prehistoric period in China has only started to be acknowledged by researchers in the past number of decades.

In summary, one must state again that the various groups of wetland sites can be compared only to a limited extent. They, rather, complement each other in an almost ideal way. However, without deriding the value of the other groups of sites, it is clear that the pile dwellings around the Alps stand out.

3.c.5 Other types of sites with similar preservation conditions

For the sake of completeness, one must also refer to other types of finds with similarly favourable preservation conditions as the wetland sites. Besides lakes, rivers and bogs around the Alps, pockets of ice at high altitude also provide preservation conditions that are similar or even better. By all accounts, only two sites of this type in the Alps have provided objects from the Neolithic and Bronze Age to date, for instance 'Ötzi' from Hauslabjoch (Italy) or the finds from Schnidejoch (Switzerland). From an archaeological point of view both were isolated finds. On a world scale, these discoveries are somewhat similar to the discoveries of mummies in the Siberian permafrost or on the high plateaus in the Andes. Recently, due to climate change, further comparable sites of reindeer hunters have been discovered in Norway, Alaska and Canada. In addition, discoveries have also been made in salt mines or salt deserts.

Property	Description of the archaeological property
2038 Prehistoric Pile Dwellings around the Alps (Switzerland, Austria, France, Germany, Italy, Slovenia) iii, v	The serial of *Prehistoric Pile Dwelling around the Alps* comprises a selection of 156 out of the 937 known archaeological pile-dwelling areas in six countries around the Alps (Switzerland, Austria, France, Germany, Italy and Slovenia). The serial site is composed by the remains of prehistoric pile-dwelling settlements dating from 5000 to 500 BC which are merely situated under water, on lake shores or in wetland, offering exceptional conservation conditions for organic materials. The serial of prehistoric dwelling structures, thanks to the exceptional number and importance of scientific results, most due to exceptional wealth of organic archaeological remains, provides an outstanding detailed perception of the world of the first agrarians in Europe, giving precise information on their agriculture, animal husbandry and the development of metallurgy. The period of more than four millennia covered by the serial of pile dwellings indubitably coincides with one of the most important phases of recent human history: the dawn of modern societies. In view of the excellent possibilities of exact dating of the remains of wooden architectural elements through dendrochronology of the serial property the understanding of entire prehistoric villages and their detailed spatial development over very long periods can be followed on the pile-dwelling sites, giving the best known archaeological sources for prehistoric dwellings. The unique preservation of organic material from prehistoric times is as well an exceptional opportunity for research in many fields of natural science, such as archaeobotany and archaeozoology.
Property	**Description of the archaeological property**
Terramare in the middle Po Valley (Italy)	These were fortified settlements dating from the Middle and Recent Bronze Age (1600–1200 BC), probably came into being as part of the colonisation of the region. They were discovered in the context of agricultural land improvement measures put in place around 1860. Due to intense farming, the terramare settlements have since largely dried out.
Early Neolithic pile dwellings in the Mediterranean region (Italy, Greece, Spain)	A number of wetland settlements dating from the Early Neolithic period are known in the Mediterranean region, which can be seen as an individual small 'group'. The site La Marmotta is located on Lake Bracciano, some 30 km north of Rome and dated from approximately 5690–5230 BC. Based on painted pottery similar to vessels widely used in Greece, it has been assumed that the population of La Marmotta had come from the eastern Mediterranean. The second pile-dwelling site is La Draga (Banyoles, Spain) in northern Catalonia. The site was discovered in 1990. Based on radiocarbon dates and typological comparisons of the pottery, the settlement has been dated to the final phase of Cardial Ware, around 5300–5150 BC. Both of these sites yielded evidence of rectangular houses and in the case of La Draga of an economic area, where livestock was kept and grain kiln-dried. Both sites have only been excavated to a limited extent. The organic remains were well preserved in both sites and they have provided important information regarding the Earliest Neolithic in the western Mediterranean. The site Dispilio is located on the southern shore of Lake Orestida in the Katoria basin in the Greek Province of Macedonia. A pile dwelling has been known there since 1932. From 1992 onwards, it was systematically excavated and its earliest phase has been dated to 5600–5000 BC. Like the 'Prehistoric Pile Dwellings around the Alps', the site has yielded not only a large number of ceramic vessels, stone and obsidian artefacts but also numerous finds made of organic materials such as bone fishing hooks, timber structural elements and walkways, the remains of a boat as well as remnants of foodstuffs such as seeds and bones. Apart from three bone flutes, the Dispilio Tablet is particularly worth mentioning. It is a wooden plaque with incised linear symbols reminiscent of the motifs incised in pottery of the Vinca Culture in the southern Balkans.
Wetland settlements around the Baltic Sea (Denmark, Germany, Poland, Sweden, Latvia, Lithuania).	Created by the huge glaciers from the Weichsel Glacial Stage, the Baltic lowlands directly on the Baltic Sea offered similarly favourable preservation conditions for wetland settlements as the foothills of the Alps. Numerous sites on lakeshores and along the seashore have, in fact, been known since the 19th century. They dated mainly from the 6th to 3rd millennia BC and yielded finds of the Ertebølle, Trichterbecher, Narva and Pitted-Ware Cultures, to name only the most important groups. The subsistence of these cultures was still for a long time based mainly on fishing, hunting and gathering, although farming and animal husbandry were already known from the second half of the 6th millennium BC onwards in the Linear Pottery Culture to the south. The earliest indications of animal husbandry in the West Baltic (Denmark and North German Plain) occurred rather late, from 4000 BC onwards with the Trichterbecher Culture. Animal husbandry and a little later farming, however, quickly gained ground subsequently, while in the East Baltic (Latvia, Estonia and southern Finland) it only became predominant during the 2nd millennium BC. A number of wetland settlements dating from the transition between the Late Bronze Age and the Iron Age have been found in Poland and more recently in eastern Lithuania (Lake Loukesas). Biskupin, partially excavated in the 1930s, is the best known site. These settlements stand out because of their elaborate palisade and rampart constructions which emphasise their defensive character. These sites were probably fortified regional centres.
Crannògs in Ireland and the British Isles (United Kingdom, Ireland)	Crannògs in a strict sense were small settlements, at least some built on manmade islands, which typically consisted of one building or just a small number of houses. They were usually enclosed by a palisade. Thousands of sites are known in Ireland, Scotland and Wales. The first crannògs were in use from as early as 800 BC, through the Iron Age and into the Middle Ages. Their function has not been identified in detail. Historical sources from Ireland suggest that they were particularly popular as the dwelling sites of the upper classes. However, other interpretations have also been considered, such as treaty islands, routeway functions or politically neutral venues for diplomatic negotiations. At least some of the crannògs served as dwellings, because evidence of both livestock farming and smithing has been found.
Bog trackways in northwestern Europe (United Kingdom, Ireland, Germany, Netherlands)	Several hundred sites with wooden trackways have been found in total in Lower Saxony, the Netherlands, England and Ireland, dating back as far as the mid 5th millennium BC. The tracks were a few hundred metres to several kilometres long. They are valuable witnesses because they are usually the only remains that have survived of the prehistoric road networks. Wheels, axles, drawbars and yokes found along these bog trackways are unique pieces of evidence of the development of transportation in prehistoric times.

a	b	c	d	e	Comment
□	■	–	■	■	From a geographical point of view, the so-called 'terramare' in the middle Po Valley are closest to the pile-dwelling settlements around the Alps. Similar to the pile-dwellings, the terramare represent a particular type of settlement. They also fill a chronological gap, during which the pile dwellings were largely absent north of the Alpes. Due to their short lifespan, however, they do not allow us to trace a cultural development that took place over thousands of years.
□	■	□	□	■	The transition from a hunter-gatherer lifestyle to a sedentary way of life based on the production of food is one of the most important processes in human history and this phase is represented by the Early Neolithic pile dwellings in the Mediterranean region. The region also brought forth unique finds such as the Dispilio Tablet. However, the pile dwellings in the Mediterranean region cover a relatively narrow window of time. While this window could be widened, for instance by including the sites on Lake Ohrid (Albania/Macedonia) or later archaeological layers in Dispilio, the 'series' will always show considerable geographical gaps. It disintegrates easily into several individual properties which cannot be compared with the close network of pile dwellings around the Alps or the other series mentioned here.
■	□	□	■	■	The wetland settlements in the Baltic came into being before the pile dwellings and in some regions show a long period of occupation, which corresponds with the pile dwellings around the Alps. The transition from a hunter-gatherer lifestyle to a sedentary way of life based on the production of food is one of the most important processes in human history and this phase is represented by the wetland settlements in the West Baltic in particular. The features, however, are not primarily architectural elements but mainly waste deposits. Actual settlement features such as hearths, house ground plans or timber platforms have only rarely been found. Due to the absence of suitable timbers, dendrochronological research is still in its infancy in this region. To complicate matters further, many of the sites are located below sea level and are prone to high-energy adjustment processes taking place along the coast, while other sites escape our attention because they are buried beneath several metres of sand. The group of Late Bronze Age and Iron Age settlements at lakes in Poland and Lithuania starts at a time when the pile dwellings around the Alps started to disappear. Eine durchgehende Entwicklung in Raum ist allerdings nicht gegeben.
–	■	■	■	■	Crannògs started to come into being from 800 BC onwards, at a time when the pile dwellings around the Alps started to disappear. A few dozen crannògs have to date been investigated archaeologically, and of these only a small number using modern scientific methods. Consequently, the knowledge about this type of settlement is still rather limited. However, it is more likely that they were the estates of the social élite of an already advanced agrarian society rather than rural settlements of 'early' agrarian societies. Therefore, the crannògs cannot be compared with the 'Prehistoric pile dwellings around the Alps'.
■	–	■	■	□	The bog trackways spanned the entire period of the pile dwellings and extend into post-medieval times. However, due to the fact that they do not contain any settlement structures, they cannot be directly compared with the pile dwellings. They do, on the other hand, complement our knowledge about settlement archaeological traces in an important area. But at least to a certain extent – as access routes to the settlements – the prehistoric road networks are also covered by the prehistoric pile-dwelling settlements around the Alps.

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Property	Description of the archaeological property
Wetland sites in Florida (USA)	5000–6000 years-old burial sites are known in Little Salt Springs in the swamps in Florida, which were extraordinarily well preserved. Still the best known wetland site in Florida, however, is Key Marco in southwestern Florida, which was partially excavated in 1896 by Frank Cushing. He had been inspired by Ferdinand Keller's description of the pile dwellings in Switzerland and went in search of 'pile dwellings' in the Everglades along the coast – to no avail. The settlements had been built on artificial shell mounds of several metres in height. The layers of waste, however, yielded more than 1000 artefacts made of organic materials including excellently preserved vessels, tools and painted wooden masks. The site was probably an important ceremonial centre of the Calusa, with an earliest phase from 700–900 AD based on radiocarbon dates and the latest finds dating from around 1500 AD. As well as the finds, written testimonies by 16th century Spanish explorers also provide insight into the societal system.
Pile dwellings on the lower reaches of the River Yangzi (China)	In 1973, pile dwellings were discovered on the lower reaches of the River Yangzi and in the eastern coastal regions of southern China. The earliest of four settlement layers in Hemudu near Yuyao (Zhejiang Province) dates back as far as c. 5000 BC. It contained numerous dense rows of posts as well as beams with tenon joints and groove and tongue constructions pointing to the construction of the houses. Besides these architectural elements, a rich array of organic finds and tools as well as early lacquer works were found. Besides Asian rice (*oryza sativa*), several other agricultural crops such as gourds as well as evidence of dog and pig breeding were discovered. The economic subsistence in Hemudu was also still strongly based on hunting and gathering. Only a few kilometres further north is Tian Luo Shan, another settlement with preserved piles and small fossil paddy fields. The remnants of rice including roots, stems, leaves, seeds and microfossils were found in strata which also contained irrigation ditches and wells. Other evidence of irrigation was not found, and the seasonal rainfalls were probably sufficient for the cultivation of rice. Tools such as wooden dibble and a wooden spade handle were also found, indicating an early cultivation of these fields. Other sites of the Hemudu Culture are also known on the islands off the coast of the Zhejiang Province to the north, while pile dwellings of the contemporaneous Majabang Culture have also been found in the southern Province of Jiangsu.

3.c.6 Conclusion of comparative analysis

Comparisons with other prehistoric sites dating from the Neolithic and the Bronze Age and with other archaeological sites above or below water can be made at several levels.

The fact that the fragile remains found at pile-dwelling sites are 'archaeological monuments', usually invisible because they are located under water or covered by sediment, makes them fundamentally different from other historical monuments featured to date on the World Heritage List. This is particularly the case in numerous sites from Antiquity. Similarly, it is important to distinguish pile dwellings from other underwater sites, usually wrecks, harbours or other remains that had some connection with navigation.

Pile dwellings primarily comprise the remains of villages, so that no direct comparison can be made with the two other classic archaeological sources, namely burials or deposits. Both graves and deposits usually represent specific moments in time and provide essential knowledge in terms of physical anthropology, funerary rites or belief systems and symbolic thought. Conversely, finds made in pile-dwelling settlements and in wetlands provide the most relevant data with regard to the lifestyles of prehistoric populations and their day-to-day lives. The period of occupation, organisation and form of lakeside settlements, food resources and tools, lands use and human impact on the environment are subjects that can only be addressed thanks to the evidence gathered at pile-dwelling settlements. Compared to more than 900 pile-dwelling sites currently known, relatively few burials have been found. The classic archaeological sources (burials, deposits and the remains of pile dwellings) complement each other by illustrating various aspects of prehistory.

The remains of prehistoric settlements preserved in a humid environment or on dry land fundamentally differ with regard to the degree of preservation of the various categories of archaeological materials. The remains of dryland settlements and architectural structures decay after only a few years, so that as a rule these sites provide little or no organic material and the finds are largely composed of non-perishable artefacts such as ceramic vessels, stone tools and some rare metal objects. The result is that less is known about these sites, because in a dry environment architectural

a	b	c	d	e	Comment
☐	☐	–	■	■	Wetland settlements spanning a long period of time are known in Florida and these were investigated quite early-on. Where the swamps in Florida have not been drained, they must still hold a great research potential. However, they never generated as much interest and intensive research activities as the pile dwellings around the Alps and are thus not very well researched. The site of Key Marco consisted of waste deposits that did not provide evidence as to the type of settlements. While dendrochronology had its longest research history in the United States, the method was mainly used to date prehistoric and historical structures of the Navajo, Ute, Hopi, Pueblo and Zuni in the dryland areas of southwestern America and not in the study of the wetland sites in Florida mentioned here.
☐	■	☐	■	■	The pile dwellings on the lower reaches of the River Yangzi are an important series of Early Neolithic sites, which have only been investigated in the past number of decades. Many more sites must still lie undiscovered below ground. The density of sites and the wide distribution of the pile dwellings around the Alps, however, have not yet been attained. While there is potential for dendrochronological research, it cannot yet be fully utilised due to the lack of suitable reference chronologies. The significance of the pile dwellings in China lies mainly in the questions regarding the earliest paddy-field cultivation of rice in the subtropics and tropics – around 5000 BC the climate in Hemudu was considerably warmer and more humid than today – i.e. an economic system that is clearly different to that of the pile dwellers in western Central Europe.

Fig. 3.6 List of groups of wetland settlements compared to the *Prehistoric Pile Dwellings around the Alps*.

timber structures only survive as faint markings in the ground. The information that can be gained from a pile dwelling located in a wet environment with its well preserved organic finds is thus of a clearly higher value compared to the remains of a dryland settlement. Consequently, pile dwellings play a leading role among all the prehistoric settlement sites.

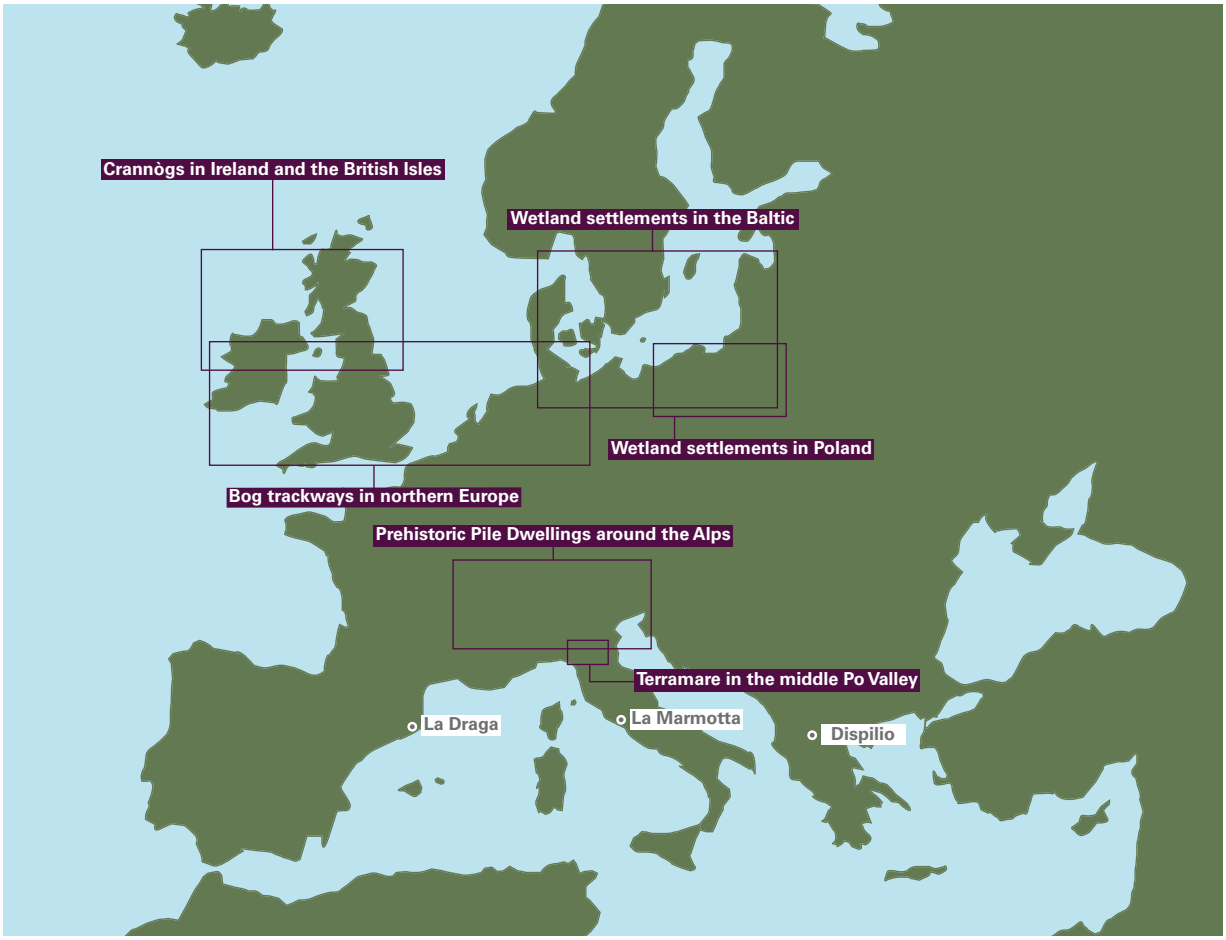

Fig. 3.4 Distribution of groups of wetland sites in Europe.

3.c.7 Selection of component parts

Introduction

Nowhere in Europe can the development of civilization, its technologies, economics and environment be followed as closely as in the region of the Alpine lakes. From the Late Stone Age to the Bronze Age and into the Early Iron Age, in other words for 4500 years, wetland settlements were built on the shores of these lakes and bogs, which are now excellently preserved archaeological sources. The genesis of various types of settlement, the development from simple farming techniques to plough cultivation, the changes in the range of cultivated plants and the history of domesticated animal husbandry can all be traced there – against the background of environmental changes. Important innovations such as the invention of the cart and wheel around 3400 BC or the origins of copper and bronze metalworking that began to change the social structures, highlight the intellectual and religious development of the early societies north and south of the Alps in an outstanding way.

The extraordinary dense concentration of the sites – at some lakes they are located only a few hundred meters apart ↘ Figs. 1.21–1.22 – is an advantage for pile-dwelling archaeology: Thanks to the reliable dates provided by dendrochronology contemporaneous sites can be identified. This enables us to define differences and similarities, rules and exceptions, which is important for the understanding of the mechanisms that ruled prehistoric society. It is therefore essential that the sites are not assessed individually but that the pile dwellings are viewed as a sufficiently large series where the knowledge gained from one site complements that from the others. Therefore, it is the logical and consequential approach to propose the *Prehistoric Pile Dwellings around the Alps* as a serial property for nomination as World Heritage.

Internal comparative analysis

Out of almost 1000 known sites a selection of component parts which will be representative of the pile-dwelling phenomenon in all its aspects, qualities and values must be made. The tables below ↘ Figs. 3.7–3.33 summarise all known sites in each macro-region, categorizing, commenting and assessing them in order to select the necessary component parts for nomination as a World Heritage property.

Geographic and chronological representativity

As a guiding principle in choosing the component parts, in order to do justice to the large geographic distribution, chronological depth and cultural variety of the pile dwellings, the selected sites must cover the entire period of time within as many macro-regions as possible. A macro-region is a geographical unit, whose definition takes into account the prehistoric cultural situation as well as the locations of the settlements (large lake or bog). The internal comparative analysis is based on these geographic areas and not on modern administrative or political borders.

Credible information sources

Inconsistencies and lacks of precision in the quality of the documentation of certain sites made the selection of the sites a challenging task. Sites that could not be located precisely as they were only known from 19th century reports, for instance, were excluded from the outset.

The selection represents the combined knowledge of dozens of regional experts who know 'their' sites extremely well and can thus bring considerably more information than is available from published works. This specific, detailed and only locally registred knowledge is of highest importance. Still, the selection was a lengthy process.

Significance in putting foward values of the archaeological phenomenon

The general comparative analysis aimed to compare the pile dwellings with existing World Heritage sites as well as other sites and potential serial properties with regard to five attributes of value while stressing the unique features of the pile dwellings. The same five attributes were the decisive factors in selecting the component parts ↘ **Chapter 2.a.3; Chapter 3.c.1**:

a. great increase in knowledge about early agriculture societies and people's everyday life,
b. important examples of the development of architecture and the building construction,
c. excellent dating possibilities,
d. extremely rich and broad scientific data,
e. outstanding opportunities for the natural science due to rich organic finds.

In the internal comparative analysis, these criteria are applied for each known pile-dwelling site around the Alps and for different time spans, showing in which era the single site is particularly important for one or more attributes of value of the serial property. A question mark was added in cases where detailed information is not available. A brief comment denotes the reasons for choosing or excluding a site from the serial.

The density of sites and the possibility of comparing two contemporaneous sites is one of the outstanding qualities of pile dwellings, which must also be represented in the selection. It is possible and even desirable to choose two sites in the same macro-region which date from exactly the same period and highlight the same aspect.

State of Conservation

The indicator 'Conservation and Potential' exists for all known pile-dwelling sites in the transnational standardized inventory. Best conservation is a criteria for selection, however, if sites are of particular importance from a chronological (particular period), geographical or cultural (such as technical innovation) point of view, this significance may prevail.

Sites that were excavated on a large scale in the past have provided a lot of insight and have been extensively documented and published. However, these sites have very little to offer in terms of archaeological evidence still preserved below ground. Sites that have not been examined extensively, on the other hand, often still bear a considerable potential for future research. The problem in these cases, however, is that this potential is difficult to define.

The selection aimes to achieve a balance between these extremes. The selection of component parts contains no sites where only limited archaeological evidence is present due to large-scale excavations or sites whose location is well known but which cannot be classified scientifically.

Future extensions of the transnational serial property

Out of the 937 known sites, 156 (17%) were chosen as integral component parts of the serial site *Prehistoric Pile Dwellings around the Alps*. This unit represents the extraordinary phenomenon of the pile dwellings in all its varied aspects and with an optimum number of component parts. However, it cannot be excluded that new and important insight will be gained by the study of associated sites in the future, which may significantly enhance the outstanding universal value of the property. Such sites may potentially and as an exception be added through extension to the World Heritage property at a future date.

Switzerland

Lake of Geneva

The archaeological data which are gathered on pile-dwelling sites are essential to understand the regional populating of the basin of Lake Geneva between the arrival of the first cultivators during the Neolithic and the end of the Late Bronze Age. The dimension of this geographical territory makes appear cultural distinctions between the southern and the northern shores of this big lake situated at the junction of southern, eastern and north-Italian influences. A selection of the find spots with the biggest potential stands on the nomination list. It does not only take chronological aspects in account, but also considers the geographical distribution accross the biggest lake oft the Alpine area.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Anières–Bassy I	B?		c								c	c
–	Anières–Bassy II	C	b/c						b/c				
–	Bellevue–Bellevue	C	a	a			a	a	a	a	a	a	
CH-GE-01	Collonge-Bellerive–Bellerive I	A		b/c									b/c
–	Collonge-Bellerive–Bellerive II	C	a						a	a			
–	Collonge-Bellerive–Pointe-à-la Bise	C		a							a		
–	Cologny–La Belotte	A	a/c	a/c					a/c		a/c		
–	Coppet–Place des Ormeaux	C		a								a	a
CH-GE-02	Corsier–Corsier-Port	B	d/e	a/c			d/e		a		a		c
–	Dully–Les Châtaigners	C	a	a					a		a		
–	Genève–Eaux-Vives	B		a								a	a
–	Genève–La Grange	C	a						a				
–	Genève–Pâquis A	B		a						?		a	a
–	Genève–Pâquis B	C		b									b
–	Genève–Parc La Grange 4	A	a/c						a/c				
–	Genève–Plonjon	B		a/c									a/c
–	Gland–Creux de la Dullive	B	b/c	b/c			a					b/c	b/c
–	Lausanne–Grande Rive	-		a								a	a
–	Lausanne–Le Flon	-	a	a					a			a	a
–	Lausanne–Pierre de Cour	-		a								a	a
–	Mies–Les Crenées	C	a						a				
CH-VD-11	Morges–Les Roseaux	A		a/c							a/c	a	
CH-VD-12	Morges–Stations de Morges	A	a/c	b/c					a/c			b/c	
–	Nyon–L'Asse	B		a								a	a
–	Prangins–Sadex	B		c								c	c
–	Préverenges–Préverenges I	B		b/c							b/c		
–	Préverenges–Préverenges II	C	c						c				
–	Rolle–Fleur d'Eau	B		a								a?	a?
CH-VD-14	Rolle–Ile de la Harpe	B		b/c								b/c	b/c
–	Saint-Prex–Fraidaigue I	B	b						b				
–	Saint-Prex–Fraidaigue II	B	B						b				
–	Saint-Prex–La Moraine	C		a								a	a
–	Saint-Sulpice–La Venoge	B		c									c
–	Saint-Sulpice–La Venoge-Le Stand	?	b					b	b	b			
–	Saint-Sulpice–Les Pierrettes	?	a	a					a			a	a

	Comment
	Little information is available about this site. It is not sufficiently well known compared to other Late Bronze Age find spots to be put on the nomination list.
	Poor state of conservation.
	The exact location of this site is not clear. Its state of conservation seems to be very bad. Exact information on the site is not available.
	This extended Late Bronze Age site is the best-preserved site on Swiss lakeshores. Earliest series of dendrochronological dates cover felling phases between 998 and 880 BC, associated with at least three very well-preserved strata of archaeological layers.
	Poor state of conservation.
	Poor state of conservation.
	This site encloses an archeological layer and piles attributed to a late period of the Late Bronze Age. The site was not selected with regard to representativity and optimum number.
	This site is extremely eroded.
	This site shows the longest uninterrupted sequence of occupation on Lake Geneva, ranging from the Middle Neolithic to the Late Bronze Age. The Middle Neolithic archaeological layer is unique in the entire Geneva region and contains a rich body of pottery finds and organic material.
	This site is extremely eroded.
	This site is extremely eroded. The only relevant remains are the piles which are still in place.
	Information about this site is only provided by early reports.
	This site is strongly eroded.
	No remains subsist on the location of the site.
	This site is well conserved. The site was not selected with regard to representativity and optimum number.
	This littoral settlement is relatively well conserved. The site was not selected with regard to representativity and optimum number.
	Site strongly threatened by erosion.
	Information about this site is provided only from early reports. The exact location of this site is not clear.
	Information about this site is provided only from early reports. The exact location of this site is not clear.
	Information about this site is provided only from early reports. The exact location of this site is not clear.
	This site is extremely eroded.
	This settlement gave the name to the Roseaux culture (Early Bronze Age), referencing to the spatuliform axes and richly orned ceramic cups found on this site. It includes the most complete occupational sequence for the Early Bronze Age for the Lemanic Basin and its well preserved archaeological level still contains a great number of archaeological objects.
	This archaeological complex is particularly well conserved and belongs to two distinct occupation phases. The southern part still contains wooden architectural elements in relation with the Bronze Age occupation level. The northern part contains an archaeological layer of the Final Neolithic rich in pottery and other organic material.
	This site is strongly threatened by erosion.
	This site is strongly threatened by erosion.
	This littoral settlement is relatively well conserved The site was not selected with regard to representativity and optimum number.
	This site is strongly eroded.
	Site strongly threatened by erosion.
	It is one of the largest lake dwellings on Lake Geneva, of the Late Bronze Age. Its occupation lasted at least 235 years. The situation and conservation of these villages built on a shallow makes it an exceptional site amongst those of Lake Geneva.
	This site is strongly eroded.
	This site was excluded from the nomination list because other sites are better conserved.
	This site is strongly eroded.
	This littoral settlement is relatively badly conserved. The site was not selected with regard to representativity and optimum number.
	Information about this site is provided only from early reports. The exact location of this site is not clear.
	Information about this site is provided only from early reports. The exact location of this site is not clear.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Tolochenaz–La Poudrière	A	c	c					c		c		
–	Tolochenaz–Le Boiron	C		?								?	?
CH-GE-03	Versoix–Versoix Bourg	B		b/c								b/c	b/c
–	Veytaux–Chillon	B	b						b				
–	Villeneuve–Tinière	A		a							a	a	a

Three Lakes Region

The subjurassic Three Lakes Region forms the nucleus of the pile dwellings by their number, but also by the multitude of excavations carried out since more than one and one half centuries. Three localities gave their name to Neolithic periods (Auvernier CH-NE-06, Cortaillod CH-NE-05 and Lüscherz CH-BE-02). A extremely restrictive approach was necessary so that the number of chosen sites remains acceptable. They are characterised by an exceptional diversity of types (small / very extended villages), structures (stone covering resulting from continuous refuse, floor constructions with clay chapes, central cultual mound) and time periods (missing are only the periods of the Middle Neolithic I and the Early iron Age; noting the presence of the first iron objects). Important paleoenvironmental studies have been carried out thanks to the splendid preservation of the archaeological layers. Complete villages have undergone dendrochronological measurements, allowing us to define their development year after year. The more sites analysed in this way the better we get to know about their differences; aerial prospection, but also underwater prospection show that other sites have great potential. At last, the numerous excavations on the motorways in retreat of the shores allowed particular studies on the organsiation of land use around the lake dwellings.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Auvernier–Brena	–		a									a
–	Auvernier–Brise-Lames	A	b/c					b/c	b/c				
CH-NE-06	Auvernier–La Saunerie	A	a/d				b		a/d	a/d			
–	Auvernier–Les Abbesses	A		b									b
CH-NE-07	Auvernier–Les Graviers	A	d	a				d	d		a		x
–	Auvernier–Les Ténevières	C	c	b					c		b		
–	Auvernier–Nord	C		b/c									b/c
–	Auvernier–Port	C	a				a	a	?				
–	Auvernier–Ruz-Chatru	–	c						c				
–	Avenches–Eau-Noire	B		a								a	a
–	Bas-Vully–Le Cugnet I	B	?			?							
–	Bas-Vully–Sugiez-Gare	B		?							?		
–	Bevaix–Chauvigny	B	b				b		?				
–	Bevaix–L'Abbaye 1	B	?						?	?			
CH-NE-04	Bevaix–L'Abbaye 2	B		b/c									b/c
–	Bevaix–Le Désert	B		b/c									b/c
–	Bevaix–Le Moulin	B		?									?
–	Bevaix–Le Port 1	B	?						?				

	Comment
	This littoral settlement is relatively well conserved. The site was not selected with regard to representativity and optimum number.
	This site is extremely eroded.
	This is probably the largest lakeside settlement in Switzerland. Well-preserved piles and a gravel and plankway make it one of the most outstanding sites on the shores of Lake Geneva. The density of piles indicates a long sequence of occupation. The dendrochronological analysis of the site will most definitely provide essential information about the Late Bronze Age occupation of the region.
	This site is strongly eroded.
	This site has a big potential, but it is badly situated. The site was not selected with regard to representativity and optimum number.

Fig. 3.7 Selection of sites of Lake Geneva (Swiss shoreline).

	Comment
	Lake Neuchâtel. Only a small part of the site was destroyed by aggradation, but the available available information does not permit precise assessment of value.
	Lake Neuchâtel. The site was largely excavated before construction work. The gathered archaeological material is exceptional.
	Lake Neuchâtel. The archaeological body of evidence from Auvernier is made up of four settlements consisting of numerous layers representing all pile-dwelling periods from the Late Neolithic to the Late Bronze Age. The definition of the ‹Auvernier-Corded Ware› phase was based on finds from the Final Neolithic horizon discovered here. This site represents even today the biggest archaeological reserve of canton Neuchâtel.The motorway was built far from the lake in order to preserve this exceptional site; only th southernmost part has been destroyed.
	Lake Neuchâtel. Recently identified site on ancient plans.
	Lake Neuchâtel. The site of Graviers is particularly well preserved. It is covered by a huge stone covering (Ténévières) formed by the superposition of several anthropogenic Neolithic, Early and Late Bronze Age layers,
	Lake Neuchâtel. The downstream part of the site was completely excavated; the upstream part is probably well conserved under modern landfill.
	Lake Neuchâtel. The site was excavated befor aggradation. Remarquable wickerwork was found on this site.
	Lake Neuchâtel. Site mostly excavated; presence of two archaeological layers which allowed to differenciate the Classical Cortaillod from the Later Cortaillod. The upstream part of the site is probably well conserved under modern la well conserved under modern landfill.
	Lake Neuchâtel. Partially excavated small pile field. The rest has been destroyed.
	Lake Morat. The site was partially excavated in 1977 and contains one eroded archaeological layer. The site was not selected with regard to representativity and optimum number.
	Lake Morat. Carved beams were found during the Second Correction of the Jura waters. Actual available information does not permit precise assessment of value.
	Lake Morat. This site has little archaeological material. No archaeological layer was found in the trial trenching of 2006.
	Lake Neuchâtel. Information about this site is provided only from early reports.
	Lake Neuchâtel. Information about this site is provided only from early reports. The archaeological layer is almost inexistant.
	Lake Neuchâtel. This site covers the whole local Late Bronze Age period (about two centuries) and is the last site of this kind to be precisely located in the canton Neuchâtel. Its potential for dendrochronology is exceptional and the pebbles on the surface insure an excellent long-term natural protection of the existing piles.
	Lake Neuchâtel. Eroded site without an archaeological layer; Its excavation must be organised sooner or later.
	Lake Neuchâtel. Eroded site. Last remnants of a pile field.
	Lake Neuchâtel. Isolated piles; filled in site.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Bevaix–Le Port 2	B	c						c				
–	Bevaix–Le Port 3	–											
–	Bevaix–Les Vaux	A	d										
–	Bevaix–Station du Châtelard	B	?	?			?	?	?		?		
–	Bevaix–Sud	C		b/c									b/c
CH-NE-03	Bevaix–Treytel	A	d				a	d	d	a			
–	Biel–Salzhausstrasse	A	a										
CH-BE-01	Biel-Vingelz–Hafen	A	c/e						c/e				
–	Biel-Vingelz–Insel	C		c									c
CH-VD-01	Bonvillar–Morbey	A	b/c	c			b/c	b/c	b/c			c	c
CH-VD-02	Chabrey–Pointe de Montbec I	A		b/c								b/c	b/c
–	Chabrey–Pointe de Montbec II	A	a						a				
–	Cheseaux-Noréaz–Câble-Perron I	B	a				a	a	a				
–	Cheseaux-Noréaz–Câble-Perron II	A	a				a		a				
–	Cheseaux-Noréaz–Champittet II	B	a				a	a	a				
–	Cheseaux-Noréaz–Champittet III	B		a								a	
–	Cheseaux-Noréaz–Champittet IV	B	a				a	a	a				
–	Chevroux–5e chemin	A		a								a	a
–	Chevroux–Bout-de-la-Gouille	A		a								a	a
–	Chevroux–Chevroux 2	B	a				a	a	a				
–	Chevroux–Chevroux 5	A		a								a	a
–	Chevroux–Chevroux 9	A		a								a	a
–	Chevroux–Denévaraz-en-delà	A	a				a	a	a				
CH-VD-03	Chevroux–La Bessime	A	a/c	a			a/c						a
–	Chevroux–La Petite-Ile	C	a				a	a	a				
–	Chevroux–Le Châtelard	A		b/d								b/d	b/d
CH-VD-04	Chevroux–Village	A	b/c					b/c	b/c	b/c			
–	Cheyres–En Crevel	B	a										
–	Cheyres–Pointe de la Rosière	–	?										
–	Colombier–Le Bied	B	?										
–	Colombier–Paradis-Plage	B		?									?
–	Concise–La Gare	B	a	a			a	a	a	a	a		
–	Concise–La Lance	C		?								?	?
–	Concise–La Raisse	A	?						?	?	?		
–	Concise–Le Point	A	c					c	c	c			
–	Corcelles-près-Concise–Les Grèves	C	c					c	c				

	Comment
	Lake Neuchâtel. Filled in pile field, no archaeological layer.
	Lake Neuchâtel. Site mostly destroyed, identified only on an old aerial photography.
	Lake Neuchâtel. Information about this site is provided only from early reports. The presence of an archaeological layer is mentioned.
	Lake Neuchâtel. Information about this site is provided only from early reports. If an archaeological layer still exists, then it is severly eroded.
	Lake Neuchâtel. The site has been totally excavated.
	Lake Neuchâtel. Extensive Neolithic site, particularly from the Final Neolithic period with 1 to 1.5 m thick archaeological layers. The upper levels have been partially destroyed in the 19th century and the beginning of the 20th century. The undermost layers are well preserved and offer interesting scientific potential..
	Lake Bienne. The site is only known from early reports. The exact location is not clear.
	Lake Bienne. The site is extremely well covered with layers of sediment. It is one of the best-preserved lakeside settlements on Lake Bienne and it represents an important reserve for future research. Small interventions have shown occupation phases around 2970/2820 and 2780–2700 BC.
	This site was discovered in 1854. It was severely eroded and therefore completely excavated in 1999.
	Lake Neuchâtel. This well preserved site has at least two archaeological layers. It is well preserved in its natural context, on a small hill. Its situation and presevation make it an exceptional and very representative site.
	Lake Neuchâtel. This huge Final Bronze Age site, preserved in an intact natural environment, shows a very regular architectural organisation, sheltered by a quadrangular system of palisades. The wooden piles, well preserved in the lake, can be put in relationship with an underwater archaeological layer.
	Lake Neuchâtel. Older accounts situate this settlement in a coastal reed bed. Its position is uncertain.
	Lake Neuchâtel. This site is characterised by the presence of isolated piles and the meager rests of an archaeological layer.
	Lake Neuchâtel. A small mound signalises this site. Archaeological amterial can be found in the stone covering (Ténévières). Site not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This site is known sincce1860. The archaeological layers extended over a height covered by a stone covering (Ténévières). Site not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This small has been observed in 1876 and 1884 but is currently not accessible.
	Lake Neuchâtel. On this small site some Neolithic objects have been found.
	Lake Neuchâtel. This site was linked to the ancient shoreline through an access path. The archaeological layer contains pottery shards. The site was not selected with regard to representativity and optimum number.
	Lake Neuchâtel. Recent observations show a very eroded site, whose archaeological layer is represented only by an organic level.
	Lake Neuchâtel. This underwater site next to the current shoreline has a 15 cm thick archaeological layer, but was not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This site is partially covered by a parking lot, but most of it is situated in a reed bed. Many piles poke out of a thin archaeological layer. The site was not selected with regard to representativity and optimum number.
	Lake Neuchâtel. Isolated small site. The archaeological layer is 40 cm thick and was probably burned. The site was not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This site is on a slight elevation. The 15–20 cm thick archaeological layer is eroded. The site was not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This site is landed since the 19th century. It is currently in a protected natural zone. The interest of this site is the presence of a particularly well preserved archaeological layer of the Middle Neolithic period.
	Lake Neuchâtel. This underwater site is currently covered with sand. Formerly Neolithic flint objects were found here. The site was not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This small site has an archaeological layer, wooden remnants and probably an access path. The site was not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This well defined and documented site has several archaeological layers belonging to different phases between the beginning and end of the Late Neolithic. It is one of the most well preserved sites of the complex of settlements in the Chevroux region.
	Lake Neuchâtel. Site reported in 1878 in the form odf a allongated stone heap, without more information.
	Lake Neuchâtel. A plan of 1882 shows a small group of piles in this region. Boring in 1995 did not show any indication of archaeological relics in this perimeter.
	Lake Neuchâtel. Lake Neuchâtel. Information about this site is provided only from early reports. Its exact position and dating are not clear.
	Lake Neuchâtel. Isolated piles; filled in site.
	Lake Neuchâtel. This site has been recognised because of a stone covering (Ténévières) on th beach. The piles are eroded and partially landfilled.
	Lake Neuchâtel. Numerous Bronze Age objects have been collected on this site. Its location is uncertain.
	Lake Neuchâtel. This site has been observed for the last time in 1971. The site is positioned at the mouth of a stream and is probably covered with alluvium. Actual available information does not permit precise assessment of value.
	Lake Neuchâtel. This small site still shows numerous piles and a thin archaeological layer, which is still well preserved on land.
	Lake Neuchâtel. This site has been discovered in 1971. Only isolated piles on the shoreline subsisted.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Corcelles-près-Concise–Station d'Onnens	B	a				a	a	a				
CH-VD-05	Corcelles-près-Concise–Stations de Concise	A	a/b/e	b/c		a/e	b/e	b/e	b/e	b/e	b/c	b/c	b/c
–	Cortaillod–Est	C		b/c									b/c
–	Cortaillod–La Fabrique 1	B	?										
–	Cortaillod–La Fabrique 2	B	?	?									?
–	Cortaillod–La Tuilière	B	?						?	?			
–	Cortaillod–Les Côtes	B	?										
–	Cortaillod–Les Esserts	B		a									a
CH-NE-05	Cortaillod–Petit Cortaillod	B	a	?			a	?	?	?	?		
–	Cortaillod–Plage	B		?									?
–	Cudrefin Les Chavannes III	C		b								b	
CH-VD-06	Cudrefin–Champmartin	A	b					b	b				
CH-VD-07	Cudrefin–Le Broillet I	B		b/c								b/c	b/c
–	Cudrefin–Le Broillet II	B		b						b			
–	Cudrefin–Les Chavannes I	A	d					d	d				
–	Cudrefin–Les Chavannes II	C		b								b	
–	Delley-Portalban–Portalban I	A	b/c				b		b/c				
CH-FR-01	Delley-Portalban–Portalban II	B	a/d	a			a	a/d	a/d			a	a
–	Delley-Portalban–Portalban III	–		a								a	a
–	Delley-Portalban–Portalban IV	–		?								?	?
–	Delley-Portalban–Portalban V	A		c								c	c
–	Erlach–Unter den Halden	B	?										
–	Estavayer-le-Lac–La Tuilière	B	c					?	?				
–	Estavayer-le-Lac–Les Ténevières	–		c									c
–	Estavayer-le-Lac–Pianta II	A		c								c	c
–	Estavayer-le-Lac–Sous la Corbière	–	?					?	?				
CH-VD-08	Faoug–La Gare	A	b/c					b/c	b/c	x			
–	Faoug–Port	B	a				a	a	a				
CH-VD-09	Faoug–Poudrechat	A	a-c				a/c		b/c	b/c			
–	Font–Pianta I	A	c	c			c						x
–	Font–Sous l'Epenex, Station	A	a				a	a					
–	Font–Trabietaz I	A	a				a		a				
–	Font–Trabietaz II	B		c									c
–	Galmiz–Alti Bibere	B	?										

	Comment
	Lake Neuchâtel. Remains of this settlement are some eroded piles protruding from the stone covering (Ténévières). The actual available information does not permit precise assessment of value.
	Lake Neuchâtel. This bay includes exceptional finds, particularly well studied thanks to prospections and a salvage excavation. The archaeological sequence goes from the Middle Neolithic to the Late Bronze Age. The villages show a well preserved architectural organisation.
	Lake Neuchâtel. The site has been entirely excavated.
	Lake Neuchâtel. Lake Neuchâtel. Information about this site is provided only from early reports. Its exact position is not clear.
	Lake Neuchâtel. Lake Neuchâtel. Information about this site is provided only from early reports. Its exact position is not clear.
	Lake Neuchâtel. Information about this site is provided only from early reports. Its exact position is not clear. Isolated piles and no archaeological layer.
	Lake Neuchâtel. Information about this site is provided only from early reports. Its exact position is not clear. Isolated piles and no archaeological layer.
	Lake Neuchâtel. The underwater part of the pile field ist extremely damaged. The aggradated part may still contain intersting archaeological material, but it was excluded from the nomination list because other sites are more representative.
	Lake Neuchâtel. The assemblage from Petit Cortaillod gave its name to the Middle Neolithic culture in Western Switzerland (Cortaillod Culture). Other archaeological layers of the Final Neolithic and the Early Bronze Age have also been identified.
	Lake Neuchâtel. Small filled in pile field, no archaeological layer.
	Lake Neuchâtel. Remnants of 14 piles on the shoreline gave the plan of an isolated Late Bronze Age cabin. The site was not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This settlement is installed between two coastline barriers. On the edge of the Grande Cariçae marshes, this landed site is well preserved. It is charactaristical of the marshland sites of the southern bank of the lake of Neuchâtel.
	Lake Neuchâtel. This settlement between lake and marshland shows a specific adaption to a peculiar environment. This situation is scientifically very interesting, considering the choice of settlement in aparticularly humid and marshy environment. Furthermore, the conservation is excellent due to the protection under a layer of peat.
	Lake Neuchâtel. A double line of piles and remnants of an access path indicate the proximity of a settlement. The site was not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This site shows two eroded archaeological layers but it is rich with architectural structures. The site was not selected with regard to representativity and optimum number.
	Lake Neuchâtel. Remnants of 11 piles gave the plan of an isolated Late Bronze Age cabin. The site was not selected with regard to representativity and optimum number.
	Lake Neuchâtel. Two archaeological levels have been located here, but other sites are more representative.
	Lake Neuchâtel. The Portalban area has a high density of pile-dwelling sites with occupation phases covering a large chronological sequence. The presence of a ramarkably well stratified occupation sequence dating from the Final Neolithic has made the site an essential reference complex for Western Switzerland.
	Lake Neuchâtel. Two distinct horizons of the Late Bronze age have been documented.
	Lake Neuchâtel. This site is situated at the same time in the cantons Vaud and Fribourg. Ancient sources mention a site completely covered by sand with almost invisible piles. Actual available information does not permit precise assessment of value.
	Lake Neuchâtel. Two distinct horizons of the Late Bronze age have been documented in a trench. Actual available information does not permit precise assessment of value.
	Lake Bienne. The site is only known from early reports. The exact location is not clear.
	Lake Neuchâtel. Trial trenching in 1969 showed the presence of piles butr no archaeological layer.
	Lake Neuchâtel. Trial trenches of 1969 and 1990 showed an eroded archaeological layer and a few piles.
	Lake Neuchâtel. This site is under land after the lake level was lowered. A layer destroyed by fire was mentionned. Presently only a pile field can be seen. Actual available information does not permit precise assessment of value.
	Lake Neuchâtel. In 1925, a Neolithic settlement was discovered «under the castle of La Corbière» at the moment of the construction of a pier. Actual available information does not permit precise assessment of value.
	Lake Morat. This exceptionally well preserved settlement on the shore is unspoiled. It represents the typical neolithic village in a bay next to a sandstone cliff.
	Lake Morat. This site presents several piles forming six concentric cercles. This structure may be interpreted as a fishing ground.
	Lake Morat. The archaeological complex of Poudrechat consists of two separate settlements of the Middle and Final Neolithic periods. The archaeological layers and architectural structures are very well preserved under more than 1.2 m of silt.
	Lake Neuchâtel. This small site, mentioned since 1860 has two archaeological layers. The actual lacustrine underground has delivered a few shards of Late Bronze Age pottery, lying wooden boards and piles.
	Lake Neuchâtel. This site has two archaeological layers, considering the information Forrer gives in 1885 after his excavations there. Actual available information does not permit precise assessment of value.
	Lake Neuchâtel. The information concerning this Neolithic site is originally in relation with thePierre au Mariage or the Port aux Sarrazins. Actual available information does not permit precise assessment of value.
	Lake Neuchâtel. Well preserved piles are stiil visible on this site.
	Lake Morat. Keller mentions this site for the fisrst time in 1863. Its exact localisation has not been found since then.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Galmiz–Sugiez II	B		c								c	c
–	Gals–Zihlbrücke Nord	B	a	a			a				a		a
–	Gals–Zihlbrücke Süd	B	?										
–	Gampelen–Reservat Witzwil	B		c									c
CH-FR-02	Gletterens–Les Grèves	B	a				a	a					
–	Gletterens–Ostende	B		c								c	c
–	Gorgier–Chez La Tante 1	B	?										
–	Gorgier–Chez La Tante 2	B	?										
–	Gorgier–Chez-le-Bart 1	B	?						?	?			
–	Gorgier–Chez-le-Bart 2	B	?						?	?			
CH-NE-02	Gorgier–Les Argilliez	A	c				c						
–	Grandson–Corcelettes Belle-Rive	A	c/d						c/d	c/d			
–	Grandson–Corcelettes I	A	a						a	a			
CH-VD-10	Grandson–Corcelettes Les Violes	A		a/c								a/c	a/c
–	Grandson–Le Repuis	B	a					a	a	a			
–	Grandson–Le Stand	B	a					a	a	a			
–	Grandson–Les Tuileries	B	a/c				a/c	a/c	a/c	a/c			
–	Greng–Mühle	A	c/d					c/d	c/d				
CH-FR-03	Greng–Spitz	A	b/d	c/d			b/d		b/d			c/d	c/d
–	Greng–Steinberg	B	?	?									
–	Hauterive–Champréveyres 1	A	a					a	a				
–	Hauterive–Champréveyres 2	B	a					a					
–	Hauterive–Champréveyres 3	C		c/e									c/e
–	Hauterive–Champréveyres 4	C	b/c				b/c						
–	Hauterive–Port	B	a				a						
–	Hauterive–Rouges-Terres	C	a/e					a					
–	Haut-Vully–Fischillien	?	c/d	x			c/d						x
–	Haut-Vully–Guévaux I et II	B	d				d						
CH-FR-04	Haut-Vully–Môtier I	A	c/d					c/d	c/d				
–	Haut-Vully–Mur	–	?										
–	La Neuveville–Schafis	A	c					c	c				
–	La Tène (Marin-Epagnier)–Epagnier 1	B	?				?						
–	La Tène (Marin-Epagnier)–Epagnier 2	B	?	?									?
–	La Tène (Marin-Epagnier)–Epagnier 3	B	?										
CH-NE-08	La Tène (Marin-Epagnier)–Les Piécettes	A	a/b				b	a					
–	La Tène (Marin-Epagnier)–Pointe de Marin 1	B	?										

	Comment
	Lake Morat. A prospection in 2001 shows that the site is much less richer than before. A pile field can still be seen in the water by the shore.
	Lake Bienne The site is only known from early reports. The exact location is not clear.
	Lake Bienne. The site is only known from early reports. The exact location is not clear.
	Lake Neuchâtel. The site was documented in 1920. The pile field still offers good possibilities for dendrochronology, but there are other better preserved sites representing similar values.
	Lake Morat. The area of Gletterens has long been known for its lakeside villages from the Cortaillod and Horgen periods and from the Late Bronze Age. The discovery of earlier phases of the Western Horgen culture and the presence of human remains are elements of the sites worth noting.
	Lake Neuchâtel. This site, discovered before 1860, was pillaged on a very high level. A prospection dive in 2003 allowed to relocalise it.
	Lake Neuchâtel. Information about this site is provided only from early reports.
	Lake Neuchâtel. Information about this site is provided only from early reports. Isolated piles can be seen in the lake.
	Lake Neuchâtel. Information about this site is provided only from early reports.
	Lake Neuchâtel. Information about this site is provided only from early reports.
	Lake Neuchâtel. Large preserved field of piles attributed to two settlements from the classic and late phases of the Cortaillod culture. Their dendrochronological study will enable us to entirely reconstruct both villages.
	Lake Neuchâtel. This recently discovered settlement has a well preserved archaeological layer, which is more than 1.5 m thick, but Site not selected with regard to representativity and optimum number.
	Lake Neuchâtel. The extension of this site is still unclear. An archaeological layer is preserved under one meter of sediments. Actual available information does not permit precise assessment of value.
	Lake Neuchâtel. This Final Bronze Age site was inhabited during two centuries. Its size is considerable and the archaeological layers are exceptionally well preserved in the emmersed zone, in a very dense field of wooden piles. It is one of the most important sites on the Lake Neuchâtel.
	Lake Neuchâtel. This site was mentioned since 1930, but it is much eroded.
	Lake Neuchâtel. This site is very near to the present shoreline and show strong erosion.
	Lake Neuchâtel. A pile field and a dugout were found on this landfilled site. Site not selected with regard to representativity and optimum number.
	Lake Morat. Recent prospections show that this site, covered by a stone layer has well preserved archaeological layers. It spreads out inland under a lakeside forest.
	Lake Morat. Investigated since the 19th century, the Greng area very quickly stood out due to its exceptionally rich body of finds. Moreover, the excellent preservation of the timbers has provided great insight into the architecture not only of the Late Bronze age village, but also of the Cortaillod and Final Neolithic settlements.
	Lake Morat. This stone covering showed only very scarce elements of prehistoric presence.
	Lake Neuchâtel. Information about this site is provided only from early reports. It probably presents important archaeological potential under the stone covering (Ténévières).
	Lake Neuchâtel. Archaeological layer of limited extension.
	Lake Neuchâtel. Totally excavated site. The well preserved archaeological layers were subject to numerous surveys, in particular paleoenvironmental ones.
	Lake Neuchâtel. Totally excavated site. Different working zone were identified.
	Lake Neuchâtel. Only the downstream part of the site was excavated (no archaeological layer). Most of the site is under a modern landfill.
	Lake Neuchâtel. Partially excavated site; The rest of it is under a modern landfill. No archaeological layer. .
	Lake Morat. Sourcesfrom the 19th century mention two settlements under water. They are currently on land. Actual available information does not permit precise assessment of value.
	Lake Morat. Neolithic settlement on both shores of the stream Forel. Recently, archaeological layers have been observed there.
	Lake Morat. Test excavations recently carried out at this site identified an archaeological layer still preserved over an area of 13,000 m2. Well preserved and bearing great archaeological potential, it undoubtedly presents an exceptional site on the northern shore of Lake Morat.
	Lake Morat. Landed Neolithic dwelling, 150 meters from the Mont Vully cliffs, Stone axes were found there. Actual available information does not permit precise assessment of value.
	Lake Bienne. Archaeological layers and wooden piles were found thanks to underwater sounding in the 1980s, but there are other more representative sites.
	Lake Neuchâtel. Isolated piles were observed in1990 and 1994, no archaeological layer.
	Lake Neuchâtel. Information about this site is provided only from early reports.
	Lake Neuchâtel. Information about this site is provided only from early reports.
	Lake Neuchâtel. The upstream part of the site was excavated. A central cultual mound was then discovered, giving this site its exceptional character. In this context, it is important to preserve the rest of the surface allowing scientific research to take place in a universitary context.
	Lake Neuchâtel. Information about this site is provided only from early reports.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	La Tène (Marin-Epagnier)–Pointe de Marin 2	B	?						?				
–	La Tène (Marin-Epagnier)–Préfargier	–	a	a			a		a	a	a		
–	La Tène (Thielle-Wavre)–Derrière le Château	–	x										
–	La Tène (Thielle-Wavre)–L'Ile	–	?										
–	La Tène (Thielle-Wavre)–Pont de Thielle 69	C	b						b				
–	La Tène (Thielle-Wavre)–Thielle-Mottaz	A	a				a						
–	Le Landeron–Grand Marais	C		b									b
–	Le Landeron–Le Port	B	?						?				
–	Le Landeron–Les Prés de la Tour	B	?										
–	Lüscherz–Binggeli	A	c					c	c				
CH-BE-02	Lüscherz–Dorfstation	A	a/c	a			c		a/c				a
	Lüscherz–Fluhstation	A	b/c	a					b/c				a
–	Lüscherz–Kleine Station	A	c/d					c	c/d				
–	Lüscherz–Riedmätteli	C		b									b
–	Meyriez–Ruisseau du Village	–	?				?						
–	Meyriez–Steinberg	–	?				?						
CH-BE-04	Mörigen–Bronzestation	B		a/c									a/c
–	Mörigen–Steinstation	A	c				c	c	c				
CH-FR-06	Muntelier–Baie de Muntelier	A	a/d	c				a/d	c			c	c
–	Muntelier–Dorf (Fischergässli – Strandweg)	A	a/d				a/d						
–	Muntelier–Dorfmatte I	A	c/d						c/d				
–	Muntelier–Fassnacht-Rohr	A		a							a		
–	Muntelier–Seeweg	A	c				c		c				
CH-VD-13	Mur–Chenevières de Guévaux I	A		b							b		
–	Mur–Chenevières de Guévaux II	A	a					a					
–	Murten–Pantschau	B	b/c				b/c						
CH-FR-05	Murten–Segelboothafen	B	b/c				b/c		b/c				
–	Neuchâtel–Fun'ambule	C	a				a	a					
–	Neuchâtel–La Coudre-Monruz	B	?						?				
–	Neuchâtel–La Rotonde	A	a					a	a				
–	Neuchâtel–Le Crêt	B		?									?
–	Nidau–Moosstation	A	b	a			b				a		
–	Nidau–Neue Station	A		b/c									b/c
–	Nidau–Schlossmatte / Strandboden / BKW	A	c/d	c				c/d			c		
–	Nidau–Steinberg	B	a	a/c					a				a/c

	Comment
	Lake Neuchâtel. Little information is known from this site, which has been discovered in 2008.
	Lake Neuchâtel. Site mostly excavated in the 19th century and used as landfill.
	La Thielle. Information about this site is provided only from early reports.
	La Thielle. Information about this site is provided only from early reports.
	La Thielle. The only preserved part of this site was excavated. A palisade with joint piles was found.
	La Thielle. A part of this site (with an archaeological layer) was destroyed by a river meander.
	La Thielle. The only preserved part of this site was excavated. It gave a potters kiln.
	Lake Bienne. Information about this site is provided only from early reports.
	Lake Bienne. Information about this site is provided only from early reports.
	Lake Bienne. This site shows well preserved archaeological levels and pile field. But the site was not chosen for the nomination list in favour of other sites of the same period.
	Lake Bienne. The Dorfstation is the most important site in the settlement ensemble of Lüscherz. Besides artefacts from the Late Neolithic period and the Late Bronze Age, the site yielded important reference finds of the Lüscherz culture, which was named after the site. Well preserved archaeological layers can be found under modern aggradation and important pile fields can be still found in the lake.
	Lake Bienne. The site was a pioneer project in the 1930s. Long access paths were then documented.
	Lake Bienne. The archaeological layers, first discovered in 1928 are still relatively well preserved. But the site was not chosen for the nomination list in favour of better preserved sites.
	Lake Bienne. This small pile field was discovered only in 2000/2004 and totally excavated. It was an isolated building.
	Lake Morat. Settlement on both shores of the stream crossing the village. Presently there are no piles left.
	Lake Morat. Ancient authors never mentiones piles or finds from this stone covering (Ténévières). Recent observations confirm the absence of archaeological finds.
	Lake Bienne. The Bronze Age settlement was discovered in 1843. It is inextricably linked to the pioneer pile-dwelling research.More than 1200 ceramic pots and 1400 metal objects are known from Mörigen. The site was never documented with modern standards but it holds a key position for the understanding of the late Bronze Age of Western Switzerland. It is a world-famous site with great importance from the point of view of research history.
	Lake Bienne. This site was discovered in the 19th century and was never examined with modern standards.
	Lake Morat. This is one of a small number of Fribourg sites that existed in the Bay of Muntelier where a certain degree of continuity can be observed over almost 600 years. This is manifest in a sequence of lakeside villages with plankways linking them to the dry land.
	Lake Morat. This settlement is extensive, in the lake as well as on land, but it was excluded from the nomination list because other sites are more representative.
	Lake Morat. The site spreads out inland under a lakeside forest and has an important archaeological sequence with piles and laying wood relicts, but it was excluded from the nomination list because other sites are more representative.
	Lake Morat. The excavated surface is too small to permit precise assessment of value.
	Lake Morat. Extensive site of the Lüscherz period discovered in 1996 i a construction zone. Some woods are dated of the Middle Neolithic. It was excluded from the nomination list because other sites are less threatened and more representative.
	Lake Morat. It is one of the rare sites of the Lake of Morat which can be dated of the Early Bronze Age. Its conservation on land is exceptional in a zone which has recently been renaturated.
	Lake Morat. This site has a very well preserved archaeological layer covered by a conflagration level. Now the remnants are under an artificial pond in a nature reserve but the site was not selected with regard to representativity and optimum number.
	Lake Morat. This site, discovered in 2007 only shows wooden piles.
	Lake Morat. This site dates from the Final Neolithic, has been investigated since the 19th century, but still contains a number of piles and archaeological finds. Parts of the site still lie preserved beneath modern deposits. It is one of a small number of sites in the vicinity of Morat, which would be worth examining archaeologically.
	Lake Neuchâtel. Eroded site, partially excavated..
	Lake Neuchâtel. Information about this eroded site is provided only from early reports..
	Lake Neuchâtel. Information about this site is provided only from early reports. It probably presents important archaeological potential under the stone covering (Ténévières).
	Lake Neuchâtel. Information about this site is provided only from early reports. Its exact extension under 19th century landfill is not clear.
	Lower Zihl. The exact position of this site is still unknown. It is special because it concerns a settlement on a river.
	Lake Bienne. Construction plans between 2012 and 2025 will lead to the full excavation of this important site.
	Lake Bienne. The archaeological layers are situated under several meters of land fill and are perfectly preserved. Construction plans between 2012 and 2025 will lead to the full excavation of this important site.
	Lake Bienne. Construction plans between 2012 and 2025 will lead to the full excavation of this important site.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
CH-FR-07	Noréaz–Praz des Gueux	A	b/d				b/d						
–	Onnens–La Gare	B	a	a			a	a	a	a	a	a	a
–	Onnens–L'Ile	A	a	a			a	a	a	a	a	a	a
–	Port–Spärsstation	B		a									
–	Port–Stüdeli	A	b	a			b					a	
–	Saint-Aubin – Sauges–Fin de Praz	B	?						?	?			
–	Saint-Aubin – Sauges–Le Rafour	B	?										
CH-NE-01	Saint-Aubin – Sauges–Port-Conty	A	b/d				b/d	a	a	a			
–	Saint-Aubin – Sauges–Tivoli 1	A	d				d						
–	Saint-Aubin – Sauges–Tivoli 2	A	d				d	d					
–	Saint-Aubin – Sauges–Tivoli 3	A	c						c				
–	Saint-Blaise–Bains des Dames	C	b/c					c	b/c	c			
–	Saint-Blaise–Gare	B		?							?		
–	Sutz-Lattrigen–Buchtstation	A		a/b							a/b		
–	Sutz-Lattrigen–Hauptstation	B	b/c				c	b/c					
–	Sutz-Lattrigen–Kleine Station	C	b/c					b/c	b/c				
–	Sutz-Lattrigen–Neue Station	A	b/c					b/c	b/c				
–	Sutz-Lattrigen–Riedstation	C	b/c					b/c					
CH-BE-06	Sutz-Lattrigen–Rütte	A	a/d						a/d				
–	Sutz-Lattrigen–Solermatt	B	b			b	b						
–	Sutz-Lattrigen–Südwest	A	c						c				
–	Täuffelen-Gerolfingen–Hagneckstation	A	c	c			c	c					c
–	Täuffelen-Gerolfingen–Öfeli Ost	A	c	c				c	c		c		
–	Täuffelen-Gerolfingen–Öfeli West	A											
CH-BE-07	Twann–Bahnhof	A	a/d				a/d	a/d					
–	Twann–Chüngeliinsel	B	?										
–	Twann–St. Petersinsel Nord	B	?	?									
–	Twann–St. Petersinsel Südost	B	?	?									
–	Twann–Wingreis/Engelberg	B	a										
–	Vallamand–Château de Vallamand	C	?					?	?	?			
–	Vallamand–Les Garinettes	A	a				a	a	a				
–	Vallamand–Les Grèves	B		a								a	a
–	Vaumarcus–Vers Rive	B	?						?	?			

	Comment
	Lake Seedorf. This is the only lakeside settlement found on a small lake in canton Fribourg. The archaeological features are characterised by an exceptionally good state of preservation.
	Lake Neuchâtel. This well preserved settlement represents a Neolithic village etablished under a sandstone cliff. Site not selected with regard to representativity and optimum number.
	Lake Neuchâtel. The position of this site is unclear but it seems to occupy an elevation near the present shore. Site not selected with regard to representativity and optimum number.
	Lower Zihl. The site is only known from early reports. The exact location is not clear.
	Lower Zihl. The biggest part of the site was destroyed by construction in 1940. The importance of the site is sits position on the riverside. The excavations in 1980 gave forth important archaeological finds, but integrity is lacking.
	Lake Neuchâtel. Information about this site is provided only from early reports. The archaeological layer is eroded.
	Lake Neuchâtel. Minor site, mentioned are only isolated piles.
	Lake Neuchâtel. The Neolithic settlements on the southwestern flank of the port Saint-Aubin, together with those at Auvernier constitute an important resource for future archaeological research in Canton Neuchâtel. A portion of the artefacts found were used to define the Port-Conty type Cortaillod phase. A recent excavation has revealed evidence of a manmade earth mound, which probably had a religious function similar to that of Marin-Epagnier, which also dates from the Port-Conty phase.
	Lake Neuchâtel. Information about this site is provided only from early reports. Its exact extension is not clear, but the archaeological layer is intact and offers interesting potential
	Lake Neuchâtel. Information about this site is provided only from early reports. Its exact extension is not clear but it seems to be present in th lake.
	Lake Neuchâtel. Information about this site is provided only from early reports. Its exact extension is not clear but it seems to be present in th lake.
	Lake Neuchâtel. This site, with its abundant material, has been extensively excavated. The upstream part, under the railway, should still contain an archaeological layer of the latest phase of Auvernier-Corded Ware.
	Lake Neuchâtel. Little information is known from this site, currently under a thick layer of aggradation.
	Lake Bienne. The lakeward part of the site was documented through excavations from 2003–2005. Under the reed belt in the lake and under the shore there are still relics of the settlement. Integrity is not adequate.
	Lake Bienne. Since the excavations 1984–2004 (extension19.000 m2) and protection measures (extension about 6000 m2) the endangered zones have been documented and protected from erosion. Integrity is not adequate.
	Lake Bienne. The entire pile field has been excavated and several village structures were interpreted in their whole. Other sites represent similar values.
	Lake Bienne. Parts of the site are under land fill. The lakeward settlement areas were excavated. Integrity is not adequate.
	Lake Bienne. This site is one of the few extensively excavated prehistorical lake dwellings in the Alpine region. State of conservation is poor.
	Lake Bienne. Because of its dendrochronological dates and its intact archaeological layers the site is invaluable for the research into the cultural historical processes that took place during the Final Neolithic period and for the subject of the emergence of Corded Ware in Western Switzerland. Due to the fact that only a very small number of European Corded Ware settlements are known (all located in Switzerland; only burials elswhere in Europe), these sites are particularly important.
	Lake Bienne. Three circular and annular formed structures and one building are the oldest Neolithic settlement structures of Lake Bienne. Because of ersosion, the site was completely excavated.
	Lake Bienne. The settlement relics are mostly destroyed by erosion. On land, intact archaeological layers still subsist under thick layers of landfill, but integrity is lacking.
	Lake Bienne. Other sites represent similar values.
	Lake Bienne. Other sites represent similar values.
	Lake Bienne. Other sites represent similar values.
	Lake Bienne.The site is of great importance from the point of view of research history and marks the beginning of modern pile-dwelling research; it has also yielded important reference assemblages for almost the entire 4th millennium BC. Large parts of the site are still excellently preserved.
	Lake Bienne. The site is only known from early reports. The exact location is not clear.
	Lake Bienne. The site is only known from early reports. The exact location is not clear.
	Lake Bienne. The site is only known from early reports. The exact location is not clear.
	Lake Bienne. The site is only known from early reports. The exact location is not clear.
	Lake Morat. Information about this site is provided only from early reports. It exact location is unknown.
	Lake Morat. This site was mentioned in 1913, but also in 1997 during the construction of the port. In 2008, trenches allowed to define the existance of an archaeological layer and piles, but the site was not selected with regard to representativity and optimum number.
	Lake Morat. This site is on the shoreline, the pile fiel dis still visible in the underwater part of the site. The site was not selected with regard to representativity and optimum number.
	Lake Neuchâtel. Information about this site is provided only from early reports. The site is much eroded and only isolated piles have been seen.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
CH-FR-08	Vernay–En Chéseau	A	c/d						c/d				
–	Vernay–Forel II	?		a									a
–	Vernay–La Crasaz I	B	?						?				
–	Vernay–La Crasaz II	?		?									?
–	Vernay–Limite	B	?										
–	Vernay–Rives du Lac	–	?										
–	Vinelz–Ländti	A	b/c	b/c			c	c				b	b
–	Vinelz–Schattenwyl	B		a									
CH-BE-08	Vinelz–Strandboden	A	a/d				a/d	a/d	a/d				
–	Yverdon–Arkina	A		a								a	a
CH-VD-15	Yverdon–Baie de Clendy	A	a/d	b/c			a/d	a/d	a/d	a/d	b/c		
–	Yverdon–Clendy I	A	a				a	a	a				
–	Yverdon–Clendy II	A	d	d					d	d	d	d	
–	Yverdon–Clendy III	A	a				a	a	a				
–	Yverdon–Clendy IV	C		b								b	b
–	Yverdon–Clendy V	A		a								a	a
–	Yverdon–Clendy VI	A	a						a				
–	Yverdon–Transformateur	A	a				a	a					
–	Yvonand–Cheyres	A	?	?									
CH-VD-16	Yvonand–Le Marais	A	b/c	a				b/c	b/c				a
–	Yvonand–Yvonand I	A	a						a				
–	Yvonand–Yvonand III	B	a				a						

	Comment
	Lake Neuchâtel. This area has yielded features of at least two sites. Various examinations carried out at the site of En Chéseau have allowed us to identify a sequence of several settlement phases between the Middle and Final Neolithic. The presence of a number of cup-marked stones discovered in the hinterland of the sites was one of the outstanding features of this archaeological assemblage.
	Lake Neuchâtel. At the moment of its discovery the site was 270 m from the shore. Surface finds also include Roman tiles.
	Lake Neuchâtel. This well known site since 1858 is difficult to define. Recent information shows the existance of archaeological objects and piles in this small port. Actual available information does not permit precise assessment of value.
	Lake Neuchâtel. Ancient data show an extensive settlement with a double row of piles going in direction of the shore. Actual available information does not permit precise assessment of value.
	Lake Neuchâtel. Information on this site is rare and relatively imprecise. Conservaton status and extension of the site are still unknown. Actual available information does not permit precise assessment of value.
	Lake Neuchâtel. On a sandstone shoal along the lake a polished stone axe and several working stones have been recently found.
	Lake Bienne. Finds from trial trenches in 1979 showed Neolithic and Late Bronze Age layers. Part of the site is protected by landfill on the shore, Funde but integrity is lacking.
	Lake Bienne. The site is only known from early reports. The exact location is not clear.
	Lake Bienne. In Vinelz, Strandboden we have a huge area with very important Neolithic settlement remains. The Final Neolithic site on Strandboden is one of the best-preserved sites on Lake Bienne. The discovery of a wheel from 2750 BC in the low water zone ist particularly remarquable. Different long series of dendrodata prove the particularly intensive occupation of this site at the end of the Neolithic period.
	Lake Neuchâtel. This site, discovered through trial trenches in 1972, is one of the most lakeward sites in the Clendy Bay. Site not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This complex of well preserved settlements at the southern end of Lake Neuchâtel is a reference for the regional Neolithic period. Furthermore, the particular geographical situation of the site encouraged the development of human occupation between the Middle Neolithic and the Early Bronze Age in this region.
	Lake Neuchâtel. This site is preserved on land, but more lakewards than the Clendy menhirs. Site not selected with regard to representativity and optimum number.
	Lake Neuchâtel. Organic silts and archaeological material characterise this site that was not chosen for the nomination list in favour of other sites of the same value.
	Lake Neuchâtel. This shoreline site is characterised by a small mound produced by a stone covering (Ténévières) protecting the archaeological finds. Site not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This site is not well preserved but it contains several access pathways linking it to the ancient shoreline.
	Lake Neuchâtel. This site is characterised by a stone covering (Ténévières) in which the archaeological material is trapped. The archaeological layer is represented by organic sandy silt. Site not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This site was discovered through borings done in 1994. It is situated on a promontory. Site not selected with regard to representativity and optimum number.
	Lake Neuchâtel.. Site with piles and an eroded anthropogenic layer. Site not selected with regard to representativity and optimum number.
	Lake Neuchâtel. The remnants of this site are two organic layers with unknown dates. Site not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This site is essential for the history of the Neolithic population of western Switzerland. On a vast bay, the site dated from the final Neolithic to the Late Bronze Age, currently on dry land, is well preserved.
	Lake Neuchâtel. This site has two archaeological layers which are protected by a stone covering (Ténévières). Site not selected with regard to representativity and optimum number.
	Lake Neuchâtel. This site is characterised by a reduced archaeological layer covered by a meter of sediments.

Fig. 3.8 Selection of sites of the Three Lake Region.

Small Lakes of the Swiss Plateau

Although many of these sites were excavated in the 19th and first half of the 20th century, substantial archaeological remains are still present. Äschi SO–Burgäschisee Ost (CH-SO-01) yielded important Neolithic finds and early natural scientific investigations. The finds showed links both with Western and Central Switzerland. For this reason, the site has been identified by some as a 'missing link'. Other sites on Lake Burgäschi emphasise the importance of this body of water in terms of research history. However, because most of them have already been excavated, they are not part of this series.
Moosseedorf–Mossee Ost (CH-BE-03) contains important Neolithic finds. Due to a lack of modern investigations, on the other hand, the more or less contemporary site of Moosseedorf–Moossee West cannot be assessed precisely.
Seedorf–Lobsigensee (CH-BE-05) was the subject of pioneering work in terms of pollen analysis, which provided clues as to the development of the surrounding landscape.
The Late Bronze Age is represented by Bolken / Inkwil–Inkwilersee Insel (CH-SO-02), the only site dating from that period in this region.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Äschi SO–Burgäschisee Nord	C	b				b		b				
CH-SO-01	Äschi SO–Burgäschisee Ost	B					a/e		a/e				
–	Bolken–Inkwilersee Südstation	A	?										
CH-SO-02	Inkwil / Bolken–Insel Inkwilersee	A	b	a/b			b		b				a/b
CH-BE-03	Moosseedorf–Moossee Ost	A	a				a	a	a				
–	Moosseedorf–Moossee West	A	a				a	a	a				
–	Seeberg–Burgäschisee-Süd	C	a				a						
–	Seeberg–Burgäschisee-Südwest	C	a				a						
CH-BE-05	Seedorf–Lobsigensee	A	e				e						
–	Wengi bei Büren–Hindermoos / Wenigmoos	A	?										

Central Swiss Plateau

Although numerous sites are known in the central Swiss Plateau that are probably still well preserved, in many cases only little is known due to the lack of modern investigations. The sites Sursee–Halbinsel (CH-LU-06) and Seengen–Riesi (CH-AG-02) contain various Late Bronze Age features (an oven as well as log and post-and-beam constructions), while Beinwil am See–Ägelmoos (CH-AG-01) and Sempach–Uferpromenade (CH-LU-05) are the only Early Bronze Age sites where there is still a significant amount of archaeological substance left in the ground.
The sites Egolzwil 3 (CH-LU-01) and Egolzwil 4 (CH-LU-02) in the Wauwil Bog, Sursee-Halbinsel (CH-LU-06) and Schenkon–Trichtermoos / Altstadt (CH-LU-04) on Lake Sempach and finally Hitzkirch–Seematte (CH-LU-03) on Lake Baldegg are well preserved sites that were chosen due to the fact that they can be assessed in conjunction with each other and they document the entire pile-dwelling phase of the Neolithic period at the lakes in this region.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
CH-AG-01	Beinwil am See–Ägelmoos	A									b		
–	Egolzwil 2	C	x				b	b					
CH-LU-01	Egolzwil 3	A	a			a							
CH-LU-02	Egolzwil 4	B	b				b						
–	Egolzwil 5	C	x				b						
–	Eich–Spiessmösli	–	a	b				a			b		
–	Gelfingen–Rohrbach	B	b					b					

	Comment
	The site was almost completely excavated.
	The site closes a significant gap between the pile-dwelling sites in eastern and western Switzerland and is also important from the point of view of research history.
	The site is only knownInformation about this site is provided only from early reports. Its exact location is not clear and its actual importance can not be estimated..
	The site closes a significant gap between the pile-dwelling sites in eastern and western Switzerland. In addition, the island on Lake Inkwil also contained a unique 'wooden sword'.
	The site represents an outstanding settlement situation away from the big lakes. The finds cover the Late as well as the Final Neolithic.
	Several excavations have been carried out at this site, but the site was not selected with regard to representativity and optimum number..
	The site is important in terms of research history. It was almost completely excavated.
	The site is important in terms of research history. It was almost completely excavated.
	This site still contains an impressive stratigraphic sequence. Pioneering work in pollen analysis has provided information about the changes in the landscape of the area.
	Information about this site is provided only The site is only known ffrom early reports. Its exact location is not clear.

Fig. 3.9 Selection of sites on the small lakes of the Swiss Plateau.

	Comment
	The only Early Bronze Age site known to date on Lake Hallwil still has upstanding features. Because only a very limited amount of research has been undertaken, the site has great potential for future research.
	The site was completely excavated
	The site contains a pile-dwelling settlement considered the earliest in Switzerland. It can be examined in correlation with other sites in the Wauwil Bog. Moreover, it provides favourable preservation conditions for wood.
	The site contains several pile-dwelling settlements considered some of the earliest Switzerland. They can be examined in correlation with other sites in the Wauwil Bog. Moreover, they provide favourable preservation conditions for wood.
	The site was completely excavated
	Information about this site only provided by early reports and surface finds. Its actual importance can not be estimated.
	Information about this site is only known from early reports and surface finds. Its actual importance can not be estimated.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
CH-LU-03	Hitzkirch–Seematte	A	b				b	b					
–	Hochdorf–Baldegg	C	a	a						a	a		
–	Mauensee–Bognau Halbinsel	–	a	a		a							a
–	Meisterschwanden–Erlenhölzli	B											
–	Meisterschwanden–Seerose	B											
–	Nottwil–Eishütte	–	?	?			?	?	?				
–	Oberkirch–Seehäuseren 1	–	d				d						
–	Oberkirch–Seehäuseren 2	–	d				d						
–	Oberkirch–St. Margrethen	A	d						d				
–	Retschwil–Seezopf 1	–	?				?	?	?				
–	Retschwil–Seezopf 2	–	d						d				
–	Retschwil–Stäfligen 1	–	d					d	d				
–	Retschwil–Stäfligen 2	–	d						d				
CH-LU-04	Schenkon–Trichtermoos / Altstadt	A	b					a	a				
–	Schötz–Egolzwil 1	C	a			a			a				
–	Schötz–Schötz 1	B	a/d			a	d	d	a				
–	Schötz–Schötz 2	B	a						a				
–	Schötz–Schötz 4	C	a						a				
–	Schötz–Schötz 6, Seespitz	B	b					b					
CH-AG-02	Seengen–Riesi	A										b	b
–	Sempach–Festhütte	B	?										
CH-LU-05	Sempach–Uferpromenade	B	b	b							b		
CH-LU-06	Sursee–Halbinsel	A	b	b			b					b	
–	Triengen–Ägelmoos	–	?										
–	Wauwil 1	–	a			a							

	Comment
	Comprehensive stratigraphical sequence with numerous settlements dating from the Neolithic period that have barely been examined to date and thus still hold great scientific potential.
	The site was almost completely excavated.
	Information about this site provided by early reports and surface finds. Its actual importance can not be estimated and its exact location is not known.
	Not enough is known about this site to assess its scientific value.
	Only limited remnants of the piles and no cultural layers have survived.
	Information about this site is only provided by early reports and surface finds. Its actual importance can not be estimated.The site is only known from early reports. Its actual importance can not be estimated. Date unknown.
	Information about this site is only provided by early reports and surface finds. Its actual importance can not be estimated.The site is only known from early reports and surface finds. Its actual importance can not be estimated.
	Information about this site is only provided by early reports and surface finds. Its actual importance can not be estimated..
	The site is only known from early reports and surface finds. Its actual importance can not be estimated.
	Information about this site is only provided by early reports and surface finds. Its actual importance can not be estimated. Date unknown.
	Information about this site is only provided by early reports and surface finds. Its actual importance can not be estimated.
	The site is only known from early reports and surface finds. Its actual importance can not be estimated.
	Information about this site is only provided by early reports and surface finds. Its actual importance can not be estimated.
	Among other finds, the sites have yielded artefacts from the Corded Ware culture, which are rarely found in Switzerland and make up the southern-most edge of the distribution area of a culture that was widespread throughout large parts of Europe. Worth noting are numerous textile finds.
	Information about this site is only provided by early reports and surface finds. Its actual importance can not be estimated.
	Information about this site is only provided by early reports and surface finds. Its actual importance can not be estimated.
	Information about this site is only provided by early reports and surface finds. Its actual importance can not be estimated.
	Information about this site is only provided by early reports and surface finds. Its actual importance can not be estimated.
	Information about this site is only provided by early reports and surface finds. Its actual importance can not be estimated.
	Three building phases at this site represent the cultural development during the Late Bronze Age in Central Switzerland. Various types of construction (log and post-and-beam constructions) are of particular interest.
	The site is partially destroyed. Neither the ceramic finds nor the organic remains are well preserved.
	Site containing Early Bronze Age finds. This phase is rarely found in the Central Swiss Plateau.
	The site has yielded important features such as ground plans of houses and most notably a unique Late Bronze Age oven.
	The site is only known from early reports and surface finds. Precise dating is not possible. Its actual importance can not be estimated.
	Information about this site is only provided by early reports and surface finds. Its actual importance can not be estimated.

Fig. 3.10 Selection of sites of the Central Swiss Plateau.

Central Switzerland

Lake Zug possesses a high concentration of unique archaeological finds and features. Many of these sites were not examined in detail which is why they still contain substantial archaeological remains. The settlement phases of Cham–St. Andreas, Strandbad (CH-ZG-01), Hünenberg–Strandbad (CH-ZG-02) and Zug–Otterswil / Insel Eielen (CH-ZG-04) form a long sequence of Neolithic settlements while the Late Bronze Age is represented by Zug–Riedmatt (CH-ZG-05) and Zug–Sumpf (CH-ZG-06). In addition, Risch–Oberrisch, Aabach (CH-ZG-03) stands out due to its important architectural and metallurgical evidence, while Stansstad–Kehrsiten (CH-NW-01) is exceptional because of its location. On one hand it is the only preserved site on Lake Lucerne and on the other it came to light in an unusual location on a steep slope, effectively extending the distribution area of pile dwellings into the Alpine region proper.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Cham–Bachgraben	B	c	a				c	c	c	a	a	
–	Cham–Eslen	C	a				a/b						
CH-ZG-01	Cham–St. Andreas, Strandbad	B	a	a			a	?	a		a		
–	Hünenberg–Dersbach	B	?					?					
CH-ZG-02	Hünenberg–Strandbad	B	a				a	a	?				
–	Hünenberg–Wildenbach	B	a			a							
–	Luzern–Casino	–	?										
–	Risch–Alznach	B	?					?	?				
–	Risch–Buonas	B	a					a					
–	Risch–Hechmattli	–	?	a			?	?	?	?		a	
–	Risch–Oberrisch Nord	–	?					?					
CH-ZG-03	Risch–Oberrisch, Aabach	A	a/b				a/b	b					
–	Risch–Schwarzbach Nord	B	?					?	?				
–	Risch–Schwarzbach Süd	B	a				a						
–	Risch–Unterer Freudenberg, See	A	a			a		?					
–	Risch–Unterer Freudenberg, Strandplatte	A		a								a	
–	Risch–Zweieren	B	a					a					
CH-NW-01	Stansstad–Kehrsiten	A	a				a/b	a/b					
–	Steinhausen–Chollerpark	C		a							a/c	a/c	a/c?
–	Steinhausen–Rotenbach	B	a				a						
–	Steinhausen–Sennweid Ost	B	e	e			e	?	?	e		e	e
–	Steinhausen–Sennweid West	C	a	e			e	e	a	e		e	
–	Unterägeri–Riedern, Lehmgrube Merz	B	a					a	a				
–	Zug–Altstadt	B	?	?	?				?	?	?	?	?
–	Zug–Brüggli	B?	?					?	?				
–	Zug–Galgen, Galgenbächli	B?	?	a					?		a		
–	Zug–Lorzeninsel, Strandplatte	B		a								a	a
–	Zug–Oberwil	B	?					?	?				
CH-ZG-04	Zug–Otterswil / Insel Eielen	A	a/d						a/d	a/d			
CH-ZG-05	Zug–Riedmatt	A	d/e	a				d/e				a	
–	Zug–Schutzengel / Bärenbächli	B	?					?					
–	Zug–Schützenmatt	B	d					d					
CH-ZG-06	Zug-Sumpf	A		d/e								d/e	d/e
–	Zug–Vorstadt, Rössliwiese	–	a					a					
–	Zug–Vorstadt, Schmidgasse	B		a	a							a?	a?

	Comment
	The site was almost completely excavated.
	The site was almost completely excavated.
	The site contains several phases including two Corded Ware phases, a rare occurrence on Lake Zug. The pile field extends over approximately 5000 m^2.
	The actual value of the site cannot be estimated.
	Abundant artefacts from stone axe manufacture have been gathered up, which point to techniques used throughout the Alpine region. The field of piles extends over 4000 m^2.
	Most of the site is built-up and the site was not selected with regard to representativity and optimum number.
	Information about this site is scarce, The site is probably destroyed.
	The site is only known from early reports. Its actual value can not be estimated.
	Information about this site is provided only by early reports. Its actual value can not be estimated.
	Information about this site is provided only by early reports. Its actual value can not be estimated..
	Information about this site is provided only by early reports. Its actual value can not be estimated.
	Besides well-preserved and unambiguous features including house floors, finds bearing witness to Chalcolithic metal processing were also discovered at this site. The settlement is interesting not least because of the fact that several Horgen period settlement phases let us observe the settlement dynamics in the locality.
	Information about this site is provided only by early reports. Its actual value can not be estimated.
	Information about this site is provided only by early reports. Its actual value can not be estimated..
	To date, the site has only been documented as part of a diving survey. Its actual value can not be estimated.
	To date, the site has only been documented as part of a diving survey. Its actual value can not be estimated.
	The site is mostly known from early reports. Its actual value can not be estimated.
	Site in an unusual topographic and geographic location below 7 m of water directly on the edge of the Alps.
	Most of the site is built-up and the site was not selected with regard to representativity and optimum number.
	Most of the site is built-up and the site was not selected with regard to representativity and optimum number.
	Most of the site is built-up and the site was not selected with regard to representativity and optimum number.
	Most of the site is built-up and the site was not selected with regard to representativity and optimum number.
	Information on the site is provided by early reports only. Its exact location is not clear.
	Most of the site is built-up, information is scarce. The site was not selected with regard to representativity and optimum number.
	Information about this site is provided only by early reports. Its actual value can not be estimated.
	Information about this site is provided only by early reports. Its actual value can not be estimated.
	To date, the site has only been documented as part of a diving survey. Its actual value can not be estimated.
	The site is only known from early reports. Its exact location is not clear.
	The body of finds is the most abundant Corded Ware assemblage in Central Switzerland. Typologically, an early and a late phase can be distinguished.
	The layers at this site are very well preserved (60–120 cm) and have also yielded a large amount of organic finds.
	Most of the site is built-up and available information does not allow precise assessment of value.
	The site is exposed to high threats of development pressure. Its representactivity is small threatened by a development project. The site was not selected with regard to representativity and optimum number of component parts.
	Parts of Zug-Sumpf have already been examined and these excavations yielded extraordinary finds and features. Moreover, the site is located below the groundwater table in a nature reserve, which safeguards a considerable resource for future research.
	The site was built up in medieval times. Its actual value can not be estimated.
	The site is densely built-up and was not selected with regard to representativity and optimum number of component parts.

Fig. 3.11 Selection of sites in Central Switzerland.

Region of Lake Zurich

The region of Lake Zurich shows a variety of sites, Some have hardly undergone research, others have been almost totally excavated and largely published. In 1996 a complete inventory of the lakes in this region allowed to discover new sites which are now regularly surveyed and studied. Sites were chosen for the nomination which still show important intact archaeological layers of different prehistorical periods, have a special function like bridges (CH-SZ-01), a unique topographical situation like the island dwellings (CH-SG-02) or show a great number of settlement phases.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Aeugst a / A.–Türlersee	–	?										
–	Erlenbach–Widen	A	a					d	a				
CH-ZH-01	Erlenbach–Winkel	A	a/c	a			a	a	a	c	a		a
–	Fällanden–Rietspitz	A					?	a	a		a/c		a
–	Freienbach–Bächau	B	a					a					
–	Freienbach–Hurden Kapelle	B	a/d				a/d						
CH-SZ-01	Freienbach–Hurden Rosshorn	A	c	c				c			c	c	c
CH-SZ-02	Freienbach–Hurden Seefeld	A						a	c				
–	Freienbach–Hurden Untiefe West	A	a/c				a	a/c					
–	Freienbach–Lützelau	B	a/c				a	a/c					
–	Freienbach–Ufenau	B		a									a
–	Freienbach–Vor der Kirche	A	a/d	a			a	a	d				a
–	Greifensee–Böschen	C		b							a/c	b	
–	Greifensee–Furen	B	a					a	a				
–	Greifensee–Starkstromkabel	B	a	c				a			c	c	
CH-ZH-02	Greifensee–Storen / Wildsberg	A	c/d				d	d	c/d				
–	Hausen a / A–Türlersee	A	?	?					?				?
–	Hombrechtikon–Rosenberg	A	a/c				?	a/c	c				
–	Horgen–Dampfschiffsteg	C	a/d				d		a				a
CH-ZH-03	Horgen–Scheller	A	c/d	b				d/e		c	b		b
–	Kilchberg–Bendlikon	A	a					a	A				
–	Kilchberg–Mönchhof	B?	a	?				a			?		
–	Kilchberg–Schooren	B	a/c						a/c				
–	Küsnacht–Hörnli	A	a/c	a/b				a	a/c	a/c	a/b		a
–	Männedorf–Langacher	A	a	a			a	A					
–	Männedorf–Leuenhaab	A	a/c	a			a		a/c			a	
–	Männedorf–Strandbad	B					a	a/c	a/c	a/c	a		a
–	Männedorf–Surenbach	B	a/c				a/c	a					
–	Männedorf–Weieren	B	a			a							
CH-ZH-04	Maur–Schiffländе	A	a/d	c			a	a	a/d		c	?	?
–	Maur–Uessikon	A	a				a	a					
–	Maur–Weierwis	A					?	a/c	a				?
CH-ZH-05	Meilen–Feldmeilen Vorderfeld	A	a/c	b/d			c	c	a/c		b		d
–	Meilen–Im Grund	A	a/c	?			a	a/c	a/c	a/c			?
–	Meilen–Plätzli	A	a				a	a					
CH-ZH-06	Meilen–Rorenhaab	A	a/d	a/c/d			d	d	a		c/d		a
–	Meilen–Schellen	A	a/c	a/b/c			a/c	a/c	a/c		a/b		a/c
–	Oberrieden–Riet	A	a/c					a/c					

	Comment
	Information about this site is only known from early reports. Not enough is known about this site to assess its scientific value.
	The site was not selected with regard to representativity and optimum number of component parts.
	Finds from all periods have been uncovered at this site. Particularly interesting are some finds from the Early Bronze Age and ground plans of Corded Ware houses.
	Site not selected with regard to representativity and optimum number of component parts.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Site not selected with regard to representativity and optimum number of component parts.
	The site contains several crossings, the earliest of which dates from the Horgen period. Several Early Bronze Age construction phases have been identified. The remains from the Hallstatt and Roman periods provide information about periods from which no 'pile-dwelling sites' are known (e.g. dendrochronological dates).
	Among several settlement phases one has provided early Corded Ware dates which is of particular scientific interest in terms of the emergence and dissemination of this cultural group in Switzerland.
	Site not selected with regard to representativity and optimum number of component parts.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Site not selected with regard to representativity and optimum number of component parts.
	The site is almost completely excavated.
	There are only few remains of the site, integrity is not adequate.
	There are only few remains of the site, integrity is not adequate.
	Large settlement area on a very steep slope. Particularly interesting from a scientific point of view is the phase of occupation dating from the late Horgen culture (end of Horgen and transition to Corded Ware).
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Site not selected with regard to representativity and optimum number of component parts.
	The site is almost completely excavated.
	The site which gave its name to the Horgen culture not only contains several phases of this cultural group, the southern section also contains construction timbers from the Early and Late Bronze Ages, which allow us to draw conclusions about the architecture of the houses.
	Site not selected with regard to representativity and optimum number of component parts.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Site not selected with regard to representativity and optimum number of component parts.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate. Site not selected with regard to representativity and optimum number of component parts.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Site not selected with regard to representativity and optimum number of component parts.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Site with an assemblage of finds characteristic of the Corded Ware culture as well as Bz D finds, which are not usually found at pile-dwelling sites.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Site not selected with regard to representativity and optimum number of component parts.
	Large settlement area with evidence of many periods, most of which are dated by dendrochronology. Dendrodates from the transition between the Horgen and Corded Ware cultures allow us to draw conclusions about the considerable cultural differences between these cultures. A unique find on Lake Zurich is a vessel of the Cham group, which points to cultural links with the east. A relatively large number of human bones is also worth mentioning.
	Site not selected with regard to representativity and optimum number of component parts.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	From the point of view of research history, this site was the starting point of pile-dwelling research. All periods are represented here, usually with several settlement phases. This fact and numerous dendrochronological dates allow us to research the developments of cultural groups on site.
	Site not selected with regard to representativity and optimum number of component parts.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Oberrieden–Seegarten	A	a					a					
–	Pfäffikon–Baselrüti	A											
–	Pfäffikon–Burg	A	a/d	a			a	a/d			a		
–	Pfäffikon–Irgenhausen	A	a/c	a					a/c		a		
–	Pfäffikon–Riet	A	a					a					
CH-SG-01	Rapperswil-Jona / Hombrechtikon–Feldbach	A	b/c	c/d			c	c	b/c		c/d		
–	Rapperswil-Jona–Heilig Hüsli	B		c							c		
–	Rapperswil-Jona–Schwimmbad	B	a									a	
–	Rapperswil-Jona–Seegubel	A	a	a			a	a				a	
CH-SG-02	Rapperswil-Jona–Technikum	A		b/c							b/c		
–	Rapperswil-Jona–Untiefe Ost	A	a/c					a/c	a/c				
–	Rapperswil-Jona–Wurmsbach	B	a					a					
–	Richterswil–Schönenwirt	A	a	a			a	a					a
–	Rüschlikon–Rörli	A	a	a				a	a			a	
–	Schwerzenbach–Suelen	A		?									?
–	Stäfa–Kehlhof	B	a					a					
–	Stäfa–Lanzelen	A	a						a				
–	Stäfa–Uerikon Im Länder	A	a/c	a/b			a	a/c					a/b
–	Stäfa–Uerikon Villa Steinfels	B	d	a				d					a
–	Uetikon–Schifflände	B	a/c/d	a			a/d	a/d	c		a		a
–	Uster–Riedikon	A	a	a			a	a					a
–	Wädenswil–Hinter Au	A	a/d	a					a/d				a
–	Wädenswil–Meilibach	B	?										
–	Wädenswil–Naglikon	B	a/ /c				a/c						
–	Wädenswil–Scheller	A	a/c	a			a	a/c		a/c	a		
CH-ZH-07	Wädenswil–Vorder Au	A	a/e	a/b/c				a	e	a	b/c		
–	Wetzikon–Himmerich	B	a			a	a	a	a				
CH-ZH-08	Wetzikon–Robenhausen	A	a/c/d	a/c			d	a	c		c		a
–	Zürich–Affoltern-Südlich Aebnet	C		a									a
CH-ZH-09	Zürich–Enge Alpenquai	A		a/c/d								a/d	c/d
–	Zürich–Enge Breitingerstrasse Rentenanstalt	C	a/d	a/b			a		a/d		a/b		
–	Zürich–Enge Breitingerstrasse Zürich Versicherung	C	a/d				a	a	a/d				
–	Zürich–Enge Mythenschloss	C	a/c/d				a	a	a/d	a/d			
CH-ZH-10	Zürich–Grosse Stadt Kleiner Hafner	A	a/d	a/b/ c/d		a	a	d			a		b/c
–	Zürich–Grosse Stadt Mozartstrasse	C	b/c/d	a/b/ c/d			b/d	b/c	b/d		b/c		a/d
–	Zürich–Kleine Stadt Bauschanze	A	a/d	a/b			a/d	a	a		a/b		a
–	Zürich–Riesbach Grosser Hafner	A	a/d	a/d			a	a/d			a		a/d
CH-ZH-11	Zürich–Riesbach Siedlungskammer Seefeld	A	a/c/d	a		a	d	d	c/d		a		
–	Zürich–Wollishofen-Bad	A	a/c						a/c				
–	Zürich–Wollishofen-Haumesser	B	a	a/d			a	a			a		a/d
–	Zürich–Wollishofen-Horn	B	a					a					

	Comment
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Site not selected with regard to representativity and optimum number of component parts.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Site not selected with regard to representativity and optimum number of component parts.
	Large multi-phase settlement with distinctive house plans dating from the Corded Ware period and the Early Bronze Age. The site has yielded a date of 1490 BC, a very late date for an 'Early Bronze Age' pile-dwelling period.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Site not selected with regard to representativity and optimum number of component parts.
	Interesting Early Bronze Age site with multiple palisades located on a former island. The site was probably connected with the construction of the earliest footbridges across the isthmus between Rapperswil and Hurden.
	Site not selected with regard to representativity and optimum number of component parts.
	Site not selected with regard to representativity and optimum number of component parts.
	Site not selected with regard to representativity and optimum number of component parts.
	Site not selected with regard to representativity and optimum number of component parts.
	Site not selected with regard to representativity and optimum number of component parts.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Site not selected with regard to representativity and optimum number of component parts.
	Site not selected with regard to representativity and optimum number of component parts.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Site not selected with regard to representativity and optimum number of component parts.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Site not selected with regard to representativity and optimum number of component parts.
	This site has yielded special pottery from the transition between the Pfyn and Horgen cultures. The Corded Ware settlement phase contained a bell beaker, which allows us to draw conclusions on the links between the Corded Ware and Bell Beaker cultures. Incidentally, the latter has so far provided hardly any dendrodates. The Early Bronze Age settlement phase has yielded a special type of pottery which helps trace the distribution of a certain ceramic style.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate. Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Important site from the point of view of research history: Its finds were sold all over the world in the 19th century. Excellent preservation of organic remains, particularly of textiles.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Large site with extraordinarily rich finds from the Late Bronze Age. The final phase dates from the transition to the Iron Age, a period otherwise rarely found.
	The site is almost completely excavated.
	The site is almost completely excavated.
	The site is almost completely excavated.
	Site in an interesting location near the outlet of the lake. All periods are represented. Evidence of the earliest farming communities on Lake Zurich, however, is of great importance.
	The site is almost completely excavated.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate. Site not selected with regard to representativity and optimum number of component parts.
	Site not selected with regard to representativity and optimum number of component parts.
	The site encompasses a huge settlement area with numerous villages. Several of these date from the same period and thus provide insight into neighbourly relations and the organisation of the settlements. Besides highly interesting ground plans of Early Bronze Age houses, modern port facilities are also part of the site.
	Site not selected with regard to representativity and optimum number of component parts.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.
	Information about this site is not sufficiently verified to assess its scientific value; authenticity of information sources is not adequate.

Fig. 3.12 Selection of sites in the Region of Lake Zurich.

Small lakes and bogs of Northeastern Switzerland

The small lakes and bogs in northeastern Switzerland make up an area of settlement suitable for pile dwellings. It is comparable with the areas on the Western Swiss Plateau and the region of Lake Federsee (Baden-Württemberg), but its cultural environment was quite different. Thayngen–Weier I-III (CH-SH-01) and Gachnang-Niederwil–Egelsee (CH-TG-04) are two Pfyn Culture sites on the list. The latest phase of Thayngen–Weier was almost contemporary with Gachnang-Niederwil, which offers unique opportunities for comparison. The site Hüttwilen–Nussbaumersee (CH-TG-05), on the other hand, existed over a long period during the Neolithic and its latest settlement phase dating from the early Iron Age represents a period otherwise not represented at Swiss pile dwellings.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Affeltrangen–Charriertet	B	?										
–	Berg–Heimenlachen	B	?	?			?						
CH-TG-04	Gachnang-Niederwil–Egelsee	A	a/b				a/b						
CH-TG-05	Hüttwilen–Nussbaumersee	A	a	a	a	?	a/d	?	a/d				a/d
–	Ossingen–Husemersee	A	a	a			a		a			a	
–	Pfyn–Breitenloo	A	a				a						
CH-SH-01	Thayngen–Weier I-III	A	a/b				a/b						

Lake Constance (Swiss shoreline)

Numerous sites on Lake Constance are known only from old reports or from finds in collections and have since fallen victim to erosion. However, thick cultural layers are still preserved in Mammern–Langhorn (CH-TG-06) and Ermatingen–West (CH-TG-02), which comprise an important research reserve for the future of the Neolithic cultural groups typical of this region. Arbon–Bleiche 2–3 (CH-TG-01) on one hand represents the only Early Bronze Age site on the Swiss shoreline of Lake Constance and on the other fills an important settlement gap in the 35th century BC. The importance of Eschenz–Insel Werd (CH-TG-03) is based on its special location at the effluent of the Untersee (lower part of Lake Constance) and on its pile field, which has also provided Late Bronze Age dates.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Altnau–Ruderbaum	C	a				a	a					
–	Arbon–Bleiche 1	A	a				a						
CH-TG-01	Arbon–Bleiche 2-3	A	a/b	a				a/b			a		
–	Berlingen–Bucht östl. Dorf	C	a				a						
–	Bottighofen–Neuwies	C	a				a		a				
–	Bottighofen–Schlössli	C	a				a						
CH-TG-02	Ermatingen–West	A	d				d	d	d				
CH-TG-03	Eschenz–Insel Werd	A	b/c	b/c			b/c	b/c	b/c		b/c	b/c	
–	Eschenz–Seeäcker / Orkopf	B	a					a	a				
–	Güttingen–Moosburg	C	a					a					
–	Güttingen–Rotfarb	C	a				a	a					
–	Güttingen–Soorwiesen	C	a					a					
–	Horn–Bad Horn	B	?	?			?	?			?		
–	Kesswil–Seedorf	C	a				a	a					
–	Kreuzlingen–Helebarden	C	a				a	a					

	Comment
	The site is only known from early reports. Its exact location is not clear.
	Information about this site is only provided by early reports. Borings have identified two possible cultural layers. But at the moment, not enough is known about this site to assess its position from a scientific point of view.
	Excellently preserved site with several phases of the Pfyn Culture. Almost all the features ate still below ground water level. A sequence of well-preserved house floors on top of each other provides particularly interesting information about the architecture of the houses.
	The site contains excellently preserved cultural layers of several metres thickness with several settlement phases mainly from the Pfyn Culture. Another settlement from a rarely found period (Late Bronze Age HaB3 and Early Iron Age) is also very well preserved and bears great scientific potential.
	While this site bears great potential, it has not been investigated well enough to gauge its position from the point of view of scientific research.
	Single-phased settlement (3708–3704 BC) that gave its name to the Pfyn Culture. Site not selected with regard to representativity and optimum number of component parts.
	The site stands out due to its well-preserved remains of houses. Because several dendrochronologically dated settlements replaced each other within short periods of time, Thayngen–Weier allows, together with other sites of this region, to reconstruct the development of the Pfyn Culture.

Fig. 3.13 Selection of sites of the small lakes and bogs of Northeastern Switzerland.

	Comment
	Badly eroded settlement area dating from the Pfyn and Horgen cultures.
	Settlement area with several phases dating from the Pfyn culture; possibly partially threatened by construction in the long term. Site not selected with regard to representativity and optimum number of component parts.
	Arbon gave its name to an Early Bronze Age cultural group and is thus an important reference complex. Excavations carried out from 1993 to 1995 revealed that Arbon also contained an excellently preserved single-phased settlement dating from a rarely found period (34th century BC).
	Badly to completely eroded settlement area dating from the Pfyn culture.
	Badly eroded settlement area dating from the Pfyn and Horgen cultures.
	Badly to completely eroded settlement area dating from the Pfyn culture.
	Borings carried out at this as yet little-researched large site have yielded both a thick unit of cultural layers and a field of piles bearing great scientific potential with regard to the Pfyn, Horgen and Corded Ware cultures.
	Significant parts of this site, which is important in terms of research history, are still beneath the ground. The field of piles bears great potential for dendro-chronology. This is a settlement with several phases on the effluent of Lake Untersee into the River Rhine.
	Badly washed out cultural layers dating from the Horgen and Corded Ware cultures. Site not selected with regard to representativity and optimum number of component parts.
	Badly eroded settlement area, probably dating from the Horgen culture.
	Badly eroded settlement area dating from the Pfyn and Horgen cultures.
	Badly eroded settlement area dating from the Horgen culture.
	As yet not very well researched pile field with few finds. Partially badly affected by dredging operations in the port area.
	The site is known from early reports. Badly eroded settlement area dating from the Pfyn and Horgen cultures.
	The site is known from early reports. Badly eroded settlement area dating from the Pfyn and Horgen cultures.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
CH-TG-06	Mammern–Langhorn	A	d				d	d					
–	Münsterlingen–Landschlacht	C	a				a	a					
–	Münsterlingen–nördl. Klinik	C	?	?			?	?			?		
–	Steckborn–Schanz	A	d				d	d					
–	Steckborn–Turgi	B	d				d	d	d				
–	Tägerwilen–Untere Gottlieberwiese	C	a				a	a					
–	Uttwil–Unterbäche	C	a										

Austria

Lake Keutschach

Lake Keutschach is because of its geographical situation between Slovenia, Italy and the Austrian Salzkammergut of special interest. The site of Keutschacher See (AT-KT-01) documents with its excellent preservation of organic material finds the Kanzianiberg-Lasinja group which shows influences which go far into the Hungarian region.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Hafnersee	C	c				c						
AT-KT-01	Keutschacher See	B	a/e		a		a / e						a

Salzkammergut

The choice of sites in the Salzkammergut assures a complete and excellent documentation on the Neolithic Mondsee group: The sites Abtsdorf I–III (AT-OÖ-01–AT-OÖ-03) are important for understanding small-scale settlement processes. Aufham (AT-OÖ-04) makes with its continuous pile field, its assumable development in several phases and its extent an important research reserve for fine chronology of the Mondsee group. Nussdorf (AT-OÖ-06) is the only known pile-dwelling site of the declining Mondsee-Group and so of extraordinary importance. Litzlberg Süd (AT-OÖ-05) with its massive package of occupation layers garantees a rich spectrum of finds and the eponymous site Mondsee–See (AT-OÖ-07) allows with its rich find inventory research into trade contacts and comparison with synchronic pile-dwelling cultures.Finally Abtsdorf II (AT-OÖ-01) is the only clear dated site of Austrian Bronze Age.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
AT-OÖ-01	Abtsdorf I	A	?	a			?	?			a	a	
AT-OÖ-02	Abtsdorf II	A	b				b	b					

	Comment
	Augering at this as yet little-researched site revealed a thick cultural layer and a field of piles, both of which bear great scientific potential.
	The site is known from early reports. Badly eroded settlement area dating from the Pfyn and Horgen cultures.
	The site is known from early reports. The prehistoric settlement area has since eroded almost completely.
	Site with several phases dating from the Pfyn and Horgen cultures. Site not selected with regard to representativity and optimum number of component parts.
	Site with several phases dating from the Pfyn, Horgen and Corded Ware cultures. Site not selected with regard to representativity and optimum number of component parts.
	Badly eroded settlement area dating from the Pfyn and Horgen cultures.
	Badly to completely eroded settlement area dating from the Pfyn and Horgen cultures.

Fig. 3.14 Selection of sites of Lake Constance (Swiss shoreline).

	Comment
	There are no remnants of occupational layers at the site and the pile field is massively eroded. However, the site forms still an completion of the site Keutschacher See (AT-KT-01) and research reserve.
	The site is one of the major find spots of the Kanzianiberg-Lasinja group and complements the sites on mineral earth through its excellent conservation conditions for organic material. Because of its situation in the geographical triangle between Slovenia, Italy and the Austrian Salzkammergut, it is of special interest; the influence of Lasinja ceramics is verifiable far into the Hungarian region and proves the connection between the southeast alpine region and Hungary. The sites situation in the lake centre also is exceptional. Pioneering work in dendrochronology has provided important information about the Kanzianiberg-Lasinja group. In its role as the first pile dwelling to be discovered in Austria, it is additionally immensely important from a research historical perspective.

Fig. 3.15 Selection of sites of Lake Keutschach.

	Comment
	The pile-dwelling settlement is especially important because of its assured dating at the turn from Early Bronze Age to Middle Bronze Age. This constitutes the only verified radiocarbon date of a pile dwelling of this era. Neolithic finds from the settlement area suggest several phases, which form an important link between Neolithic and Bronze Age settlements.
	The find site not only forms an important reserve for research because of its good covering with lake marl and calcareous mud, but, in the ensemble with Abtsdorf I and Abtsdorf III, also is an important element for understanding small-scale settlement processes.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
AT-OÖ-03	Abtsdorf III	A	b				b	b					
–	Attersee	C	c	?			c	c			?	?	
AT-OÖ-04	Aufham	A	c				c	c					
–	Kammer I	C	?				?	?					
–	Kammer II	B	?				?	?					
–	KammerI	B	a				a	a					
–	Litzlberg	C	?				?	?					
–	Litzlberg Nord I	A	e				e	e					
–	Litzlberg Nord II	A	?				?	?					
–	Litzlberg Nord III	A	?				?	?					
AT-OÖ-05	Litzlberg Süd	A	d				d	d					
–	Misling I	C	?				?	?					
–	Misling II	B	b				b	b					
AT-OÖ-07	Mondsee–See	B	a / e				a / e	a / e					
–	Mooswinkel	B	a				a	a					
AT-OÖ-06	Nussdorf	A	a					a	a				
–	Scharfling	B	c				c	c					
–	Seewalchen I + II	C	c				c	c					
–	Seewalchen III	C	?				?	?					
–	Traunkirchen	B	?		a								a
–	Unterbuchberg	C			?								?
–	Weyregg I	B	a				a	a					
–	Weyregg II (Puschacher)	B	b				b	b					

	Comment
	Like Abtsdorf II (AT-OÖ-02), the settlement of Abtsdorf III not only seems to show very good covering and thus good preservation, but also is of particularly importance in synopsis with the neighbouring settlements of Abtsdorf I (AT-OÖ-01) and Abtsdorf II (AT-OÖ-02).
	The site has been subjected to massive damage in the past.
	The site of Aufham shows a very good state of preservation, and is one of the largest lake settlements in Austria. The large dimensions suggest a station with several settlement phases and as a matter of fact several archaeological horizons have been established. Across the whole settlement area, a continuous pile field was established, which makes the station, in combination with its good sediment covering, the assumable development in several phases, and the extent of the settlement, an important research reserve for fine chronology of the Mondsee group.
	The site has been subjected to massive damage in the past.
	The site has been subjected to massive damage in the past.
	The site has been subjected to massive damage in the past, and, for continued existence, needs urgently to be examined and protected. Kammerl is the location of the first pile-dwelling reconstruction on the Attersee and the comparison between the remnants could be interesting.
	The site has been subjected to massive damage in the past.
	There is only little information about this site available. Site not selected with regard to representativity and optimum number of component parts.
	There is only little information about this site available. Site not selected with regard to representativity and optimum number of component parts.
	There is only little information about this site available. Site not selected with regard to representativity and optimum number of component parts.
	The settlement of Litzlberg Süd is one of the settlements with the best-preserved archaeological horizons. The massive packages of occupation layers and very good covering of lake marl and calcareous mud offer perfect conditions for a rich spectrum of finds and thus are especially important for understanding small-scale development processes in Neolithic time.
	The site has been subjected to massive damage in the past.
	The site has been subjected to massive damage in the past, integrity is no longer adequate.
	The eponymous site of the Mondsee group does not only represent an exceptional value from a research historical perspective. The rich inventory of finds at the settlement constitutes the so far most comprehensive source for scientific exploration of Austrian pile-dwelling cultures. Several publications deal with the different categories of finds (e.g. ceramics, animal bones and silica), and allow research into trade contacts and comparison with synchronic pile-dwelling cultures.
	The site has been subjected to massive damage in the past, integrity is no longer adequate.
	The settlement of Nussdorf is not only very well preserved, and shows a rich spectrum of finds, but, based on its dating of the finds and the C14 samples, also occupies an important position in investigating the declining Mondsee group.
	The site has been subjected to massive damage in the past.
	The site has been subjected to massive damage in the past.
	The site has been subjected to massive damage in the past.
	There is only little information about this site available. Its scientific value and state of conservation cannot be estimated and maybe complete excavation will be necessary for scientific reasons.
	There is only little information about this site available.
	The site has been subjected to massive damage in the past.
	The site has been subjected to massive damage in the past.

Fig. 3.16 Selection of sites of the Salzkammergut.

France

French Jura lakes

Since 1869 when the first French Neolithic lake village, Motte-aux-Magnins, was discovered at Clairvaux-les-Lacs, archaeological knowledge of Lakes Clairvaux and Chalain has advanced considerably thanks to the work of P. Pétrequin and his team from the 1970s onwards. In view of the density of occupation recorded round these small lakes 12 km apart, their geographical situation on the edge of the areas of eastern and south-western influences and the exceptional conservation of the organic remains, these Jura lakes are today mandatory references for understanding the European Neolithic period.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Chalain 11	–	?	?									
–	Chalain 23	–	?	?									
–	Chalain 7	–	?	?									
–	Chalain 8	–	?	?									
–	Chalain 9	–	?	?									
–	Chalain, station 32	–	?	?									
FR-39-02	Lac de Chalain, rive occidentale	A	a	a		e	a/d	a/d	a/d	a/b	a	a	a
FR-39-01	Le Grand Lac de Clairvaux	A	a	a	a	e	a/d	a/d	a/d	a/b	a	a	a
-	Le Grand Lac de Clairvaux, rive sud (Clairvaux VIII, IX, XII, XIII, XIV, XV, XVI)	B	a	a			a	?					a

Savoyan Lakes

Overall, the sites on Lake Le Bourget are the best preserved of the Savoyan lakes – one of the preferred criteria for choosing the deposits to be included (FR-73-06 for the Middle Neolithic and four Late Bronze Age deposits, FR-73-03-FR-73-05 and FR-73-07), which go to make up an entire complex of a period particularly prolific in archaeological remains in the region in question.
The Lake Aiguebelette sites encapsulate considerable archaeological potential, mainly for understanding the architectural organisation of their structures. The fact that the two instances of occupation FR-73-01 and FR-73-02 are contemporary suggests mobility in a Late Neolithic community which moved around this lake (itinerant farming practices and / or the lifespan of the dwellings).
The Lake Annecy deposits are of indisputable importance for knowledge of the cultural phases of the occupation periods (a major milestone between the Swiss Plateau and the whole area of the Rhone, FR-74-04), for the special nature of their chronology (FR-74-04), and for their outstanding architectural organisation (FR-74-06, the only existing layout of an Early Bronze Age village).
In geographical terms, the south shore of Lake Geneva is a major milestone for Rhone valley relations and trade with the Valais. The sites have, however, considerable archaeological potential, mainly in terms of understanding the architectural organisation of their structures. The tentative list for the French shore of Lake Geneva has been reduced to a single property – the best preserved – located on the commune of Chens-sur-Léman (FR-74-03).

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Aix-les-Bains–La Culaz	–			?								?
–	Aix-les-Bains–Le Grand-Port	–	?										
–	Aix-les-Bains–Le Grand-Port	–		?									?
–	Annecy–Albigny 1	B		c							c		
–	Annecy–Ile des Cygnes	B	c						c				
–	Annecy–Le Port 1 et 2	B	c	a					?			c	c
–	Annecy-le-Vieux–La Tour	B	c				c	c					

	Comment
	The site was entirely destroyed by the installation of an articificial channel for a fire hydrant.
	Isolated items (deposit of 7 arrowheads in a quiver).
	This site was demolished after an old collapse of the platform.
	This site was demolished after an old collapse of the platform.
	This site was demolished after and old collapse of the platform.
	The site was entirely destroyed by the installation of an articificial channel for a fire hydrant.
	The west bank of Lake Chalain was occupied by 32 villages where the stratigraphic sequences conserved are sometimes as much as 6 m thick. Most of them involve the interval between the 32nd and the 26th centuries BC, a period of time with no other equivalent in Western Europe. The remains preserved include access paths suitable for animal-drawn carts, the palisades of the villages and the ruins of wooden houses and their middens and sometimes their graves. Conservation of organic remains is exceptional on account of the long period of stability of the water table (400 wooden objects, cloth, plaited plant fibres, numerous architectural fragments).
	In 2001, on the northern shoretine of Lake Clairvaux, 11 groups of littoral villages, 10 of them stratified, were recorded. With a stratigraphic thickness of more than 5 m in some cases, they revealed periods of occupation ranging from 3800 to 800 BC. This density of occupation round a small lake is unique in Europe and Clairvaux, like the nearby sites at Chalain, is today a mandatory reference for the European Neolithic both because of the conservation of remains and also because of its geographical situation on the edge of the areas of eastern and south-western influences.
	The conservation of the seven sites of the southern shoreline of Grand Lake Clairvaux is generally not as good as the one of the sites of the northern shoreline. They have been selected with regard to representativity and the optimum number of already chosen component parts.

Fig. 3.17 Selection of sites of French Jura lakes.

	Comment
	Not enough is known about this site to assess its position from a scientific point of view.
	The exact location of this completely landed site is not known. Finds made until now are unknown.
	Not enough is known about this site to assess its position from a scientific point of view.
	A small group of stakes probably belonging to a trackway dated by dendrochronology (1620 BC) have been discovered. No material finds confirm this period which is still unknown on the lake, But till now, not enough is known about this site to assess its position from a scientific point of view.
	A very eroded coastal construction.
	Not enough is known about this site to assess its position from a scientific point of view.
	Small groups of piles dated by radiocarbon in the Neolithic period. At the moment not enough is known about this site to assess its position from a scientific point of view.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Annecy-le-Vieux–Le Petit-Port 2	B		c/d									c/d
–	Anthy-sur-Léman–Séchex	–	?										
FR-73-04	Baie de Châtillon	A	c/d										c/d
FR-73-05	Baie de Conjux-Portout	B		b/c									b/c
FR-73-03	Brison-Saint-Innocent–Baie de Grésine	A		b/d									b/d
–	Brison-Saint-Innocent–Chez les Berthets, Mémars 2	B		c									c
–	Brison-Saint-Innocent–Mémars 1 et 1bis	B	a/c						a/c	a/c	c		
–	Brison-Saint-Innocent–Sous Cotefort 1 et 2	B		c	c								c
–	Brison-Saint-Innocent–Sous le Four	B	c				c	c					
–	Chapelle-du-Mont-du-Chat (La)–Le Communal du Lac 1	B	c										c
–	Chens-sur-Léman–Beauregard 1, 2, 3	B	c	c				c					c
–	Chens-sur-Léman–La Fabrique Nord (La Fabrique Canton)	B		c								c	c
	Chens-sur-Léman–La Vorge Ouest (La Vorze)	B		c								c	c
–	Chens-sur-Léman–Sous le Moulin (La Vie à l'Ane)	B	?	c								c	c
–	Chindrieux–Châtillon-Port 2	–		c								c	
–	Conjux–Conjux 2 et 3	B	a/c	a/c						a/c		a/c	
–	Conjux–Conjux-Port 1	B		c									c
–	Conjux–Conjux-Port 2	B		c									c
–	Conjux–Conjux-Rive 1	B	c				c						
–	Conjux–Conjux-Rive 2	B	a						bc				
–	Conjux–Conjux-Rive 3	B		c									c
–	Conjux–La Vacherie, PNLV 3	B		a								c	
–	Conjux–Le Viallier	B			a								a
–	Conjux–Les Côtes 1	B		c								c	
–	Conjux–Les Côtes 2	B		b/c								b/c	
–	Duingt–Le Roselet	B		c								c	c
–	Duingt–Ruphy	B		c									c
–	Evian-les-Bains–Quai Baron de Blonay	–		?									
–	Excenevex–Les Sablons 1 et 2	–	?	?									
–	Excenevex–Moulin Paquis	–											
FR-73-02	Lac d'Aiguebelette, zone nord	B	c						c				
FR-73-01	Lac d'Aiguebelette, zone sud	B	c						c				
FR-74-02	Lac d'Annecy, zone nord-est	B	b/c				b/c						

	Comment
	Final Neolithic settlement with little dendrochronological potential.
	Not enough is known about this site to assess its scientific value.
	Stratigraphic sampling has revealed the importance of organic layers between 40 and 60 cm thick. There are abundant, very diversified and well-preserved artefacts, characteristic of the last littoral occupations of the Late Bronze Age (Bronze final 3b). The layout of the piles with their alignments would seem to be an important feature for understanding the architectural organisation of the structures.
	Some fifteen underwater deposits have been listed in the huge Conjux bay. The small site of Conjux-Port 3 is the best preserved. Piles organised in orthogonal alignments are directly visible on the muddy bottom of the shore platform. They belong to a group of eight houses, three of which have been dated by dendrochronology to 813 BC, the last instances of occupation of the Savoie lakes.
	In Grésine bay it has been possible to make an assessment of two contemporary Late Bronze Age villages, barely 300 m apart. Core samples have revealed the preservation of organic layers, with remarkable perishable objects (basket work, plaited materials, a wooden dish) underneath considerable quantities of covering material. The planimetric layout of the piles – large oaks several of them with a horizontal crosspiece and stakes aligned to form palisades – is indicative of the potential of this deposit for our understanding of the architectural organisation of the structures. The absolute chronology has been clarified and typological series have been retrieved from the stratigraphic sequence, in association with the dendrochronological dates.
	Dendrochronology allows dating the contemporaneous piles from–959. The pottery found during the taking away of the silt is much eroded.
	The structures belong to the Final Neolithic and Early Bronze Age, but the site was not chosen for the nomination list in favour of better preserved sites.
	Not enough is known about this site to assess its position from a scientific point of view.
	Only some piles and rare finds have been found on this Neolithic site. At the moment, it is not possible to assess its scientific value.
	A very eroded settlement..
	Beauregard 1: Not enough is known about this site to assess its position from a scientific point of view of this site of the Final Néolithique (3043–3034). Beauregard 2: Late Bronze Age site (1085, 950, 911 BC). The site was not chosen for the nomination list in favour of better preserved sites. Beauregard 3: Small Neolithic site without any conserved piles.
	Late Bronze Age site (1049, 950–900 BC). Not chosen for the nomination list in favour of better preserved sites.
	The structures belong to the Late Bronze Age but the site was not chosen for the nomination list in favour of better preserved sites…
	The site was not chosen for the nomination list in favour of better preserved sites of the Late Bronze Age
	Isolated post.
	The structures belong to the Final Neolithic and to the Late Bronze Age. The site was not chosen for The nomination list in favour of better preserved sites
	At certain places an important group of piles with a thick stone covering exist, Pottery can also be attributed to the final phase of the Late Bronze Age. But all in all, the site has less potential as FR-73-05 and is therefore not retained.
	Piles are visible on a length of 116 m and have been dated by dendrochronology (–875 à –874). But all in all, the site has less potential as FR-73-05 and is therefore not retained.
	The structures belong to the Middle Neolithic but the site was not chosen for the nomination list in favour of better preserved sites…
	Small enigmatic trapezoidal structure with an unknown function.
	Not enough is known about this small Late Bronze Age site.
	Not enough is known about this site to assess its position from a scientific point of view.
	Isolated piles of the site has been dated with radiocarbone in the Early Iron Age (–770–415 cal. BC). The discovery of two heavy net weights may presume the existance of a sporadic fishing place on the coast. But till now, not enough is known about this site to assess its position from a scientific point of view.
	Prospections have shown the presence of Late Bronze Age 1 pottery in a small organic layer and a radiocarbon dated wood (1490-1215 BC). This is unique on the Lake Le Bourget but for the moment, not enough is known about this site to assess its scientific value.
	This more or less dismanteled access path is made of pebbles and stones. No archaeological amterial was found.
	Late Bronze Age site (1058–1033 et 937– 880 BC). Not chosen for the nomination list in favour of better preserved sites.
	Late Bronze Age site (892–860 BC). Not chosen for the nomination list in favour of better preserved sites.
	Not enough is known about this site to assess its scientific value.
	Information for this site is only provided by early reports. Its exact location is not clear.
	Information for this site is only provided by early reports. Its exact location is not clear.
	What is probably also a defensive feature of this occupation is thus visible on this site too. The piles mark out a triangular surface area 73 m long by 75 m; the dendrochronological felling phases have been identified as 2702 and 2699 BC, just prior to the phases identified for Beau-Phare, about 2 km away. The fact that these two instances of occupation are contemporary could suggest the mobility of a community which moved around Lake Aiguebelette (itinerant farming practices and / or the lifespan of the dwellings).
	The main site in this sector, Beau-Phare, is located on a submerged peninsula suggesting a special, probably defensive, aspect of the settlement (palisade); rectangular floor plans of dwellings have been dated by dendrochronology to the end of the Neolithic period. The importance of the site also derives from its geographical situation, at a crossroads of southern, Rhone valley, Jura and Swiss influences.
	The dendrochronological study indicates a planimetric layout of different felling phases and exposes an architectural organisation of several structures with a minimum duration of site occupation of thirty-two years, between 3600 and 3568 BC (Middle Neolithic).

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
FR-74-01	Lac d'Annecy, zone nord-ouest	B	c	?					c				
FR-74-05	Le Crêt de Chatillon	B		c								c	c
–	Lépin-le-Lac, La Grande Ile 1	–		c	c							c	c
FR-74-03	Littoral de Chens-sur-Léman	A		c/d								c/d	c/d
FR-73-07	Littoral de Tresserve	A		c/d									c/d
–	Lugrin–Tourronde Ouest	–	?										
–	Messery–Crozette	B	a						a	a			
–	Messery–Grand Bois et Parteyi Est	B		c									c
–	Nernier–Champ Catin	–	?										
–	Nernier–Nernier 2–La Tire	B		c								c	c
–	Saint-Alban-de-Montbel, Petite-Ile, rive nord-ouest	B		c								c	c
	Saint-Jorioz–Les Marais de l'Enfer 1	C	c						c				
–	Saint-Jorioz–Les Marais de l'Enfer 3	B			c								c
FR-74-04	Saint-Jorioz–Les Marais de Saint-Jorioz	A	c/d				c/d						
FR-73-06	Saint-Pierre-de-Curtille–Hautecombe	A	c/d				c/d						
–	Sciez–Coudrée	–	?										
–	Sciez–Songy	B		a									
FR-74-06	Secteur des Mongets	B		b/c							b/c		
–	Sévrier–Au Mongets	B		?								?	
–	Sévrier–Les Charretières	B	c			c							
–	Sévrier–Les Choseaux	B	c				c	c					
–	Sévrier–Piron 2	B		c							c		
–	Talloires–Angon	B	c							c			
–	Thonon-les-Bains–A Corzent	–	?										
–	Thonon-les-Bains–Ripaille	–	?										
–	Thonon-les-Bains–Rives 1	–	?						?				
–	Thonon-les-Bains–Rives 2	B		c								c	c
–	Tresserve–Les Bourres	A	d						d				
–	Tresserve–Les Fiollets	B		c									c
–	Veyrier-du-Lac–Vieugy–Sous les Guerres	B	?	c									c

	Comment
	Le Pâquier, the main site of this sector, brings out the potential attraction of this northernmost tip of the lake. This deposit covers a surface area partially occupied by stones (*ténevière*) marking a slight prominence and by underwater plant communities which seem to have colonised them; with felling phases of 2870, 2845 and 2843 BC, this deposit is one of the rare examples of a lake site with these Late Neolithic dates in the region of the Savoie lakes.
	This is a huge underwater island located more than eight hundred metres from the shore with felling phases of between 1184 and 899 BC. Particular mention should be made of the discovery of a potter's kiln (on exhibition in the Musée-Château d'Annecy).
	The chronological span of the rare objects and the particular situation of the site (plattform on an island) suggests a probable cultual interpretation of the site (cultual deposit in the lake ?). But not enough is known about this site to assess its scientific value.
	As current research stands, this is the best-conserved Late Bronze Age deposit of the entire Lake Geneva perimeter with its profusion of remains of Bronze Age habitats. It still has organic layers preserved over an area of 2700 m2. Piles are visible over nearly 4000 m2. In a 15 m2 test excavation three stratigraphic horizons produced well-conserved pottery artefacts, for which dendrochronological dating furnished a clearly established chronology.
	This is the most extensive and one of the best preserved sites of the concluding phases of the Alpine Late Bronze Age (thickness of the layers 70 cm); the dendrochronological study gives a few dates – around 1073 to 1068 BC – for the Late Bronze 2b/3a period (Bronze final 2b/3a), which is very little represented. For the Late Bronze 3b period (Bronze final 3b), the very late date of 805 BC furnishes a new reference for the deposits of the very end of the Late Bronze Age.
	Not enough is known about this site to assess its scientific value.
	Final Neolithic site with radiocarbon dating (2905–2610 BC; 2585–2330 BC). Not chosen for the nomination list in favour of better preserved sites of this particular period.
	Not chosen for the nomination list in favour of better preserved sites of the Late Bronze Age.
	The site is only known from early reports. Its exact location is not clear.
	Late Bronze Age site (1085–920 BC). Not chosen for the nomination list in favour of better preserved sites of the Late Bronze Age.
	A radiocarbon dating between the15th/13th century BC shows an initial occupation of the site at a period which is not well known North of th Alps. But at the moment, not enough is known about this site to assess its position from a scientific point of view.
	This site is poorly preserved.
	Small structure (quadrangular form with posts 5,4 m x 4,5 m) of unidentified function. It is dated with radiocarbon in the Early Iron Age (790–415 BC). At the moment, not enough is known about this site to assess its position from a scientific point of view.
	This is the earliest Lake Annecy site still to have an organic layer preserved in the stratigraphic sequence. Dendrochronological dating shows felling between 3791 and 3783 BC. In a small test excavation, and for the first time on Lake Annecy, stone and pottery artefacts of the Middle Neolithic suggest Chasséen influences from the mid-Rhone valley and minor Cortaillod features; in cultural terms, this enables us to situate the Savoie lakes within the cultural spheres of the Jura and the Swiss Plateau.
	The site shows organic layers conserved over a thickness of 40 cm, containing pottery artefacts resulting from a local development of Cortaillod and Chasséen influences incorporating a few limited Burgundian Middle Neolithic components. This is one of the first examples of littoral occupation in the region of the Savoie lakes.
	The site is only known from early reports. Not enough is known about this site to assess its scientific value.
	Not enough is known about this site to assess its scientific value.
	Les Mongets, the main site on this shore, is one of the rare Early Bronze Age sites (felling phases between 1803 and 1766 BC). The remains provide a particularly legible and exemplary plan; from the bank a path constructed out of logs passes through two palisades, while in the village itself at right angles to the path, there are two double parallel rows of piles corresponding to the dwellings.
	Isolated object.
	This site constitutes an important chronological turning point considering the knowledge of the coastal population at teh end of the Early Neolithic period (radiocarbon dating 4330-4000 BC). But the site is very small and there is no archaeological material.
	Middle Neolithic site, dated only through radiocarbon methods (38th/34th.century BC).
	Not enough is known about this site to assess its position from a scientific point of view.
	Site with two periods of the Final Neolithic (2582, 2446 et 2434 BC). But the last prospections did not bring forth more archaeological finds. At the moment, not enough is known about this site to assess its position from a scientific point of view.
	The site is almost completely destroyed.
	The actual scientific value of the site can not be estimated.
	Not enough is known about this site to assess its scientific value.
	Late Bronze Age site (1058–919 BC). Not chosen for the nomination list in favour of better preserved sites of the Late Bronze Age.
	One of the rare sites of this period. Its dating was only done with radiocarbon methods (2880–2585 BC) and therefore the site not chosen for the nomination list in favour of better preserved sites.
	Poorly preserved Late Bronze Age site.
	The structures belong to the Late Bronze Age but the site was not chosen for the nomination list in favour of better preserved sites.

Fig. 3.18 Selection of sites of Savoyan lakes.

Lake Paladru														
This lake lies in a peri-Alpine landscape of wooded hills and ancient moraines. Excavations have revealed the remains of a settlement of the end of the Neolithic period; in the absence of comparable excavations in the Savoyan lakes, a complete study of this site will furnish a model of Neolithic Alpine villages.														
			Dating			Years BC								
Component part	Name of the component part	Conservation / potential category	Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500	
	Charavines–Les Baigneurs	C	a						a					

Germany

Lake Constance (German shoreline)														
Wetland settlements were first discovered in Germany on Lake Constance. and substantial remains are still intact. A selection of well preserved sites with extensive stratigraphy and culture-historically important finds or unique geographical situations represents the many sites on the German coastline of Lake Constance.														
			Dating			Years BC								
Component part	Name of the component part	Conservation / potential category	Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500	
–	Allensbach-Kapplerfeld	B	?				?	?	?					
–	Allensbach-Lohorn	B	?											
DE-BW-04	Allensbach-Strandbad I	A	d/e				d/e	d/e	d/e					
–	Allensbach-Strandbad II	A	c				?	c	c					
–	Bodman-Blissenhalde	B	a/d				a/d							
DE-BW-08	Bodman-Schachen/Löchle	B	a/d	a/d			a/d		a/d		a/d	a/d		
–	Bodman-Weiler	B	a/d	d			a/d	a/d	a/d	a/d	d	d	d	
–	Dingelsdorf-Fliesshorn	B	?	?			?	?					?	
–	Dingelsdorf-Hafen	B	?											
–	Dingelsdorf-Klausenhorn	B	?				?							
–	Dingelsdorf-Seewiesen	B	c				c?	c?						
–	Dingelsdorf-Unterriess	B	?					?						
–	Egg-Obere Güll I	B	a/d	a/b				a/d			a/b			
–	Egg-Obere Güll II	B	a/c				a/c							
–	Gaienhofen-Untergarten	B	?			?	?	?	?				?	
–	Gundholzen-Möösle	B	?				?							
–	Hagnau-Burg	B	?	?	b/d		?	?			?	?	b/d	
–	Haltnau-Oberhof	A	d	?			d	?	?			?	?	
–	Hegne-Galgenacker	A	a/e						a/e					
–	Hegne-Nachtwaid	B	c				c	?						
–	Hemmenhofen-Im Bohl	A	d	d			d	d			?			
DE-BW-02	Hemmenhofen-Im Leh	A	c/d				c/d							
DE-BW-03	Hornstaad-Hörnle	A	a/e				a/e	c	c					

	Comment
	The site is almost completely excavated (1972–1986) and therefore not considered for nomination.

Fig. 3.19 Selection of sites of Lake Paladru.

	Comment
	The site suffers from erosion; insufficient knowledge of stratigraphy.
	The actual significance can not be determined.
	The site lies within a large multi-phase Late Neolithic and Eneolithic settlement area. It belongs to those pile dwelling sites which were discovered earliest. The site has produced outstanding finds, especially of the Horgen culture, including textiles and a flint dagger. The site offers an excellent opportunity for insights into the spatially limited relocation of Eneolithic settlements.
	The actual significance can not be determined. Site not selected with regard to representativity and optimum number of component parts.
	The site contains a well preserved cultural layer of the Pfyn culture, similar to layers at Sipplingen-Osthafen
	The site lies in an exceptional topographical situation in the silted delta of a feeder river. It is characterised by a long settlement history. The well preserved three-layer Early Bronze Age stratigraphy is unique both in southern Germany and eastern Switzerland and is of great scientific importance. The extensive Corded Ware pile field is also significant.
	An important Neolithic site with occupational layers which are in good condition; however, the area is heavily affected by footpaths.
	Preservation and extent of the site are unknown. The actual significance can not be determined.
	Preservation and extent of the site are unknown. The actual significance can not be determined.
	The site is characteristic for many discoveries of the Hornstaad group. A site from the same time is located in Hornstaad-Hörnle.
	Preservation and extent of the site are unknown. The actual significance can not be determined.
	An occupational layer is documented but the actual significance can not be determined
	An important site of the Early Bronze Age partially eroded. A similar site from the same timeframe exists in Bodman-Schachen-Löchle.
	The extent of the site is unknown, so the actual significance can not be determined.
	The site is subject to significant erosion.
	Information about this site is only provided by early reports and its actual significance can not be determined at present.
	The site contains well preserved occupational layers of Late Bronze Age date; similar layers are present in Unteruhldingen-Stollenwiesen.
	The extent of the site is unknown. The actual significance can not be determined.
	The extent of the site is unclear and the actual signficance can not be determined.
	The site suffers from erosion.
	Complex property interrelationships and intensive private use.
	The extensive wooden piles and occupational layers, especially of the Hornstaad group, still have great potential for future research.
	The eponymous site of the Hornstaad group belongs to the oldest and best researched pile-dwelling sites on Lake Constance. The richness of the finds and the excellent preservation of textiles and organic material are significant. Widespread burnt layers emphasize the importance of the site. On the landward side, extensive occupational layers are well preserved beneath lake marl. There is much potential for landscape archaeology research. Another settlement area of the same period with preserved occupational layers and a pile field lies lakeward. The settlement is followed by a Pfyn culture occupation with widespread pile field, good depositional preservation and an enclosing palisade. Settlement continuity into the Late Neolithic is documented by a pile field with clearly recognizable house plans of the Horgen culture as well as a pile dated to the Corded Ware period.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Hornstaad-Schlössle I	A	a						a				
–	Hornstaad-Schlössle II	C	?										
–	Hornstaad-Schlössle III	B	?										
–	Hornstaad-Schlössle IV	A	a						a				
–	Immenstaad-Kippenhorn	B	?	?			?					?	?
–	Immenstaad-Schiffslände	B	?										
–	Iznang-Unter Eichen	B	c						c				
–	Konstanz-Bleiche	B	?										
–	Konstanz-Frauenpfahl	B	?	c									c
–	Konstanz-Hafenstrasse	B	a				a	a	a				
DE-BW-06	Konstanz-Hinterhausen I	B	a/b				b		a/b				
–	Konstanz-Hinterhausen II	B	c										
–	Konstanz-Inselhotel	B		?								?	?
–	Konstanz-Rauenegg	B	d	d								d	
–	Litzelstetten-Ebnewiesen	A	a							a			
–	Litzelstetten-Hasenwiesen	A	d				d	d	d				
DE-BW-07	Litzelstetten-Krähenhorn	A	a/d				a/d						
–	Litzelstetten-Krähenhorn II	B	?				?						
–	Litzelstetten-Rainwiesen	B	?					?	?				
–	Litzelstetten-Staudershag	B	?				?	?					
–	Ludwigshafen-Holzplatz	B	c	c	c		c	c	c		c		
–	Ludwigshafen-Seehalde	B	b/d	d			b/d	b/d	b/d	b/d	d		
–	Ludwigshafen-Untere Gärten	B	d					d					
–	Mainau-Kuchel I	B	a	a	a						a		a
–	Mainau-Kuchel II	B	?	?									
–	Mainau-Nordstrand	C		b									b
–	Manzell-Zeppelinhalle	C	?				?	?	?				
–	Markelfingen-Grosse Espen	B	c				c	c	c				
–	Markelfingen-Kleine Espen	B	c										
–	Markelfingen-Schlafbach	B	c				c						
–	Markelfingen-Stüdle	B	c										
–	Markelfingen-Zeller Ried	B	?										
–	Maurach-Maximilianhalde	B	?								?		
–	Maurach-Untermaurach	B	?	?	?								
–	Maurach-Ziegelhütte	B	b/d	d			d	d	b/d		d	d	d
–	Meersburg-Ramsbach	B	a					a	a				
–	Nussdorf-Constantinhalde	B	?				?						
–	Nussdorf-Seehalde	B	d	?			d	d			?		
–	Nussdorf-Strandbad	A	d	?			d	d	d		?	?	?
–	Öhningen-Oberstaad	A	d					d	d				
–	Öhningen-Orkopf	A	a	a							a		
–	Öhningen-Seedümpfel	B	?	?									?
–	Reichenau-Oberzell	B	?				?						
–	Seefelden-Nachtweid	B	b/c					b/c					

	Comment
	An important site of the Corded Ware culture; insufficient knowledge of extent of occupation and stratigraphy. Site not selected with regard to representativity and optimum number of component parts.
	The site is subject to signficant erosion.
	The site suffers from great erosion.
	The extent of the site is unclear and its actual significance can not be determined at present. Site not selected with regard to representativity and optimum number of component parts.
	Actual knowledge of the site is insufficient to estimate the scientific value.
	The site is only known from earlier reportsInformation about this site is only provided by early reports; the actual significance can not be determined.
	The site is heavily affected by the built-up shoreline and by recreational activities.
	The site is recently discovered, the actual significance can not be determined.
	The site contains an important Bronze Age pile field but it suffers from extensive erosion.
	The site has been almost completely excavated.
	The widespread pile field and find spectrum indicate an extensive settlement history. The isolated finds of the Goldberg III Group, which are rare on Lake Constance, are of special importance. On aerial photographs extensive pile structures and house plans are visible.
	The site has been recently discovered, so its actual significance can not yet be determined.
	The site has been under construction since the Middle Ages; its actual significance can not be determined.
	An important site but the area has been altered by development, the railway and the harbor.
	An important site of the Corded Ware culture. Site not selected with regard to representativity and optimum number of component parts.
	Occupational layers and pile field suggest a long settlement history. Site not selected with regard to representativity and optimum number of component parts.
	The settlement lies in a typical topographical situation on a small headland on the north shore of the Bodanrück peninsular. The long settlement period is represented by an extensive pile field and comprehensive finds from diverse occupation layers of the Late Neolithic and the Endneolithic.
	An occupational layer has been documented but the actual significance can not be determined.
	Actual knowledge of the site is insufficient to estimate the actual value.
	The site suffers from erosion. An occupational layer is only partly preserved.
	An occupational layer is documented but the actual significance can not be determined.
	An important site with great stratigraphy. A similar stratigraphic sequence is located in Sipplingen-Osthafen.
	The site has been recently discovered, the actual significance can not be determined.
	The site is in a geographically interesting location because it has traffic access but its actual significance can not be determined.
	The cultural classification of the site is unclear. The actual significance can not be determined.
	The site has been almost completely excavated.
	The site is only known from earlier reports. Today it lies under an aircraft hangar. The actual significance can not be determined.
	Insufficient knowledge of the extent of settlement and state of preservation.
	Insufficient knowledge of the extent of settlement and state of preservation.
	The site suffers from erosion.
	Insufficient knowledge of the extent of settlement and state of preservation.
	Insufficient knowledge of the extent of settlement and state of preservation.
	Actual knowledge of the site is insufficient.
	Actual knowledge of the site is insufficient.
	An important site with Eneolithic settlement remains. However, it is subject to strong erosion.
	An Eneolithic site with discoveries of the Goldberg III-Group. Similar discoveries are known from Constance Hinterhausen I.
	Actual knowledge of the site is insufficient.
	An important site with preservation of the cultural strata. Similar layers are present in Sipplingen-Osthafen.
	The site contains an occupation layer of the Hornstaad group, the Pfyn culture and the Horgen culture; similar layers are present in Sipplingen-Osthafen.
	The site contains a well preserved cultural layer of early Horgen date; similar deposits are known from Wangen-Hinterhorn and Sipplingen-Osthafen.
	The site location is geographically clearly defined for traffic access but is insignificantly impacted by erosion. Site not selected with regard to representativity and optimum number of component parts.
	The site was only recently discovered and its precise significance remains unkown.
	The extent of the site is unclear and the actual signficance can not be determined.
	The site has been recently discovered, the actual significance can not be determined.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Seemoos-Königsweg	C	?					?	?				
–	Seemoss-Seemooser Horn	C	?				?	?	?				
–	Sipplingen-Brandsacker	B	?							?			
DE-BW-09	Sipplingen-Osthafen	A	d/e	d/e			d/e	d/e	d/e				?
–	Staad-Hohenegg	B	d				d	d	d				
–	Staad-Hörlepark	B	?	c							c	c	c
–	Süssenmühle-Aussereiche	B	?	?									?
–	Überlingen-Mantelhafen	B	?			?	?						
–	Überlingen-Osthafen	B	?					?					
–	Überlingen-Yachthafen	B	?				?						
–	Unteruhldingen-Bayenwiesen	B	d	?			d	d	d		?		?
DE-BW-10	Unteruhldingen-Stollenwiesen	B	?	b/d			?		?		b/d	b/d	b/d
–	Wallhausen-Ziegelhütte	B	d	?			d	d	d		?		?
DE-BW-01	Wangen-Hinterhorn	A	a/d	?			a/d	a/d	a/d			?	?
DE-BW-05	Wollmatingen-Langenrain	A		a/d									a/d

Federsee and Upper Swabia

The Federsee area is characterised by a large number of prehistoric settlements and an outstanding richness of finds. This region is important for future scientific research and is represented by a selection of excellently preserved settlement sites, either only partly excavated or only known from trial trenching. The discovery of several cart wheels is especially important, showing innovation within the infrastructure of that period.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
DE-BW-12	Achwiesen	A	a/e						a/e				
–	Aichbühl	C	a/b			a/b							
–	Bad Buchau TorwiesenII	B	b/e					b/e					
–	Bad Buchau-Bachwiesen I	B	b/e				b/e						
–	Bad Buchau-Bachwiesen III	A	b					b					
–	Bad Buchau-Torwiesen I	A	d				d						
–	Degersee	B	a/d	e			a/d	a/d			e		
–	Dullenried	C	b					b					
DE-BW-13	Grundwiesen	A	a/ b						a/ b				

	Comment
	Information about this site is provided by earlier reports onlyThe site is only known from earlier reports; the actual significance can not be determined.
	Information about this site is provided by earlier reports only; the actual significance can not be determined.The site is only known from earlier reports; the actual significance can not be determined.
	Information about this site is provided by earlier reports only; the actual significance can not be determined.The site is only known from early reports. The actual significance can not be determined.
	The Sipplingen-Osthafen site, with its large scale continuous occupation layers belonging to ca. 20 different settlements, is the best preserved prehistoric settlement complex in the shallow water zone of Lake Constance. Important scientific insights with regard to the development of the Neolithic environment and economy have been generated by the site and it has ongoing research potential.
	An occupational layer has been documented but the actual significance can not be determined.
	The site is affected by erosion and there are just a few remains of the strata.
	Preservation and extent of the site are inexactly known. The actual significance can not be determined.
	An occupational layer is documented but the actual significance can not be determined.
	The site suffers from erosion and is partially affected by the harbor.
	An occupational layer is documented but the actual significance can not be determined.
	An important site with a broad stratigraphy. Similar layers are present in Unteruhldingen-Stollenwiesen.
	The site is the most important pile field of a strongly fortified Early Bronze Age settlement on Lake Constance. It encompasses three settlement phases. The site is rich in finds, especially numerous bronze objects.
	An important site with a broad stratigraphy but the area is strongly impacted by the harbor. Site not selected with regard to representativity and optimum number of component parts.
	This site is significant due to its research history. It is the first prehistoric lake shore settlement to have been discovered on Lake Constance. The finds were exhibited in British, French and German museums. The extensive stratigraphy of the site, with three occupation layers of the Pfyn culture and at least seven of Horgen culture, still has research potential.
	This is the only Urnfield culture site on the Untersee with widespread preservation of layers. The scientific analyses carried out at the beginning of the 20th century are of relevance for research history.

Fig. 3.20 Selection of sites of Lake Constance (German shoreline).

	Comment
	This is the only complex of the Goldberg III group with excellent textile preservation. The building remains, including subsided pile houses, are unique. The three cart wheel fragments are outstanding and allow insight into the infrastucture of that period. Because of the gyttja, the preservation of the occupation layer is almost ideal.
	This site is important for research history, but it has been almost completely excavated.
	Important site of the Horgen Culture, but almost completely excavated.
	The area of the site has been significantly impacted by development.
	The site is completely built over today and existing information on the site does not allow precise determination of its value.
	Actual knowledge of the site is insufficient to assess its position from a scientific point of view. Site not selected with regard to representativity and optimum number of component parts.
	The site lies within a special cultural geographic area, but actual knowledge of the site is insufficient to determine significance.
	The site has been almost completely excavated.
	The site is a special case. It represents a settlement of the Goldberg III-Group specialized in flax cultivation and herding. The occupational layers form a deposit up to 1,20m thick containing outstandingly well preserved house-floors of multiple building phases. The site is especially important for research on environment and economy during the Eneolithic.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Hartöschle	A	b				b						
–	Illmensee	A	c						c				
DE-BW-17	Königseggsee	A	c/e					c/e					
–	Musbach-Seewiesen	A	a/b				a/b						
DE-BW-11	Ödenahlen	A	a/b				a/b						
–	Oggelshausen-Bruckgraben	A		?	a						?	?	a
DE-BW-16	Olzreute-Enzisholz	A	a/d						a/d				
–	Olzreuter See	A	b				b	b					
DE-BW-20	Reute-Schorrenried	A	a/d				a/d						
–	Riedschachen	C	a			a	?						
–	Ruhestetten-Egelsee	A	?				?						
–	Ruprechtsbruck-Blinder See	B	c				c						
–	Ruschweilersee	A	?				?						
DE-BW-18	Schreckensee	A	a/e				a/e	a/e					
DE-BW-15	Siedlung Forschner	A		a/b							a//b		
DE-BW-19	Steeger See	A	d/e			d/e	d/e		?			?	
–	Stockwiesen	A	a/b					a/b	a/b				
DE-BW-14	Täschenwiesen	B	d						d				
–	Taubried	C	a	?			a				?		
–	Wasserburg-Buchau	B		a/b									a/b

Swabian Jura

Because of their geographical situation, the sites at the foot of the Swabian Jura have a special position. They are particularly influenced by the more northern cultures.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
DE-BW-21	Ehrenstein	A	a/d				a/d						
–	Ulm-Söflingen	B	?										

	Comment
	The site contains well preserved remains of a settlement of the Schussenried Culture. Contemporary finds are known from Ehrenstein and at Steeger See. Site not selected with regard to representativity and optimum number of component parts.
	The site has not been fully investigated; the actual significance can not be determined.
	The site complex encompasses a widespread pile field and an occupational layer embedded in lake marl, partly under water and partly on the shore of the peninsula. An extensive pile field and the latest botanical samples promise high research potential
	The site has not been fully investigated, so its actual significance can not be determined.
	Ödenahlen is an important site of the Upper Swabian Pfyn-Altheim group. It is the site at which the group was first recognised. It is the best preserved site of this cultural group and possesses well preserved house floors and remains of walls. The occupational layer, up to 1 m thick, encompasses multiple building phases.
	This site is important for history research. The remains of the settlement are only partially preserved. Site not selected with regard to representativity and optimum number of component parts.
	Excellent preservation of occupational layers, wooden buildings and finds. The features sunk in the gyttja are especially well preserved. The site epitomises an Eneolithic settlement in an Upper Swabian bog.
	The exact extent of the site is not known, so its actual significance can not be determined.
	The number and quality of the finds and the excellent preservation conditions distinguish this neolithic site. Especially worthy of mention are evidence of early metallurgy and the relatively high proportion of flint imports from Bavaria and Upper Italy.
	This site is important for research history, but it has been almost completely excavated.
	The site is affected by peat spots; the actual significance can not be determined.
	The site is partially affected by peat spots but it has not been fully investigated. The actual significance can not be determined
	The site has not been fully investigated and the actual significance can not be determined.
	The site, situated on a peninsula, has produced the only comprehensive Upper Swabian stratigraphy of Late Neolithic, Eneolithic and Bronze Age date. Also present are a destruction horizon and very good preservation of organic material.
	This exceptionally well defended complex is the only Middle Bronze Age bog settlement north the Alps. Parts were explored during research excavations in the 1980s. Important relics are still hidden untouched in the ground.
	Due to the excellent preservation and the permanent waterlogged conditions, the occupational layers have high research potential.
	A well-preserved single phase settlement of the Horgen Culture and Goldberg III-Group. Contemporary finds are known from Täschenwiesen and Grundwiesen. This site was not chosen for the nomination list in favour of other late Neolithic sites.
	The site is the largest settlement of the Eneolithic in the Federsee reedbed. The research potential of this site, which has as yet only been examined in small areas, is extremely high
	This site is important for research history, but has been almost completely excavated.
	This site is important for the history of research. The remains of the settlement are only partially preserved.

Fig. 3.21 Selection of sites of Federsee and Upper Swabia.

	Comment
	Ehrenstein is among the best preseved wetland settlements in southwest Germany. It plays a key role in our understanding of the internal developments of the Schussenried culture. The research historically important site has high potential for future research.
	The site is completely built over and available information does not allow determining precise value.

Fig. 3.22 Selection of sites of the Swabian Jura.

Loosbach Valley

The floodplain of the Loosbach brook offers excellent opportunities to investigate the appearance and the development of a Neolithic settlement cluster. Intensive documentation over the last two decades, good preservation conditions and evidence of other, undiscovered sites in the surroundings of Pestenacker (DE-BY-01) and Unfriedshausen (DE-BY-02) make the Loosbach floodplain an ideal object of research concerning wetland archaeology in general and the Neolithic Altheim culture in particular.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
DE-BY-01	Weil–Pestenacker	A	a/b					a/b					
DE-BY-02	Geltendorf–Unfriedshausen	A	b/d				b/d						

Lake Starnberg

Prehistoric lakeshore settlements in Bavaria appear at present to be verifiable only in the environment of natural islands. With the sites at Kempfenhausen and Rose Island (DE-BY-03), Lake Starnberg is the only water in the prealpine landscape of the Free State of Bavaria where clear proof has been found for the existence of settlements of this kind. Whereas the entire area between Allgäu and Chiemgau represents a gap in the distribution of prehistoric lakeshore and island settlements in the region around the Alps, at Lake Starnberg there are actually traces of settlements from an era – the Iron Age – which is otherwise characterised by the abandonment of water-edge locations.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC								
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500	500–0
DE-BY-03	Feldafing–Roseninsel	A	?	a	a/b	?	?	?	?		a	?	a	a/b
–	Lake Starnberg-Kempfenhausen	B	a/b				a/b							

	Comment
	Pestenacker is – besides of the site at Unfriedshausen (DE-BY-02) – the most important wetland site in Bavaria. The research at Pestenacker had a significant impact on the knowledge about the Altheim culture and its architecture. In addition, the structures west of the Loosbach have not been dug up yet and offer numerous archaeological reserves for the future. Together with Unfriedshausen, Pestenacker offers a detailed view on the development of a small Neolithic settlement area in the Loosbach Valley.
	Unfriedshausen is – besides of the site at Pestenacker (DE-BY-01) – the most important wetland site in the Free State of Bavaria. Especially Unfriedshausen-West has been well explored during years of systematic excavations. In addition, the archaeological structures at Unfriedshausen-Ost are well-preserved and offer numerous research possibilities for the future. Trial trenches and finds of old, reused timbers indicate that there are other Neolithic settlement structures in the surroundings of the site. Unfriedshausen therefore offers a detailed view on the development of a settlement cluster within the Altheim culture.

Fig. 3.23 Selection of sites of the Loosbach Valley.

	Comment
	Numerous construction timbers, piles and sediments of former occupation layers can be found in the large shallow water areas around the island. They offer wide research opportunities for the future. Remains from the Bronze Age and Urnfield culture can just be found at Rose Island. The dating of those remains exactly corresponds with that of other spots of the Pile Dwelling district around the alps. However, Iron Age features such as sill beam constructions from the middle of the 1st millennium BC and a long lasting settlement history possibly reaching back as far as the Middle Neolithic make the island unique among the settlements of the Pile Dwelling District.
	This site is widely eroded.

Fig. 3.24 Selection of sites of Lake Starnberg.

Lower Bavaria

The centre of the Neolithic Altheim culture within the Free State of Bavaria extends over the tertiary hill country of Lower Bavaria. Most of the sites are located on mineral soil. The only known settlements with partial wetland conservation are to be found in Ergolding-Fischergasse and Essenbach-Koislhof, administrative district Landshut (LA). Both spots are situated on the brooksides of smaller creeks connected to the river Isar. They resemble typical floodplain settlements from the Altheim culture similar to those discovered in the Loosbach Valley. Their preservation depends on the varying groundwater level. However, larger parts of the sites show no wetland conditions. This applies especially to the upper occupation layers in Ergolding-Fischergasse. A significant difference between normal wetland sites and the two settlements in Lower Bavaria are missing deposits of permeable detritus that could cover the prehistoric occupation layers and supply them with surface water. In addition, Ergolding-Fischergasse is located in a densely populated area and therefore endangered by urban developments. Accordingly, none of the Lower Bavarian sites were selected as nominated properties.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Ergolding-Fischergasse	C	a				a	a					
–	Essenbach-Koislhof	A?	a				a?						

Italy

Region of Lakes Maggiore and Varese

This macro-region includes the first two Italian sites recognised as pile dwellings: Mercurago and Isolino di Varese. Many sites of the prealpine lakes are exclusively known by reports and excavations of the 19th century. Therefore they are not selected, although their finds help in outlining the history of this macro-region. The sites prove the lake areas were continually frequented by populations from the early Neolithic period until the end of Bronze Age. Pollen and paleobotanical research have highlighted the development and changes in landscape over time.
Isolino Virginia (IT-LM-09) is the earliest pile-dweling site. Lagozza di Besnate (IT-LM-11) is the eponymous Neolithic site located in the area with important settlement structures. For Sabbione (IT-LM-12) the plan of the dwellings during Early and Middle Bronze Age was reconstructed using dendrochronology and radiometric data. Bodio Centrale (IT-LM-10) has an Early Bronze Age wooden palisade construction and finally Mercurago (IT-PM-02) stands for important metal and wooden finds of the Bronze Age and has still a big scientific potential for future research.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
IT-PM-02	Arona (NO)–Mercurago	A		a/d							a/d	a/d	
–	Bardello (VA)–Bardello Ranchet	A	a	a		a	a				a	a	
–	Bardello (VA)–Bardello-Stoppani	–	a	a			a	a		a	a	a	
–	Bardello (VA)–Palude Bardello	–	a	a	a	a	a	a		a		a	a
IT-LM-11	Besnate (VA)–Lagozza	A	a/b				a/b	a/b					
–	Besnate (VA)–Lagozzetta	?		a					a	a			
IT-LM-09	Biandronno (VA)–Isolino Virginia-Camilla-Isola di San Biagio	A	a/c	a		a/c	a/c	a	a	a/	a	a	
IT-LM-10	Bodio Lomnago (VA)–Bodio centrale o delle Monete	A	a	a		a	a			a/b	a/ b	a	
–	Bodio Lomnago (VA)–Desor-Maresco	A	a	a		a	a			a	a	a	
–	Bodio Lomnago (VA)–Gaggio Keller	A	a	a				a			a	a	
IT-LM-12	Cadrezzate (VA)–Il Sabbione o settentrionale	A	a	b/c			a				b/c		
–	Cadrezzate (VA)–Meridionale o del Pozzolo	A		a									
–	Cazzago Brabbia (VA)–Palude Brabbia	A	a	a		a	a		a	a	a	a	a
–	Cazzago Brabbia (VA)–Ponti o Cazzago	A	a	a		a	a	a	a	a	a	a	
–	Travedona Monate (VA)–Dell'Occhio	A		a						a	a		

	Comment
	This site is widely excavated and poorly preserved.
	This site is only known from smaller archaeological investigations and surveys. It is just partially preserved as a wetland site. Not enough is known about this site to assess its scientific value.

Fig. 3.25 Selection of sites of Lower Bavaria.

	Comment
	This site has been excavated in the 19th and 20th century. The site is important for metal and wooden finds. No excavations have taken place in recent times and therefore an important scientific potential is still available.
	Recently part of the site's area has been identified; no excavations have taken place in recent times. Information for scientific assessement is not sufficient. but was not selected with regard to representativity and optimum number of component parts.
	This site has been excavated in the second part of the 19th century, integrity is inadequate.
	Information on this site is provided by early reports on first exavations. The exact location is not clear.
	This site is important for history research (eponymous site fort he Late Neolithic 'Lagozza Culture') and its settlement structures. The presence of interconnected planks, and the identification of their means of support, by interlocking, suggests that this settlement stood on raised platforms.
	The site was excavated in the second part of 19th century. Information on the present state of conservation of the remaining assets is lacking.
	This settlement displays a sequence of layers including finds from the so-called 'Isolino Group' dating from Early and Middle Neolithic periods; wooden platforms and structures relating to different Neolithic phases are still intact. Excavations of the second half of the 19th century have revealed important finds from Copper and Bronze Age.
	The finds show that the area has been occupied during a long period between Ancient Neolithic and Early Bronze Age. The site is important for Early Bronze wooden palisade.
	There are still important settlement structures, but was not selected with regard to representativity and optimum number of component parts.
	This site was excavated in the second part of 19th century with finds of Recent Neolithic and Early and Middle Bronze Age, but was not selected with regard to representativity and optimum number of component parts.
	This is the only pile dwelling in Italy in which building plans have been recognized thanks to dendrochronology.
	The site is only known by early investigations; the exact location is not clear.
	The sites of this area were investigated only during the 19th century. They are important for history of research, presence of the oldest evidences of Ancient Neolithic and Early Bronze Age finds, but the exact location of this site is not clear.
	There are still important settlement structures, but was not selected with regard to representativity and optimum number of component parts.
	Information on this site is provided by early reports only, not permitting precise assessment of scientific value.

Fig. 3.26 Selection of sites of the Region of Lakes Maggiore and Varese.

Small lakes, bogs and rivers of eastern Lombardy

This macro-region includes the bogs of Lake Iseo and ancient bed-rivers of Eastern Lombardy. It was very important in early phases of pile-dwelling research and testifies that the most ancient human presence in the wetlands of northern Italy goes back to the Mesolithic. Unfortunately the exact location of sites is often not known and their actual value cannot be estimated. The site of Lagazzi del Vho is instead an important example of the population along ancient riverbeds of the lower plain of the Po.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Cortefranca (BS)–Valle delle Paiole	A		a							a		
–	Iseo e Provaglio d'Iseo (BS)–Torbiere	B	?	a		?	?	?	?	?	a	?	
IT-LM-06	Piadena (CR)–Lagazzi del Vho	B		a							a		

Region of Lake Garda

This macro-region is the most important pile-dwelling area of northern Italy. In fact, during the Early Bronze Age, when the pile-dwelling phenomenon became widespread, the greatest concentration of sites lied around Lake Garda, both along the shores of the great lake and the moraine amphitheatre. Some of them (IT-LM-01, IT-LM-03, IT-LM-05, IT-LM-07, IT-VN-01, IT-VN-02) have fundamental importance for chronological sequences, settlement strategy with progressive change of position of the villages, spatial analysis of the structures (IT-LM-08, IT-VN-03, IT-VN-05, IT-VN-06), environment and its use (IT-VN-04). The finds demonstrate exchanging relationships also over large distances, innovations (for instance the 'wooden plough' of Lavagnone) and development of metallurgy (IT-LM-02). The data from recent excavations allow also scientific analysis, such as dendrochronology, palinology, archaeobotany, archaeozoology and sedimentology.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Bardolino (VR)–Porto di Cisano	C		b/c							b/c	c	
IT-LM-07	Cavriana (MN)–Bande – Corte Carpani	B		b/c						b/c	b/c		
IT-VN-06	Cerea (VR)–Tombola	A		a/b								a/b	
–	Desenzano del Garda (BS)–Corno di Sotto	?		a						a	a		
IT-LM-01	Desenzano del Garda / Lonato del Garda (BS)–Lavagnone	B		a/e						a/c	a/	a	
IT-VN-01	Lazise (VR)–Bor di Pacengo	A		b/c							b/c	a	
–	Lazise (VR)–Bottona	B		c								c	
IT-VN-02	Lazise (VR)–La Quercia	A		a/							a/e	a/d	
–	Lazise (VR)–Porto di Pacengo	B		a							a		
–	Lazise (VR)–Villa Bagatta	A		a							a		
–	Lonato del Garda (BS)–Polada	C		a						a			
IT-LM-02	Manerba del Garda (BS)–San Sivino, Gabbiano	A		a						a	a		
–	Moniga del Garda (BS)–Porto	A		a						a	a		
IT-LM-08	Monzambano (MN)–Castellaro Lagusello – Fondo Tacoli	B		a/b	?						a	b	
–	Monzambano (MN)–Castellaro Lagusello – Generali-Pezzalunga	B		a							a	a	

	Comment
	The site meets the main criteria of selection but it is in private property. That's why it is difficult to include it in projects of enhancement. Site not selected with regard to representativity and optimum number of component parts.
	Information on this site, that is very important for research history, is provided by early reports only. It was probably articulated in many different little sites. The exact location is not clear and the value can not be extimated.
	The site of Lagazzi del Vho is a particular important example of the population along ancient riverbeds of the lower plain of the Po.

Fig. 3.27 Selection of sites of the Small lakes, bogs and rivers of eastern Lombardy.

	Comment
	The site was probably articulated in many different little sites; because of the presence of a touristic harbour the value has been reduced.
	The site is an important field for chronological sequence and settlement structure evolution, recognized through dendrochronological data.
	The site is important for chronological sequence and settlement structure evolution (different construction methods), recognized through dendrochronological data. The complex stratigraphy seems to demonstrate a long anthropic frequentation on wooden decking during the Bronze Age.
	The site is only known from reports of early 1980s. Not enough is known about this site to assess its scientific value.
	This site contains an impressive stratigraphic sequence. Pioneering work in pollen analysis has provided information about the changes in the landscape of the area. Moreover, a Bronze Age 'wooden plough' from area A is a unique find.
	The site is important for its chronology (Ancient Bronze II and Early Middle Bronze Age – the so called Bor phase) and for its wooden structures.
	The site is known from very few finds only. Only one chronological phase has beeen recognized (Middle Bronze Age).
	The site is important for the impressive stratigraphic sequence, for the chronological sequence and for the wide extension of the pile field; the site is caracterized by its rich material an outstanding conservation of organic materials.
	The site, very important for research history, is only known from early reports. Not enough is known about this site to assess its scientific value.
	The site has many interesting aspects about chronology and topographic position, but it is not possible to include it in projects of enhancement. Site not selected with regard to representativity and optimum number of component parts.
	The site gave his name to Polada cultural group, but it is only known from 19th century reports. Not enough is known about this site to assess its scientific value.
	The site meets the main criteria of selection and it is possible to include it in projects of enhancement. The recovered materials (ceramics, bronzes, lithic industry) date the occupation of the pile settlement during the Early (EB I, II) and Middle (MB I and IIA) Bronze Ages. Of special scientific importance are some metal artifacts showing particular fabrication techniques with different raw materials (Fahlerz ores and Fahlerz copper with added tin).
	The site meets the main criteria of selection but it is not possible to include it in projects of enhancement. Site not selected with regard to representativity and optimum number of component parts.
	These excavations identified an important stratigraphic area dating from the beginning of the Middle Bronze Age and extending as far as the Final Bronze Age. In the first excavations, numerous wood elements were found, which formed parts of a structure consisting of rectangular caissons with vertical piles and wooden connecting elements. The new excavations identified a large wooden platform, in an excellent state of preservation.
	The site has many interesting aspects about chronology and topographic position, but not enough is known about it to assess its real scientific value.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
IT-VN-03	Nogara (VR)–Dossetto	A		a/b							a/b		
–	Oppeano Veronese (VR)–Feniletto di Vallese	C		b								b	
–	Padenghe sul Garda (BS)–La Ca'	A		a							a	a	
IT-LM-03	Padenghe sul Garda (BS)–West Garda, la Fabbrica	A	c	c			c			c	c		
–	Peschiera del Garda (VR)– Imboccatura del Mincio	C		a								a	
IT-VN-04	Peschiera del Garda (VR)–Belvedere	A		c/e						a/e	c/e		
IT-VN-05	Peschiera del Garda (VR)–Frassino	A		b/c							b/c		
–	Peschiera del Garda (VR)–Golfo	C		a							a	a	
IT-LM-05	Polpenazze del Garda (BS)–Lucone	B	?	a/b		?	?			a/b	a/e		
IT-LM-13	Sirmione (BS)/Peschiera del Garda (VR)–La Maraschina-Tafella	A	?	a						a	a	a	
IT-LM-04	Sirmione (BS)–Lugana Vecchia	A	?	a					a	a	a	a	
–	Sirmione (BS)–Porto Galeazzi	A		a						a	a		
–	Sirmione (BS)–San Francesco	A		a							a		
–	Solferino (BS)–Barche	C		a							a		
–	Sona (VR)–Torbiera Cascina	C	a			a						a	

Small lakes or bogs of Trentino

Ledro and Fiavé are the the two most well known pile-dwelling sites in Western Trentino. Ledro appears today as a 'pile field' which still constitutes a good source of information concerning chronological, structural issues and also the ancient environmental conditions of this area. Fiavé is one of the most important reference points in Italy and in the Alpine area especially because of the variety of structural types, and because of the research on the paleoenvironment. The fact that settlements occurred here in Late Neolithic means that these are dwellings which differ from the ones situated to the South of Lake Garda. Greater similarities can be found instead for the advanced Early and Middle Bronze Age.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
IT-TN-02	Fiavé (TN)–Lago Carera	A	b	b/d	?		b			?	b/d	b/d	?
IT-TN-01	Molina di Ledro (TN)	B	?	a			?			?	a/e	a	

	Comment
	This site still contains its important stratigraphic sequence not completely excavated; it is also important for settlement structure evolution and for dendro-chronology.
	The site has many interesting aspects about chronology and settlement structures, but it is not possible to include it in projects of enhancement.
	The site is only known from few groups of finds; the area of the pile dwelling has been delimited in 2004. At the moment, not enough is known about this site to assess its position from a scientific point of view.
	Site with sample of piles in good conditions for dendrochronology and for the study of the village construction.
	The site, very important for research history, is only known from early reports. Not enough is known about this site to assess its scientific value.
	Site with huge field of piles in good conditions for dendrochronology, for the study of the village construction and important for the archaeological finds.
	Site with sample of piles in good conditions for dendrochronology and for the study of the village construction.
	The site, very important for research history, is only known from early reports. Not enough is known about this site to assess its scientific value.
	The site is the result of a progressive change of position of villages in the same little lake. The importance of the site is based on its complex topography and on many elements that allow the reconstruction of house architecture and settlement structures.
	Site with wide time position. Some finds are related to Neolithic. It is the only site of the South coast of Garda Lake with bronze finds referred to the Late Bronze Age.
	Site with wide time position. Some finds are related to Neolithic. The notable richness and variety of the bronze artefacts (daggers, pins, spear tips) taken together, span the phases between the Early and Late Bronze Age.
	The area of the pile dwelling has been delimited only in 2008. The scientific value still cannot be estimated. Site not selected with regard to representativity and optimum number of component parts.
	The site is known from very few finds; the actual chronology of the site is not known.
	The site has been used to define typologically the Late Early Bronze Age (BA2), but it is only known from 19th/early 20th century reports. Not enough is known about this site to assess its scientific value.
	Site with wide time position. Some finds are related to Neolithic. Not enough is known about this site to assess its scientific value.

Fig. 3.28 Selection of sites of the Region of Lake Garda.

	Comment
	Famous site with a great information potential, only minimally touched by previous research projects. It presents a succession of layers, a range of structural types and building types, remains of ancient animals and plants which have been exceptionally preserved over time.
	Site important for history research in Northern Italy. Parts of the original layers and a 'pile field' which constitutes a good source of information concerning chronological, structural issues and also as regards the ancient environmental conditions of this area.

Fig. 3.29 Selection of sites of the Small lakes or bogs of Trentino.

Small lakes or bogs of Berici and Euganei Hills

In the macro-region pile dwellings from the Neolithic to the Late Bronze Age are attested. The Early Bronze Age sites (among them the pile dwelling of Laghetto della Costa, IT-VN-07) present peculiar characteristics.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Arcugnano (VI)–Firmon-Fondo Tomello												
–	Arcugnano (VI)–Firmon-Molino Casarotto												
IT-VN-07	Arquà Petrarca (PD)–Laghetto della Costa												

Small lakes and rivers of eastern Veneto and Friuli Venezia Giulia

The macro-region is significant for understanding the relationship and the contacts existing between the north-eastern Italian communities and their neighbouring groups in Italy and abroad during the Neolithic. In fact, it provides data on the interaction between the Lagozza culture and the Square Mouthed Pottery, phase 3, culture of northern Italy on one hand, and between the Italian eastern Neolithic groups and contemporary groups of Austria and Slovenia on the other. Therefore, the macro-region is an important crossroad for different Neolithic cultural spheres, providing good evidence of the eastern and the northern links in particular and suggesting chronological and cultural comparisons based on dendrochronology and C14 dating between Palù di Livenza and the Slovenian coeval sites, and – according to ceramic production analysis – also between Revine and the Austrian Neolithic groups.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Polcenigo (PN)–Palù di Livenza – Molinetto nord	–	?										
–	Polcenigo (PN)–Palù di Livenza – Molinetto sud	–	?										
IT-FV-01	Polcenigo (PN)–Palù di Livenza – Santissima	A	a/d			a/d	a/d						
–	Revine Lago / Tarzo (TV)– Santa Maria / Colmaggiore	A	a	a					a	a			

Small lakes or bogs of Piedmont

This macro-region includes the site site of VI.1-Emissario, the most eastern site of the region south of the Alps. The VI.1-Emissario site is located on the shallow bottom of the western part of the Lake Viverone (a large infra-morainic lake), at a depth of 2–3 metres.

Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
IT-PM-01	Viverone (BI) / Azeglio (TO) – VI.1-Emissario	A		a/b		?					a/b	a/b	

	Comment
	The site has a big scientific potential but it is not possible to include it in projects of enhancement. Site not selected with regard to representativity and optimum number of component parts.
	This site was not chosen for the nomination list because its preservation is not good enough compared to the nominated sites.
	The site is a typical example for building structures of settelmentes on reclaimed land, supported small huts of varying shape, with different types of flooring: beaten earth in those located on dry land, stones and horizontal piles for those built on the lake shore.

Fig. 3.30 Selection of sites of the Small lakes or bogs of Berici and Euganei Hills.

	Comment
	Information on the site is provided by early reports only, not permitting precise assessment of its scientific value.
	Information on the site is provided by early reports only, not permitting precise assessment of its scientific value.
	The settlement has a peculiar location on several islands situated in a lake basin originating from the springs of a big river at the feet of the Alpine range. In this site, there is an outstanding conservation of organic materials.
	The site meets the main criteria of selection but it is not possible to include it in projects of enhancement. Site not selected with regard to representativity and optimum number of component parts.

Fig. 3.31 Selection of sites of eastern Veneto and Friuli Venezia Giulia.

	Comment
	The main phase of occupation is in the Middle Bronze Age (1650–1350 BC.), particularly in the middle phase (1550–1400 BC), but the site was frequented in the Middle Neolithic (early fifth millennium BC) and there was a phase of reoccupation in the Early Iron Age (1050–1000 BC). The site contains about 5000 piles, forming a circular settlement 70 m in diameter, connected to dry land by a path 50 m long that extends within two recognisable palisades surrounding the settlement; the settlement is laid out with quadrant-shaped structures and rectangular pluri-naved huts. It is an excellent example of Bronze Age building structures.

Fig. 3.32 Selection of sites of the Small lakes of Piedmont.

Slovenia

Ljubljansko barje

As the pile-dwelling settlements near Ig are well preserved and located in the well-protected area, they offer a great potential for further multidisciplinary research. The sites were among the first discovered pile-dwellings on the Ljubljansko barje and therefore played an important role in the research history of pile-dwellings and prehistoric archaeology in Slovenia. Important are also numerous metal finds and metallurgical utensils discovered at site.

			Dating			Years BC							
Component part	Name of the component part	Conservation / potential category	Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Bistra I	A	a					?					
–	Blatna Brezovica, Lipovec	C	a					a					
–	Črešnja pri Bistri	B	a					a					
–	Gladke	–	a					a	a				
–	Gornje mostišče	–	a				a						
–	Hočevarica	A	a				a						
–	Kepje 2	B	a	a					a	a			
SI-IG-02	Kolišča na Igu, južna skupina	A	a			a	a	a	a				
SI-IG-01	Kolišča na Igu, severna skupina	A	a/c	a					a	a	a		
–	Konec	A		a							a		
–	Mali Otavnik	A		a							a		
–	Na mahu	A	a				a	a					
–	Na Špici	B	a	a					a	a			
–	Notranje Gorice, Gmajna	B	a	a			a	a	a		a		
–	Parte 2	B	a	a					a	a			
–	Parte 3	B	a	a					a	a	a		
–	Parte 4	B	a	a					a	a	a		
–	Partovski kanal II – Barjejski graben	–	a	a					a	a			
–	Šivčev prekop	A		a						a	a		
–	Smrečnica	B	a				a	a					
–	Spodnje mostišče 2	B	a/c					a					
–	Spodnje mostišče 6	–	a				a	a					
–	Spodnje mostišče 7	–	a					a					
–	Stare Gmajne	A	a					a					
–	Stare Gmajne 2	A	a					a					
–	Veliki mah	A	a	a					a				
–	Veliki Otavnik I	–	a					a					
–	Veliki Otavnik II	–	a					?					
–	Veliki Otavnik III	–	a					?					
–	Za Mežnarijo	B	a				a	a	a	a			
–	Za strugo	–	a	a					a	a	a		
–	Založnica	A	a						a	a			

	Comment
	The site was discovered recently and hasn't been thoroughly evaluated yet. Site not selected with regard to representativity and optimum number of component parts.
	The site is almost completely excavated.
	The site was discovered recently and hasn't been thoroughly evaluated yet.
	Only some piles, pile-dwelling pottery and bones were found so far, but no sistematic archaeological research has been carried out on the site to get detailed information on the settlement.
	The existence of the settlement is based on oral source and some finds picked on the corn field. There is no data on the endangerment situation and on the piles.
	Only a part of the site has been researched so far. The actual value hasn't been fully estimated yet. Site not selected with regard to representativity and optimum number of component parts.
	The site was discovered in 1963, but its scientific significance for the serial was recently not confirmed.
	The excavation of the site from 1970 to 1977 was the most extensive research on the Ljubljansko barje after the Second World War. Numerous archaeological finds were discovered and there is still very interesting for future archaeological researches. In addition, in the already studied part of the site, almost all vertical piles are still preserved.
	The settlement Kepje known as the first Deschamnn's pile-dwelling was the first pile-dwelling discovered in 1875 at Ljubljansko barje. The excavations that followed in the next years revealed wooden vertical piles as well as many decorated ceramic vessels, ceramic idol, objects made from stone, bone, antler and copper. Numerous moulds, crucibles and fragments of bellows provide evidence of metalworking activities in some settlements. Investigation in the last decades showed, that large parts of the settlements are still preserved in a relatively good state including the vertical piles which is in perspective very important for dendrochronological research.
	The test pits on the site were set on the edge of the settlement, and therefore, there are no reliable data on endangerment and piles. Site not selected with regard to representativity and optimum number of component parts.
	The site was discovered recently and hasn't been thoroughly evaluated yet.
	The settlement was discovered during a topographic survey. The actual value of it hasn't been estimated yet.
	The position and datation of the site have not yet been confirmed using the modern research approach. There are no data about the preservation of a cultural layer and piles.
	The site is known from early reports. The data on the settlement are very scarce.
	The site was discovered in 1953, but its scientific significance for the serial was recently not confirmed.
	The site was discovered in 1957, but its scientific significance for the serial was recently not confirmed.
	The site was discovered by topographical survey in the 1953, but the existence of the settlement was not confirmed in the last research period.
	The site was discovered in1963 and confirmed in 1973, but hasn't been researched in the last decades. Available information does not permit authentic evaluation of its significance.
	The site was discovered in 1953 already, but no sistematic archaeological research has been carried out. There are no more detailed data on the settlement and data on findings.
	Information on the site is provided by early reports only, the existence of the settlement is not certain, authenticity of information source is not adaequate.
	The site partly overlaps with an area of a slightly later pile-dwelling settlement, Spodnje mostišče, but there are no data about the preservation of a cultural layer.
	The site was discovered in 1974, but the data on the settlement remains are very scarce.
	The site was discovered in 1974, but the data on the settlement remains are very scarce.
	Only a part of the site has been researched so far. The actual value hasn't been fully estimated yet.
	Only a part of the site has been researched so far. The actual value hasn't been fully estimated yet.
	The existence of the settlement was confirmed by drilling and topographic survey, but it hasn't been excavated yet. Site not selected with regard to representativity and optimum number of component parts.
	The site was discovered recently and hasn't been thoroughly evaluated yet.
	The site was discovered recently and hasn't been thoroughly evaluated yet.
	The site was discovered recently and hasn't been thoroughly evaluated yet.
	The site is only known from early reports. The data on the settlement are very scarce.
	The existence of the settlement is not certain. So far the pile sunk vertically, and a few fragments of prehistoric pottery were found.
	Only a part of the site has been researched so far. The actual value hasn't been fully estimated yet.

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Component part	Name of the component part	Conservation / potential category	Dating			Years BC							
			Neolithic	Bronze Age	Iron Age	5000–4000	4000–3500	3500–3000	3000–2500	2500–2000	2000–1500	1500–1000	1000–500
–	Zamedvedica	B	a			a							
–	Zornica	–	?	?					?				

	Comment
	Information on the site is available from early reports only, not permitting precise assessment of its scientific value.
	The site was discovered during the Second World War, when presumably workers came across 'moor' pottery fragments, a stone axe and other stones. Available information does not permit precise assessement of value.

Fig. 3.33 Selection of sites of the Ljubljansko barje.

3.d Integrity and Authenticity

3.d.1 Integrity

The nomination of the Prehistoric Pile Dwellings around the Alps represents a property with components related to the same historico-cultural group (prehistoric pile-dwelling settlements) and geographic area (area around the Alps in six countries). The property represents a serial transnational property according to art. 137 of the *Operational Guidelines*. As a serial nomination, integrity refers to whether the component parts of the nomination sufficiently cover the attributes needed to demonstrate the outstanding universal value of the serial as a whole. Integrity thus relates to the ability of the 156 selected pile-dwelling sites to represent the archaeological phenomena of Prehistoric Pile Dwellings around the Alps ↘ Chapter 3.c.7. For each individual site, integrity relates to the completeness of what has been nominated in relation to how the site displays its values.

Integrity of the individual component parts

Visual integrity

Visual integrity does not apply as a criterion for the value of this nomination. Most of the sites are invisible, being under water or underground.

If many components are today situated in a picturesque setting, these (natural) features are not part of the value of the sites. Furthermore, no relation to the qualities of the landscape in which the prehistoric settlements were situated can be valuated. The landscape has evolved not only in respect of its prehistoric form; also its perception in prehistoric times cannot be compared to modern landscape interpretation.

Functional integrity

As rural settlement structures from prehistoric times, pile dwellings have not been in use for thousands of years and direct functional integrity cannot apply. Their use today can be seen more widely in the sense of a 'cultural function'. As a source of identity of the rural past of the modern societies around the Alps (particularly concerning Switzerland), prehistoric pile dwellings played an important role. Moreover, today's cultural function of the properties proposed for inscription lies also in the preservation and management of an untouched archaeological archive for future generations. This functional integrity of the single components also concerns the serial as a whole. It is adequate due to the precise selection of the single components.

Structural integrity

The individual components of the serial are included in their complete extent and comprise settlement structures as well as abundant archaeological strata. Due to archaeological investigation, the fields of settlements and their contents are known and reflected in the zone proposed for inscription. Structural integrity of the single components has been assessed for the selection of properties in the serial. Sites lacking integrity have been excluded from the selection of the single components.

Buffer zones

The buffer zones highlight the integrity of the sites. They ensure that the immediate surroundings of the properties proposed for inscription are as well protected and archaeologically considered in the management of the site. Furthermore, many less important properties – not selected for inscription – are situated in the buffer zones. Through their relationship they support the single property (art. 104 *Operational Guidelines*) and thus enhance its integrity.

Setting

If the setting in its classical interpretation – referring mostly to visual and aesthetic integrity – does not apply as an attribute for the value of the *Prehistoric Pile Dwellings around the Alps*, it has to be mentioned as a wider approach. As an intangible attribute, research and knowledge about the archaeological phenomena of the pile dwellings can be seen as an intellectual setting of the property. The nomination and its management contribute strongly to the exchange and reinforcement of research and information on the property. The international inventory about *Prehistoric Pile Dwellings around the Alps* ↘ **Volume II**, for example, is a milestone and does reflect common scientific efforts. Information about pile dwellings is also broadly provided by museums, exhibitions, open-air reconstructions and media. Permitting access to authentic prehistoric objects of the pile-dwelling cultures, museum presentation can therefore also be understood as part of the setting of the property, supporting its value. Research, information and awareness-creation are consequently important issues in the management of the property.

Integrity of the serial property

Geographic area

The properties are situated on the lakes, marshlands or wetlands around the Alps – today divided among six States Parties to the World Heritage Convention. This geographic area is well defined. And it is represented in its complete extent to comprise the complete cultural context of the archaeological phenomenon, embracing all socio-cultural influences and its effect on habitat as well as social developments of these societies. The proposed serial is composed of elements from the most eastern lakes to the most western, as well as from the North to the South of the geographical area, taking into consideration the density of finds in the different areas ↘ **cf. Figs. 1.15–1.16**.

Historico-cultural group

Central Europe and particularly the region around the Alps is a melting-pot during the Neolithic and Bronze Age periods (from 5000 to 500 BC). Two different currents brought agriculture and animal husbandry via the River Danube and the Mediterranean Sea. Meeting in the area of the Alps, this gave way to an original form of village planning and architecture reflected by the pile-dwelling phenomenon. The development of civilisation, with its technologies, economics and environment can be closely followed thanks to the excellent preserved archaeological sources given by the pile dwellings. Each region contains different cultural groups who all developed similar answers to the constraints of the environment. These groups also interact and developed exchanges with their neighbours from

near and far, thus integrating themselves in a much greater cultural entity of the European prehistory.

Density of archaeological phenomenon

Being proposed as a serial inscription with a relatively high number of components is mandatory for the outstanding universal value of the nomination. It is due only to the high density of scientific data – and the important possibility of comparison of different sites in a precisely defined geographic area – that the social-historical evolution of the early agrarian societies and development of the typology of their habitats can be followed and explained with certainty.

The amount of data must be sufficient, too, to prove its validity for dendrochronology ↘ **Chapter 2.a.3**. The dense network of dendrochronological data available permits the standardization – that is, the calibration – of data obtained by the C14 method.

The selection of proposed sites is as restrictive as possible and as comprehensive as necessary. This involves applying a strong system of criteria for selection for the serial, and a severe assessment of each single site retained. The 156 elements finally proposed represent a precise and necessary choice of 17% of all known prehistoric pile-dwelling sites.

Excavation and scientific potential

Since the second half of the 19th century, lake shores and river banks as well as marsh zones have been subject to pressure to ensure optimum management provoked by modern demographic evolution. It is only since the 1980s that wetlands and marshes have at last been protected from exploitation, thanks to the emergence of the concept of conservation of nature and the environment. These land types have been depleted and have suffered painful losses for more than 100 years due to erosion, building along the shores and river banks, peat cutting and laying dry. Large areas of sites have been excavated and are therefore important for research and enhancing our knowledge of prehistoric times. Only a few dozen of the almost 1000 settlements have been investigated in depth. In contrast, important parts of these pile-dwelling settlements are generally still intact in situ. The majority of them have never been the object of complete investigations; they have been studied only on a small scale to determine the state of conservation and to obtain a fundamental scientific knowledge of the character of the site. Thus – as is the case for the majority of archaeological monuments – the non-visible parts of the sites (still concealed underground or under water) represent the effective scientific capital. The proposed serial must represent a balanced choice between excavation and preserved scientific potential. The values of the nomination are and can be known through excavation; that is, through the transformation of the structures to a readable documentation. And further research is dependent on the finds of excavation. However, the sites completely excavated, or sites today representing only very few archaeological substance in situ, have been excluded from the serial – as well as, for evident reasons, sites that are completely undiscovered. The serial represents therefore the complete scale between on the one hand more excavated sites (which provided the knowledge and scientific value); and on the other, sites where sounding only has shown great promise concerning the archaeological potential. Monitoring is necessary to guarantee that this choice remains balanced in future.

Selection of component parts of the serial

As the international experts' meeting on serial sites in Vilm, Germany (26–30 November, 2008) stated, "serial properties should include as many component parts as are essential for telling the coherent 'story' of the property in relation to its outstanding universal value." Even if this meeting was emphasizing its recommendations on serial natural sites, the considerations about the number of components and in relation to the value of the nomination are valid for cultural sites, too.

Main criteria for the selection of the component parts for the serial are derived from the stated issues in ↘ Chapter 2.a.3 and were also used in the comparative analysis ↘ Chapter 3.c. All known sites included in the international inventory and categorized with indicators (state of conservation) have been evaluated and compared so as to chose the components proposed for inscription on the World Heritage List. ↘ Figs. 3.7–3.33 show the selection and criteria for each individual component.

For the reasons demonstrated above, the integrity of the serial of the *Prehistoric Pile Dwellings around the Alps* is therefore considered as adequate ↘ Chapter 3.c.7.

Associated sites

Around the Alps, almost 1000 pile-dwelling sites are known today. In preparing this nomination, a standardized international inventory with 807 sites has been established since 2004 ↘ see Volume II and Annex DVD. 156 of these sites are proposed for inscription of the World Heritage List as a serial transnational inscription.

As all known prehistoric pile-dwelling sites contribute to (and have scientific relations to) the meaning of sites selected for the pile-dwelling nomination, even sites being completely excavated are of importance from a scientific point of view. In many cases those finally non-selected sites came to be situated very close to the areas finally proposed for inscription, and become part of the defined buffer zone. In fact, these non-selected sites – not being part of the nomination and therefore not to be considered as part of World Heritage – will still be treated in different management actions and, of course, in the scientific discourse. They are 'associated sites' to those proposed for inscription and listed as such in the database in ↘ Annex DVD.

3.d.2. Authenticity

Authenticity of the whole serial property relates to the ability of the sites as a group to display all the values put forward; whereas authenticity of the individual sites relates to their ability to exhibit the archaeological remains reflecting their initial design in terms of preserved structure, material and substance. The concepts of authenticity and integrity and their relation are not clearly differentiated and may sometimes overlap.

Authenticity of the individual component parts

The prehistoric pile dwellings represent the remains of lake settlements from a period that started around 5000 BC and ended about 500 BC. They extend over four millennia of ancient history. The remains of these shore settlements – destroyed deliberately or inadvertently – may have been disturbed by the building of later prehistoric settlements or by natural processes such as erosion and fire or by warfare. Subsequently, rapid sedimentation favoured the conservation of the ruins of these villages and what had been left behind by their inhabitants thousands of years ago. The principally or-

ganic nature of these archaeological remains means that reconstructions in situ (as for example for the classical Antiquity period or other archaeological eras) are not possible. Apart from some modern reconstructions of habitat structures in open-air museums – not included in the properties proposed for inscription – the remains of settlements preserved in the ground or under water are absolutely authentic in structure, material and substance without any later or modern additions.

Authenticity of the serial property

As a prehistoric site, all information and understanding of the property is provided through scientific investigation on the property itself (no written or other testimony being available).

The scientific information provided by the high density of pile-dwelling sites is uncontested. The main sources of information and the main references for the justification of outstanding universal value of the property are recognized scientific results, provided for many years by Universities and highly qualified researchers. There are undoubtedly to be understood as truthful and credible. In particular, dating through dendrochronology is scientifically established and provides authentic results. The significance of the serial property is gained by the density of the archaeological source itself ↘ Chapter 3.d.1. This value of the nomination is displayed through a serial of 156 selected sites out of almost known sites.

The understanding of prehistoric wooden dwellings and their development is displayed by the results of archaeological investigation of a great number of pile-dwelling sites. Information about the use and function of the settlements – as well as the prehistoric building techniques – is available due to scientific research and comparison on a big number of sites. In this way, credible hypotheses are established on settlement development and prehistoric architectural strategies in the whole geographic area as well as for the entire historico-cultural group. The proposed serial projects this value truthfully.

Volume I

4. State of Conservation and factors affecting the Property

4.a Present state of conservation

General

This Chapter will give a general overview of the present state of conservation of the sites in each individual macro-region. In order to facilitate quick and easy access to the information about the selected components, the indicator 'Conservation and potential' was added in the database. Additional details on the individual sites are listed in ↘ Volume II.

Comprehensive knowledge about archaeological sites can be gained by scientific excavations with detailed records. Archaeological excavations entail the physical destruction of the features, but they convert the cultural remains hitherto unknown into accessible 'knowledge'. Our knowledge of many settlements, however, is limited because it derived from test excavations only. If the archaeological layers and pile fields are largely undisturbed, the degree of potentially available scientific knowledge increases.

The current information about the preservation of a site is listed in the indicator 'Conservation and potential'. The classification here consists of three categories:

— Category A: site where the archaeological layers and the piles have been preserved and can be examined in the future (research reserves, preservation of cultural heritage).
— Category B: site where the archaeological layer has disappeared on large surfaces but the pile field can still be analysed archaeologically and dendrochronologically.
— Category C: site that was comprehensively studied in the past and whose features and finds made a significant contribution to archaeological research.

Largely intact cultural layers with abundant finds as well as pile fields which provide information about construction techniques, dates (dendrochronology) and ecology (agriculture and forest usage) complement each other and form an assemblage that provides an ideal basis for pursuing research into the lakeside settlements. Sites where the archaeological layers have largely eroded and the pile field is almost the only feature that has survived, or sites that were already completely excavated, still hold a certain potential. The insight gained from the excavations, for instance, can be linked with the results from other investigations carried out in the surrounding areas. Comprehensively documented and competently published, they provide vast amounts of knowledge that serves as an invaluable basis for further research.

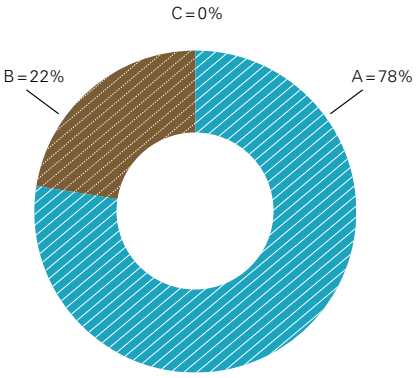

Fig. 4.1 Proportion of categories in the indicator 'Conservation and potential' within the series *Prehistoric Pile Dwellings around the Alps*.

For the World Cultural Heritage candidature, mainly sites of category 'A' were chosen. In 22% of cases the sites belong in category 'B' – no site of category 'C' belongs to the series *Prehistoric Pile Dwellings around the Alps* ↘ cf. Fig. 4.1. The choice of category 'B' sites for the candidature is nevertheless justified in those cases that are of great scientific value and can offer an important contribution to our knowledge of the pile dwellings ↘ cf. Chapter 2.a. The conservation of these sites with the appropriate protection measures will be high priority in the near future.

Switzerland

Lake Geneva (Swiss shoreline)

The climatic conditions North of the Alps have triggered cycles of advancing and retreating lake levels which in turn governed the major phases of lakeside settlement. However, the shorelines of Lake Geneva present quite specific geographical and geological characteristics compared to those of smaller lakes such as Lakes Neuchâtel and Zurich. The impact of the lake level and the force of storm waves have shaped the shoreline so that the conditions for lakeside occupation encountered by the prehistoric people and the conservation of the remains of their villages is more complex and tenuous than it would be at shorelines of smaller lakes.

The lakeside settlements on Lake Geneva have almost only survived in the submerged areas, at a depth of between 2 and 6 m. This situation is most definitely not due to the choice of settlement made by the prehistoric inhabitants but rather reflects the conditions of lakeside conservation that has led to the disappearance of the remains situated up to 2 m below water in zones with the strongest wave action.

Component part	Name of component part	Conservation and potential	Lake / bog
CH-GE-01	Collonge–Bellerive I	A	Lake Geneva
CH-GE-02	Corsier–Port	A	Lake Geneva
CH-GE-03	Versoix–Bourg	B	Lake Geneva
CH-VD-11	Morges–Les Roseaux	A	Lake Geneva
CH-VD-12	Morges–Stations de Morges	A	Lake Geneva
CH-VD-14	Rolle–Ile de la Harpe	B	Lake Geneva

Fig. 4.2 Overview of the state of conservation of the sites on Lake Geneva (Swiss shoreline).

Three Lakes Region

The lakeside settlements on Lake Neuchâtel were affected by the first Jura Waters Correction project (1868–1891), during which the average lake level was lowered by 2.7 m. Between 1880 and 1910 this lowering of the lake level caused a phase of particularly severe erosion along the lakeshore and in the lake (up to a depth of 1 m). From 1910 to 2009 this process continued to a depth of 2 m, exposing pile fields, particularly those dating from the Late Bronze Age.

The lowering of the lake level also allowed new lakeshore forests and reed belts to grow in these emerging zones, many of which are today protected within nature reserves; their roots, however, pose a threat to the organic finds in the archaeological layers. On the northern lakeshore, the exposed areas have also been used for the extension of urban zones, recreational areas and port facilities. This development has now stabilised and the areas are incorporated in the framework of spatial planning measures.

Lake Bienne also has been affected by the first Jura Waters Correction project. The second Jura Waters Correction project that took place between 1962 and 1973 increased the lake level slightly. The state of preservation is almost entirely determined by the topographical location. Sheltered bays afford better protection

than locations with a lot of wave action. While in some sites only eroded pile fields survive, various other settlement areas still contain considerable expanses of well preserved cultural layers.

In relation to the general condition of the lakeside settlements on Lake Morat, one must distinguish between sites or parts therefore that are currently submerged and those that are located on dry land. As regards those currently submerged, natural erosion has affected their state of preservation. Damage inflicted by human impact (shipping, bathers etc.) obviously adds to this. The archaeological features covered by layers of sediment on dry land, on the other hand, are often still excellently or even exceptionally well preserved thanks to the existence of thick sediment layers.

Mainly due to intensive farming of the area, the basin of Lake Seedorf has continuously been drained and it has gradually retreated, posing a severe threat to the site. But when the site Noréaz–En Praz-des-Gueux (CH-FR-07) at Lake Seedorf was discovered in 1971, its general state of preservation appeared to be good. In fact, upstanding timbers and archaeological layers were still visible at a depth of just 0.7 m.

Component part	Name of component part	Conservation and potential	Lake / bog
CH-FR-01	Delley–Portalban II	B	Lake Neuchâtel
CH-FR-02	Gletterens–Les Grèves	B	Lake Neuchâtel
CH-FR-07	Noréaz–En Praz-des-Gueux	A	Lake Seedorf
CH-FR-08	Vernay–En Chéseau	A	Lake Neuchâtel
CH-NE-01	Saint-Aubin-Sauges–Port Conty	A	Lake Neuchâtel
CH-NE-02	Gorgier–Les Argilliez	A	Lake Neuchâtel
CH-NE-03	Bevaix–Treytel	A	Lake Neuchâtel
CH-NE-04	Bevaix–L'Abbaye 2	B	Lake Neuchâtel
CH-NE-05	Cortaillod–Petit Cortaillod	B	Lake Neuchâtel
CH-NE-06	Auvernier–La Saunerie	A	Lake Neuchâtel
CH-NE-07	Auvernier–Les Graviers	A	Lake Neuchâtel
CH-NE-08	La Tène (Marin-Epagnier)–Les Piécettes	A	Lake Neuchâtel
CH-VD-01	Bonvillars–Morbey	A	Lake Neuchâtel
CH-VD-02	Chabrey–Pointe de Montbec I	A	Lake Neuchâtel
CH-VD-03	Chevroux–La Bessime	A	Lake Neuchâtel
CH-VD-04	Chevroux–Village	A	Lake Neuchâtel
CH-VD-05	Corcelles-près-Concise–Stations de Concise	A	Lake Neuchâtel
CH-VD-06	Cudrefin–Champmartin	A	Lake Neuchâtel
CH-VD-07	Cudrefin–Le Broillet I	B	Lake Neuchâtel
CH-VD-10	Grandson–Corcelettes-Les Violes	A	Lake Neuchâtel
CH-VD-15	Yverdon-les-Bains–Baie de Clendy	A	Lake Neuchâtel
CH-VD-16	Yvonand–Le Marais	A	Lake Neuchâtel
CH-FR-03	Greng–Spitz	A	Lake Morat
CH-FR-04	Haut-Vully–Môtier I	A	Lake Morat
CH-FR-05	Morat–Segelboothafen	B	Lake Morat
CH-FR-06	Muntelier–Baie de Muntelier	A	Lake Morat
CH-VD-08	Faoug–La Gare	A	Lake Morat
CH-VD-09	Faoug–Poudrechat	A	Lake Morat
CH-VD-13	Mur–Chenevières de Guévaux I	A	Lake Morat
CH-BE-01	Biel-Vingelz–Hafen	A	Lake Bienne
CH-BE-02	Lüscherz–Dorfstation	A	Lake Bienne
CH-BE-04	Mörigen–Bronzestation	B	Lake Bienne
CH-BE-06	Sutz-Lattrigen–Rütte	A	Lake Bienne
CH-BE-07	Twann–Bahnhof	A	Lake Bienne
CH-BE-08	Vinelz–Strandboden	A	Lake Bienne

Fig. 4.3 Overview of the state of conservation of the sites in the Three Lakes Region.

Small lakes of the Swiss Plateau

Lake Moossee is one of the small lakes of the Swiss Plateau. Like many other lakes, it too was lowered in the 19th century so that part of the site is now located in the shore area. A test excavation carried out in 2001 revealed that this section of the site Mooseedorf–Mossee Ost (CH-BE-03) is intact. The threat to the site by wave action is limited so that even the submerged parts of the settlement also display good preservation.

The site of Lake Lobsigen (CH-BE-05) is an island-like elevation, a small central part of which is affected by drying out. In the past, archaeological finds in this area were destroyed by ploughing. The peripheral lower lying archaeological layers of the Neolithic settlement, however, are in good condition and are located below the groundwater table all year round. Nowadays, only extensive grassland farming is allowed in the entire settlement area.

Since Lakes Burgäschi and Inkwil and their surroundings were severely affected by improvement works in the 19th and 20th centuries, the archaeological sites around both lakes have suffered from the problems related with drying out. As was revealed by a diving survey carried out in 2007, the general state of preservation of the island settlement in Lake Inkwil (CH-SO-02) can be said to be surprisingly good.

Component part	Name of component part	Conservation and potential	Lake / bog
CH-BE-03	Moosseedorf–Moossee Ost	A	Lake Moossee
CH-BE-05	Seedorf–Lobsigensee	A	Lake Lobsigen
CH-SO-01	Aeschi SO–Burgäschisee Ost	B	Lake Burgäschi
CH-SO-02	Bolken / Inkwil–Inkwilersee Insel	A	Lake Inkwil

Fig. 4.4 Overview of the state of conservation of the sites on the small lakes of the Swiss Plateau.

Central Swiss Plateau

As shown by earlier excavations, the features of the sites on the Wauwil Bog were already threatened by drying out decades ago. On the occasion of a test excavation carried out with a mechanical excavator in 2009, it was revealed that the sites were surprisingly well preserved as the drainage is occurring above the archaeological layers.

In Lake Sempach and Lake Baldegg, it is often only the pile fields that survive, while the cultural layers have disappeared. However, in the areas of Lake Sempach closer to the shoreline, the lower archaeological layers are still well preserved as was shown by a rescue excavation carried out in 1981 in Schenkon–Trichtermoos-Altstadt (CH-LU-04) and the training excavations mounted by the University of Berne from 2005 to 2008 in Sursee–Halbinsel (CH-LU-06).

The preserved foreshore of Lake Baldegg is usually very narrow and large parts of the prehistoric settlement areas have broken away. The top-most archaeological layer of the site Hitzkirch–Seematte (CH-LU-03), however, was still some 100 cm thick during the excavations carried out in 1938. The state of preservation in the landward area will be surveyed by augering in the winter of 2009–10.

The site Beinwil am See–Ägelmoos (CH-AG-01) at Lake Hallwil contains well preserved but exposed units of cultural layers that are threatened by erosion. When it was discovered in 1923 and during test excavations carried out in 1924–25, Seengen–Riesi (CH-AG-02) was still extraordinarily well preserved and this is unlikely to have changed since. The area is part of a nature reserve and there are no signs of it silting up. The shore area is protected from erosion by trees.

Component part	Name of component part	Conservation and potential	Lake / bog
CH-AG-01	Beinwil am See–Ägelmoos	A	Lake Hallwil
CH-AG-02	Seengen–Riesi	A	Lake Hallwil
CH-LU-01	Egolzwil–Egolzwil 3	A	Wauwil Bog
CH-LU-02	Egolzwil–Egolzwil 4	B	Wauwil Bog
CH-LU-04	Schenkon–Trichtermoos-Altstadt	A	Lake Sempach
CH-LU-05	Sempach–Uferpromenade	B	Lake Sempach
CH-LU-06	Sursee–Halbinsel	A	Lake Sempach
CH-LU-03	Hitzkirch–Seematte	A	Lake Baldegg

Fig. 4.5 Overview of the state of conservation of the sites on the Central Swiss Plateau.

Central Switzerland

Since the lake level of Lake Zug was lowered in 1591–92, a large proportion of the wetland sites in Zug are located above the groundwater table and thus severely threatened by drying out and consequently by erosion. The archaeological layers in situ, on the other hand, that have experienced compaction and thus lie at a lower level, can be excellently preserved.

The only lakeside settlement known and preserved on Lake Lucerne, Stansstad–Kehrsiten (CH-NW-01), is well protected on the foreshore and covered by a substantial amount of sediment. Danger of erosion is only apparent on the edge of the slope where the layers and piles are protruding. The actual extent of the erosion will be observed over the coming years by an erosion monitoring system that has already been set up. In the untouched layers, the state of preservation is excellent.

Component part	Name of component part	Conservation and potential	Lake / bog
CH-NW-01	Stansstad–Kehrsiten	A	Lake Lucerne
CH-ZG-01	Cham–St. Andreas, Strandbad	B	Lake Zug
CH-ZG-02	Hünenberg–Strandbad	B	Lake Zug
CH-ZG-03	Risch–Oberrisch, Aabach	A	Lake Zug
CH-ZG-04	Zug–Otterswil-Insel Eielen	A	Lake Zug
CH-ZG-05	Zug–Riedmatt	A	Lake Zug
CH-ZG-06	Zug–Sumpf	A	Lake Zug

Fig. 4.6 Overview of the state of conservation of the sites of Central Switzerland.

Region of Lake Zurich

The state of preservation of the sites on Lake Zurich and Obersee varies significantly. The latest and thus top-most settlement layers are often severely eroded, while lower, earlier layers are still well protected. However, the destruction of the sites is more advanced near shipping piers or buoy fields without chain floats as well as in areas with anchoring ships and busy shipping traffic.

The condition of the sites on Lake Greifensee also varies greatly. While the archaeological layers of some sites have been excellently preserved, other sites merely contain the last remnants of layers; on the other hand, these sites often contain large unthreatened fields of piles and numerous architectural remains.

Most of the sites on Lake Pfäffikon and in the Robenhauserried are well protected and preserved, because they are located further inland due to the silting up of the shorelines. Only where the lakebed has broken away and areas of cultural layers are exposed, erosion processes are taking place.

Component part	Name of component part	Conservation and potential	Lake / bog
CH-SG-01	Rapperswil-Jona / Hombrechtikon–Feldbach	B	Lake Zurich
CH-SG-02	Rapperswil-Jona–Technikum	A	Lake Obersee
CH-SZ-03	Freienbach–Hurden Rosshorn	A	Lake Obersee
CH-SZ-04	Freienbach–Hurden Seefeld	A	Lake Obersee
CH-ZH-01	Erlenbach–Winkel	A	Lake Zurich
CH-ZH-03	Horgen–Scheller	A	Lake Zurich
CH-ZH-05	Meilen–Feldmeilen Vorderfeld	A	Lake Zurich
CH-ZH-06	Meilen–Rorenhaab	A	Lake Zurich
CH-ZH-07	Wädenswil–Vorder Au	A	Lake Zurich
CH-ZH-09	Zürich–Enge Alpenquai	A	Lake Zurich
CH-ZH-10	Zürich–Grosse Stadt Kleiner Hafner	A	Lake Zurich
CH-ZH-11	Zürich–Riesbach Siedlungskammer Seefeld	A	Lake Zurich
CH-ZH-02	Greifensee–Storen–Wildsberg	A	Lake Greifensee
CH-ZH-04	Maur–Schifflände	A	Lake Greifensee
CH-ZH-08	Wetzikon–Robenhausen	A	Robenhauserried

Fig. 4.7 Overview of the state of conservation of the sites on Lakes Zurich and Obersee.

Small lakes and bogs in northeastern Switzerland

The Archaeology Department of canton Schaffhausen has been aware for a number of years of the significant reduction of bog soil around the site of Thayngen-Weier (CH-SH-01). Shafts installed in the 1950s, for instance, now protrude from the ground by some 50 cm. Augering carried out in 1989 revealed that three settlements (Weier I–III) are located on top of a gyttja layer above a slight elevation. They are covered by peat, the top-most areas of which have already been turned into humus due to drying out. Because of substantial drainage processes that have occurred over the past 70 years, the organic layers have been reduced to the depths of the glacial lakebed in the east and southwest. In the marginal and slightly more raised areas, the peat has disappeared completely and the surface of the gyttja layer has already been affected by humification. However, undisturbed settlement layers now still extend over an area of approximately 1250 m2.

The bog settlements of Gachnang–Niederwil-Egelsee (CH-TG-04) and Hüttwilen–Nussbaumersee (CH-TG-05) and associated sites are generally very well preserved, thanks to their partial irrigation and because no further intrusions into the ground have occurred.

Component part	Name of component part	Conservation and potential	Lake / bog
CH-SH-01	Thayngen–Weier	A	Weier
CH-TG-04	Gachnang–Niderwil-Egelsee	A	Egelsee
CH-TG-05	Hüttwilen–Nussbaumersee	A	Lake Nussbaumen

Fig. 4.8 Overview of the state of conservation of the sites at little lakes and bogs in northeastern Switzerland.

Lake Constance (Swiss shoreline)

With the exception of Arbon–Bleiche (CH-TG-01), particularly the sites in the upper part of Lake Constance had always been exposed to severe natural erosion by the waves and seem to have suffered a lot. For this case, they have not been chosen for inclusion in the World Heritage list. In contrast, the lakeside settlements on lower Lake Constance are in good condition as shown by recent surveys. Numerous archaeological layers are still intact and well covered; certain sections, however, are exposed to natural erosion.

Component part	Name of component part	Conservation and potential	Lake / bog
CH-TG-01	Arbon–Bleiche 2–3	A	Lake Constance
CH-TG-02	Ermatingen–West	A	Lake Constance
CH-TG-03	Eschenz–Insel Werd	A	Lake Constance
CH-TG-06	Mammern–Langhorn	A	Lake Constance

Fig. 4.9 Overview of the state of conservation of the sites on Lake Constance (Swiss shoreline).

Austria

Lake Keutschach

Lake Keutschach is in a large extent a lake in a natural state. Due to the insular situation of the pile-dwelling station (AT-KT-01) in the middle of the lake, the building development which is mainly restricted to the North shore, has not influenced the site.

Test trenches and drills during the last years by the University of Vienna show many intact areas, thick packages of cultural layers, building timbers and artefacts in situ. We can assume that the uppermost cultural layers of the settlement have already been compromised, but an integral portion of the lower lying Neolithic layers still remain. The discovery of an Urnfield culture wooden structure in the recent years proved that also younger archaeological horizons are still present.

Component part	Name of component part	Conservation and potential	Lake / bog
AT-KT-01	Keutschach–Keutschacher See	B	Lake Keutschach

Fig. 4.10 Overview of the state of conservation of the site on Lake Keutschach.

Salzkammergut

The new inventory of the Austrian pile dwellings in the Salzkammergut was executed in 2003 and 2004 in a joint research project of archaeologists of the Universities of Innsbruck, Salzburg and Vienna as well as the Landesmuseum Oberösterreich. It was executed to provide a base for monument protection and preservation. Within the survey the current state of the sites has been documented, the potential of dendrochronology in Austrian pile dwellings analyzed and protection measures have been suggested.

All the sites nominated in the Attersee are in good condition and offer sufficient covering (AT-OÖ-01–AT-OÖ-06). In the area of the nominated sites, there is no extensive shore development, and in some parts, there is an additional protective reed zone. Thus, there is no significant erosion in the area of the sites. Scattered buoy funnels (e.g. AT-OÖ-04; AT-OÖ-06) and bathing or ship huts form a minor disturbance at the find areas. In some of the sites (e.g. AT-OÖ-01) individual piles reached out of the superficial layer of lake marl and calcareous mud and sometimes the archaeological horizon can be discerned close to the surface under a stone layering (e.g. AT-OÖ-02; AT-OÖ-05;) but the inventory of those sites was closed in 2003.

Concerning the pile-dwelling station See at Lake Mondsee (AT-OÖ-07) the trench from an archaeological survey in the 1980s provided information about at least two archaeological horizons and more timbers from the settlement. Therefore the state of conservation can be judged as good.

Component part	Name of component part	Conservation and potential	Lake / bog
AT-OÖ-01	Abtsdorf I	A	Lake Attersee
AT-OÖ-02	Abtsdorf II	A	Lake Attersee
AT-OÖ-03	Abtsdorf III	A	Lake Attersee
AT-OÖ-04	Aufham	A	Lake Attersee
AT-OÖ-05	Litzlberg Süd	A	Lake Attersee
AT-OÖ-06	Nussdorf	A	Lake Attersee
AT-OÖ-07	Mondsee–See	B	Lake Mondsee

Fig. 4.11 Overview of the state of conservation of the sites in the Salzkammergut.

France

French Jura lakes

The artificial lowering of Lake Chalain in 1904 with the harnessing of the lake waters for a hydroelectric scheme caused the shelf to cave in at various points, modifying the relatively stable natural environment which had helped to conserve the Neolithic villages for five thousand years. The artificial drop in the lake level led at the time to the discovery of the archaeological sites, but, unfortunately, for more than a century it has also been the cause of a slow deterioration due to drainage, subsidence and erosion. However, since 1972, research around the fringes of the lake at very shallow depths has made it possible on some sites to observe the extraordinary state of conservation of the levels and the wealth of documentation they represent.

The excavations at Lake Clairvaux from 1970 onwards showed that the superficial levels had been disturbed by earlier collecting. The auger trial borings and subsequent stripping, however, revealed the remarkable preservation of the organic remains.

Component part	Name of component part	Conservation and potential	Lake / bog
FR-39-01	Le Grand Lac de Clairvaux	A	Lacs de Clairvaux
FR-39-02	Lac de Chalain, rive occidentale	A	Lac Chalain

Fig. 4.12 Overview of the state of conservation of the sites on the French Jura lakes.

Savoyan lakes

Diving was used to investigate the littoral shelf of Lake Aiguebelette during systematic prospecting in 1998 off the five lakeshore communes. The remains, all submerged in shallow water, lie on topographical anomalies (between 1.5 and 2.8 m down). Generally speaking, the sites are represented by piles. Despite their state of conservation they have considerable archaeological potential, especially in terms of understanding the architectural organisation of the structures.

The Lake Le Bourget sites discovered previously were revisited and diving operations covered the littoral shelf of the lake during the systematic prospecting campaigns of 1999 and 2000. The majority of the remains located were under 3.2 to 3.9 m of water. This deeper water could represent a progressive rise in the level of the lake during the recent Atlantic, Sub-Boreal and initial Sub-Atlantic climatic periods. The stratigraphic assessment trial borings of the Late Bronze deposits between 1997 and 2009 have shown that the Lake Le Bourget sites are better preserved than those of the other Savoyan lakes.

Systematic prospecting of the Lake Annecy littoral for the archaeological map of submerged sites was carried out in 2001. Today, these sites are all to be found in shallow water. The Neolithic remains are at an average depth of 1.9 m; the Early Bronze

remains lie at approximately 1.7 m and those of the Late Bronze at about 3.2 m. The majority of the Lake Annecy deposits have suffered certain erosion.

Up to the early 1980s, few sites on the French shore of Lake Geneva had been the subject of underwater investigation. From that time on, the Centre national de recherches archéologiques subaquatiques (CNRAS) (National centre for underwater archaeological research) in Annecy undertook the survey of sites where deposits had been identified at an earlier date, in the context of its inland waters missions. Except for the Neolithic sites actually located on the shore, most of the sites are under 3.0 m (Late Neolithic) or 3.8 m (Late Bronze) of water. Overall, the only remains still found on these sites are piles or heavy objects. On Littoral de Chens-sur-Léman (FR-74-03), however, archaeological levels have still been preserved over some 4000 m2; without a doubt they represent the best conserved stratigraphy of all the Lake Geneva habitats of the end of the Bronze Age.

Component part	Name of component part	Conservation and potential	Lake / bog
FR-73-01	Lac d'Aiguebelette, zone sud	B	Lake Aiguebelette
FR-73-02	Lac d'Aiguebelette, zone nord	B	Lake Aiguebelette
FR-73-03	Baie de Grésine	A	Lake Le Bourget
FR-73-04	Baie de Châtillon	A	Lake Le Bourget
FR-73-05	Baie de Conjux-Portout	B	Lake Le Bourget
FR-73-06	Hautecombe	A	Lake Le Bourget
FR-73-07	Littoral de Tresserve	A	Lake Le Bourget
FR-74-01	Lac d'Annecy, zone nord-ouest	B	Lake Annecy
FR-74-02	Lac d'Annecy, zone nord-est	B	Lake Annecy
FR-74-03	Littoral de Chens-sur-Léman	A	Lake Geneva
FR-74-04	Les Marais de Saint-Jorioz	A	Lake Annecy
FR-74-05	Le Crêt de Chatillon	B	Lake Annecy
FR-74-06	Secteur des Mongets	B	Lake Annecy

Fig. 4.13 Overview of the state of conservation of the sites on the Savoyan lakes.

Germany

Lake Constance (German shoreline)

The archaeological structures on the shoreline and the flat water zone of Lake Constance are embedded in clays, lake marl and sand. They often lie very close to the present surface. Lake Constance is one of the last large peri-Alpine lakes whose water level has not been regulated. In 1976 the Baden-Württemberg water authorities started projects on badly developed shorelines, in order to enhance the negative effects of natural erosion and erosion due to human activity. The preservation of a number of pile-dwelling sites was positively influenced by the renaturisation.

The ten sites on the German shore of Lake Constance chosen for the UNESCO application belong to the best preserved pile-dwelling settlements ↘ Fig. 4.14. Some possess extensive, widespread occupation layers (DE-BW-01, DE-BW-03, DE-BW-04, DE-BW-09), others show only average (DE-BW-05, DE-BW-07, DE-BW-08) or poor conservation of occupation layers (DE-BW-02, DE-BW-06, DE-BW-10), but extensive well structured pile fileds. On some sites the settlement structures extend landward and are covered by mineral soil. In those areas there is no danger of erosion (DE-BW-01, DE-BW-03, DE-BW-04). On eight of the ten chosen sites erosion protection measures have already been implemented. Endangered occupation layers and pile field arrays have been protected by geotextile membrane and gravel cover.

Component part	Name of component part	Conservation and potential	Lake / bog
DE-BW-01	Wangen-Hinterhorn	A	Lake Constance
DE-BW-02	Hemmenhofen-im Leh	A	Lake Constance
DE-BW-03	Hornstaad-Hörnle	A	Lake Constance
DE-BW-04	Allensbach-Strandbad I	A	Lake Constance
DE-BW-05	Wollmatingen-Langenrain	A	Lake Constance
DE-BW-06	Konstanz-Hinterhausen I	B	Lake Constance
DE-BW-07	Litzelstetten-Krähenhorn	A	Lake Constance
DE-BW-08	Bodman-Schachen / Löchle	B	Lake Constance
DE-BW-09	Sipplingen-Osthafen	A	Lake Constance
DE-BW-10	Unteruhldingen-Stollenwiesen	B	Lake Constance

Fig. 4.14 Overview of the state of conservation of the sites on Lake Constance (German shoreline).

Federsee and Upper Swabia

The Federsee was originally quite a large lake with a water surface of around 30 km^2. Aggradation already began in the prehistoric period. The archaeological finds spots lie under peat in the aggradated areas. They lost their protective cover due to peat cutting in the 19th and early 20th centuries and have continued to be threatened in the decades following by drainage and the mineralization of the peat overburden. Rewetting in cooperation with the nature conservation authorities has improved the preservation conditions of the chosen sites. Generally today the small Upper Swabian Lakes with areas of open water all have a stable water level. The sites of Schreckensee (DE-BW-18) and Steeger See (DE-BW-19) lie in near natural lakes and are under the water table all year round. Their preservation conditions are therefore stable. The sites of Olzreute-Enzisholz (DE-BW-16) and Reute-Schorrenried (DE-BW-20) lie in small silted lakes and continue to suffer from artificial drainage. Raising of the water table and restoration of the wetland is under preparation.

Component part	Name of component part	Conservation and potential	Lake / bog
DE-BW-11	Ödenahlen	A	Federseemoor
DE-BW-12	Achwiesen	A	Federseemoor
DE-BW-13	Grundwiesen	A	Federseemoor
DE-BW-14	Täschenwiesen	B	Federseemoor
DE-BW-15	Siedlung Forschner	A	Federseemoor
DE-BW-16	Olzreute-Enzisholz	A	Olzreutersee
DE-BW-17	Königseggsee	A	Königseggsee
DE-BW-18	Schreckensee	A	Schrecksensee
DE-BW-19	Steeger See	A	Steeger See
DE-BW-20	Reute-Schorrenried	A	Schorrenried

Fig. 4.15 Overview of the state of conservation of the sites on Federsee and in Upper Swabia.

Swabian Jura

The Settlement of Ehrenstein (DE-BW-21) is situated in a valley bottom through which a meander of the small River Blau flows. The site has been covered with a protective gravel layer and lies in a stable condition in ground water.

Component part	Name of component part	Conservation and potential	Lake / bog
DE-BW-21	Ehrenstein	A	River Blau

Fig. 4.16 Overview of the state of conservation of the sites in the Swabian Jura.

Loosbach Valley

Features near the surface of the floodplain may desiccate successively, especially in climatical dry phases. Excavation activities in Pestenacker (DE-BY-01) were terminated once all houses east of the current brook were dug up. To the west of the Loosbach brook up to seven buildings remain intact as a reserve for future research. After Unfriedshausen (-West) had been documented to a large extent, trial trenches in the area around the excavation revealed additional features in the south and south-east (DE-BY-02). Beginning in the year 2000, construction timbers of at least one settlement of the Altheim culture (Unfriedshausen-East) were discovered there. The excavations on site were stopped after it had been determined that the archaeological remains in question lie permanently in groundwater and are thus well conserved.

Component part	Name of component part	Conservation and potential	Lake / bog
DE-BY-01	Pestenacker	A	Loosbach Valley
DE-BY-02	Unfriedshausen	A	Loosbach Valley

Fig. 4.17 Overview of the state of conservation of the sites on Loosbach Valley.

Lake Starnberg

Clear signs of erosion can be seen in the shallow-water regions at the northern and eastern shores of Rose Island (DE-BY-03). Occupation layers are still preserved to a small degree. There is, however, a large amount of exposed timber and poles from modern to prehistoric times. In contrast, along the lee side of the island at the western shore, sheltered from wind and erosion, anthropogenically-influenced deposits of considerable depth can be detected. Finally, the features in the centre of the island were partially destroyed by past construction, especially in the area of the royal villa and the rose garden from which the island took its name. However, other parts may be covered by landfill. To date, the island has only been examined partially. This is particularly the case for the southern shore which was gravely altered by landfill ↘ cf. Chapter 2.b.3. The other prehistoric settlement in Lake Starnberg, the pile dwelling site at Kempfenhausen, has not been nominated as a UNESCO World Heritage Site because diving campaigns have revealed that the occupation layers there have – for the most part – eroded away.

Component part	Name of component part	Conservation and potential	Lake / bog
DE-BY-03	Rose Island	A	Lake Starnberg

Fig. 4.18 Overview of the state of conservation of the sites on Lake Starnberg.

Italy

Small lakes or bogs of Piedmont

In the Lake Viverone only the lower parts of the wooden elements in the lake bed are preserved; the loss of wooden remains is probably high. In the peat bogs the areas affected by peat extraction activities are largely damaged and their stratigraphy is completely lost. However, it still seems possible to discover new pile dwelling settlements with preserved woods in some peat bog areas surrounding the ones already known.

Component part	Name of component part	Conservation and potentiel	Lake / bog
IT-PM-01	VI.1-Emissario	A	Lake Viverone

Fig. 4.19 Overview of the state of conservation of the sites on the small lakes or bogs of Piedmont.

Region of Lakes Maggiore and Varese

In the Mercurago Lake only the lower parts of the wooden elements in the lake bed are preserved; the loss of wooden remains is probably high. Regarding the current state of conservation of the pile-dwelling sites in this region, a distinction must be made between underwater and dry land sites. The former have generally well preserved woods, while in many instances the stratigraphy has suffered erosion.

Component part	Place name	Conservation and potentiel	Lake / bog
IT-LM-09	Isolino Virginia-Camilla-Isola di San Biagio	A	Lake Varese
IT-LM-10	Bodio centrale o delle Monete	A	Lake Varese
IT-LM-11	Lagozza	A	Lagozza bog
IT-LM-12	Il Sabbione o settentrionale	A	Lake Monate
IT-PM-02	Mercurago	A	Lake Mercurago

Fig. 4.20 Overview of the state of conservation of the sites in the region of Lakes Maggiore and Varese.

Small lakes, bogs and rivers of eastern Lombardy

The pile dwelling of Lagazzi (IT-LM-06) is preserved of agricultural damages thanks to the local protection law ('Monumento Naturale') and by the fact that only grassland farming is allowed in the entire settlement area.

The area of Iseo is very important for the history of the research but unfortunately we do not know the current state of conservation of the archaeological deposits. The extraction of peat must have greatly influenced their conservation. However a monitoring program on the area is expected shortly. Recent excavations have shown a good preservation of ancient sites along the shore of Lake Iseo while the villages located in small inframorenic basins (eg. Valle delle Paiole) are better preserved.

Component part	Name of component part	Conservation and potentiel	Lake / bog
IT-LM-06	Lagazzi del Vho	B	Lagazzo ditch

Fig. 4.21 Overview of the state of conservation of the sites on small lakes, bogs and rivers of eastern Lombardy.

Small lakes or bogs of Trentino

The Molina di Ledro site (IT-TN-01) is located in the lake near the mouth of the effluent, the Ponale stream. In the settlement, wooden remains and stratigraphy in a primary deposition are still well preserved, as attested by the recent survey of the

Provincial Office for Archaeological Heritage (Soprintendenza per i beni librari archivistici e archeologici – Settore beni archeologici), even though the site was mostly excavated in the past century. The wooden elements and the deposits of the site located along the lake shore are, on the other hand, not so well preserved.

Renato Perini's excavations Carera in the zones 1 and 2 (around an area of 1200 m^2) at Fiavé-Lago brought to light many wooden features in a perfect state of conservation; such features have been submerged in situ allowing the natural filling of the trenches with the water from the peat bog.

Unfortunately, there is no data about the real extension of the areas subjected to archaeological excavation at Fiavé–Lago Carera (IT-TN-02) in the past and the areas affected by peat extraction activities; nevertheless, it is likely that a remarkable part of the site, and its archaeological deposits, are still undisturbed.

Component part	Name of component part	Conservation and potentiel	Lake / bog
IT-TN-01	Molina di Ledro	B	Lake Ledro
IT-TN-02	Fiavé-Lago Carera	A	Lake Fiavé

Fig. 4.22 Overview of the state of conservation of the sites on small lakes or bogs of Trentino.

Region of Lake Garda

Regarding the current state of conservation of the pile-dwelling sites in the Garda Lake region, a distinction must be made between underwater sites, manly along the shorelines of the lake and bog or dry land sites.

The former have generally well preserved wooden features, while in many instances the stratigraphies have suffered processes of sedimentation and erosion.

Small lakes have similar state of conservation, but generally they are much less affected by erosion caused by wave action. To understand these conservation problems, recently many segments of the shoreline of Garda Lake, especially all the area facing Sirmione, have undergone a monitoring program, on the occasion of the building of moorings, shipping piers, buoy fields and ports.

The environmental preservation of the basins situated among the moraines is generally good thanks to the end of peat extraction activities. The agricultural vocation of such territories protects them from urban expansion, but the modern farming technologies can damage upper archaeological layers. In some sites, in fact, the top cultural layers are spoiled or destroyed by deep ploughing (Lavagnone, IT-LM-01). In other sites recent excavations have shown conservation problems of wooden features due to a seasonal lowering of groundwater (Lucone, IT-LM-05).

Component part	Name of component part	Conservation and potentiel	Lake / bog
IT-LM-01	Lavagnone	B	Lavagnone bog
IT-LM-02	San Sivino, Gabbiano	A	Lake Garda
IT-LM-03	West Garda, La Fabbrica	A	Lake Garda
IT-LM-04	Lugana Vecchia	A	Lake Garda
IT-LM-05	Lucone	B	Lake Lucone
IT-LM-07	Bande - Corte Carpani	B	Pieve Martino bog
IT-LM-08	Castellaro Lagusello - Fondo Tacoli	B	Lake Castellaro Lagusello
IT-LM-13	La Maraschina-Tafella	A	Lake Garda
IT-VN-01	Bor di Pacengo	A	Lake Garda
IT-VN-02	La Quercia	A	Lake Garda
IT-VN-03	Dossetto	A	River Tartaro
IT-VN-04	Belvedere	A	Lake Garda

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Fig. 4.23 Overview of the state of conservation of the sites in the Region of Lake Garda.

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Component part	Name of component part	Conservation and potentiel	Lake / bog
IT-VN-05	Frassino	A	Laghetto del Frassino
IT-VN-06	Tombola	A	River Menago

Small lakes or bogs of Berici and Euganei Hills

Several surveys conducted in the last years by the Regional Office for Archaeological Heritage (Soprintendenza per i beni archeologici del Veneto) have shown that the wooden features and the stratigraphy of the sites situated in the lacustrine basins are well preserved. On the other hand, the state of conservation of the pile-dwelling settlements in the river basins or in the peat bog areas of Veneto is not so good, due to the difficulty to protect these sites menaced by the increase in agricultural activities and the progressive change of the anthropogenic landscape.

Component part	Name of component part	Conservation and potentiel	Lake / bog
IT-VN-07	Laghetto della Costa	A	Laghetto della Costa

Fig. 4.24 Overview of the state of conservation of the sites on the small lakes or bogs of Berici and Euganei Hills.

Small lakes and rivers of eastern Veneto and Friuli Venezia Giulia

The Palù di Livenza area in the Pordenone Province is constantly monitored by the Regional Office for Archaeological Heritage (Soprintendenza per i beni archeologici del Friuli Venezia Giulia). The peat bog is gradually drying up because of anthropogenic activities due to the channeling and diverting of the Livenza River. The wooden features and the stratigraphy in the Santissima (IT-FV-01) and the Molinetto sites are still in good condition, although some areas have been eroded by the river and the drainage channel. The Palude di Sequals and Qualso sites in the Udine Province, on the other hand, have suffered from agricultural activities in the basins which damaged the archaeological remains.

Component part	Place name	Conservation and potentiel	Lake / bog
IT-FV-01	Palù di Livenza – Santissima	A	River Livenza

Fig. 4.25 Overview of the state of conservation of the sites on the small lakes and rivers of eastern Veneto and Friuli Venezia Giulia.

Slovenia

Today, the areas where prehistoric pile-dwellings used to stand are mostly boggy meadows, meadows and cropland, showing no topographic signs of anthropogenic interventions. Continuous expert monitoring of drainage ditch cleaning works, preliminary archaeological research and the introduction of various non-destructive methods of archaeological work are of valuable help in keeping records of these sites.

The Ljubljansko barje contains specific archaeological heritage of prehistoric pile dwellings. The remains in the Ljubljansko barje are located directly on the marl, i.e. an up to 15 m thick layer located under the surface layers of clay, peat and humus.

Information of the conservation of the cultural layers is not abundant, while wooden posts are still well-preserved (researches in the past years confirmed that, but they were carried out only at single sites). For some sites the cultural layer is assumed to be eroded due to intensive activities of running waters as well as changing water-

courses in the past millennia. Given the terrain specificity (marsh) and the fact that it has not been subjected to severe threat factors, however, it has to be assumed that present state of conservation is still satisfactory.

Component part	Name of component part	Conservation and potentiel	Lake / bog
SI-IG-01	Kolišča na Igu, severna skupina	B	Ljubljansko barje
SI-IG-02	Kolišča na Igu, južna skupina	B	Ljubljansko barje

Fig. 4.26 Overview of the state of preservation of the sites on Ljubljansko barje.

4.b Factors affecting the property

4.b.1 Factors threatening the sites

Pile-dwelling sites are vulnerabe, threatened by erosion, drying out and – in modern times – by development pressure. For the World Heritage nomination, only well preserved components have been selected, that benefited from favorable preservation conditions.

Lakeside settlements are potentially threatened by different factors. The main threat on dry land is modern occupation and development on one hand, and the drying out of the sites (land drainage for farming) on the other. The biggest threat under water is the erosion of exposed cultural layers and pile fields associated with various causes, both natural and man-made. This chapter will list the factors affecting the sites followed by a description of the general situation concerning the individual lakes and bogs.

To face these threats, a whole span of protection measures are implemented. Two conferences have to date been held, specifically dealing with the protection of wetland sites, in Marigny (France) in 1994 and in Neuchâtel (Switzerland) in 2004 (Ramseyer / Roulière-Lambert 1996, 2006). The next conference will take place at Constance (Germany) in 2014.

Development pressures (i)

The lakeshores are not immune to the pressures exerted by modern construction and development. To manage this threat it is possible in urban areas to impose conditions such as a ban on constructing basements and / or to introduce a large-scale covering of the sites as it was done in Arbon–Bleiche 2-3 (CH-TG-01). Constructions on the instable subsoil of the (former) lakeshores are often reinforced with concrete piling, which can have a hugely detrimental effect on existing cultural layers. In the case of the site Zug-Riedmatt (CH-ZG-05), an agreement was reached to set the piles at greater distances but to make their diameters larger.

Pile-dwelling sites located in dried out areas are threatened by land drainage for farming. Boggy areas in particular are often drained and dried out so that farming can be pursued. Retaining walls, earth banks and the construction of dams can cause significant changes to underwater currents, which in turn can lead to erosion further afield (as seen for instance in lower Lake Geneva).

The active measures used to prevent the sites from drying out are very difficult. Tangible and successful protection measures should lead to the groundwater table rising and the archaeological layers being submerged under water. Wetland restoration measures were put in place for instance in Baden-Württemberg on Lake Federsee in collaboration with nature conservation agencies ↘ text box, ↘ Fig. 4.27.

There is a process currently ongoing where the groundwater table in various settlement areas is measured so that insight into its seasonal fluctuations can be gained and a long-term monitoring system can be initiated ↘ Chapter 6.a. Various test excavations and natural scientific analyses have also been carried out in order to assess the state of preservation of once waterlogged layers.

Compiling a site inventory, putting in place preventative conservation measures and carrying out archaeological excavations in certain locations allows us to identify on one hand the extent of the threat and on the other to deal with it in a practical manner. The identification of the sites and the demarcation of buffer zones in the municipal and cantonal management plans also serve as a preventative tool.

↘ p. 322

Fig. 4.27 Wetland restoration measures are implemented to prevent sites from drying out, which is one of the greatest dangers to bog settlements (example of Lake Federsee, Baden-Württemberg).

Re-flooding

Many wetlands were crisscrossed with manmade drainage ditches in the 19th century and the first half of the 20th century. This practice leads to the subsequent drainage of the areas concerned, and can entail the destruction of the wooden features and cultural artifacts of prehistoric wetland settlements if the water table continually or periodically falls below the level of the layers containing the finds. Temporary towering of groundwater levels flooded environments provide ideal conditions in which micro and macro-organisms can destroy biomass and therefore also archaeological structures and valuable finds.
This threatening situation for the wetland settlements of the Neolithic period and the Bronze Age was ascertained by trial excavations, drillings, and piezometer ↘ Chapter 6.a measurements in the Upper Swabian Federseemoor marsh (Baden-Württemberg) in the 1980s (DE-BW-11–DE-BW-15). These clearly showed that the sites could only be saved by raising the water table. To do this, it was necessary to purchase private land and to implement a reallocation scheme, which meant that the farmers concerned were allocated land outside the archeological site. This was made possible by close collaboration between the agencies for nature conservation and the preservation of historic monuments, the municipalities, and an authority specializing in reallocation schemes (Amt für Flurneuordnung – Agency for Land Consolidation). New nature reserves covering the archaeological areas were established at the same time. In this way, it was possible to initiate a rehabilitation of the wetlands. The planning process was based on detailed hydrological mapping. The archaeological core zones were re-flooded by blocking the narrow drainage ditches every 20–30 m using small earth bridges, while the larger drainage channels were dammed using wooden weirs. In some cases, it was also possible to divert springs on the slopes surrounding the marsh and feed them into the areas of archaeological interest. These ground-level measures could easily be implemented using a small excavator. It was more difficult to close off the re-flooded areas from the surrounding areas that continued to be farmed. Here, 1–2 m deep ditches, each several hundred meters long, were dug and filled with partition walls made of bentonite. This meant that different groundwater levels could be achieved on directly adjacent areas of land. The flooded areas have since been monitored by a network of piezometers and their vegetation cover mown regularly to prevent the growth of shrubs.

Erosion protection measures at Lake Bienne (Switzerland)

In Lake Bienne, numerous rescue excavations were carried out over the past 25 years. Several sites have been treathend by erosion caused by natural curents, wave action and also to some extend by wind. The Archaeological Service of the Canton of Berne pursued a two-pronged approach: recording of largely eroded sites and protecting of intact sites.
In 2000 first steps towards implementing permanent protecting measures has been undertaken. The following conditions were defined: The constructions were to last at least 50 years, were not to be visible above water and the maintenance costs over the time period envisaged had to be reasonable. Previous work on the German and Swiss shores of Lake Constance had revealed that the best results were achieved by covering the lakebed with geotextile fabric and gravel. In 2000 and 2001 the first protection measures in the Hauptstation Aussen ('Outer main site') of Sutz-Lattrigen were undertaken. Geotextile had to be attached to steel lattice mats measuring 5 × 2 m. These were necessary to make it possible to move the geotextile around under water. Steering lines on the lakebed ensured the exact positioning of the geotextile plates. A total of 300 sections were laid in this way. The second step then was to cover the geotextile plates with a layer of gravel approximately 15–20 cm thick.
Because of its location in the immediate proximity to the shore, the erosion protection measures in the Hauptstation Innen ('Inner main site') 2003–2004 proved to be particularly challenging. While the water in the Hauptstation Aussen ('Outer main site') is usually between 1.2 and 2 m deep, the lake in this area is rarely deeper than 0.5–1.2 m. The power of the incoming waves is significantly higher than in the lakeward areas of the bay. It was clear from the very beginning that the steel lattice mats chosen for the outer site were not going to be suitable here because this section of shoreline is also used as a bathing area.
Therefore, the Archaeological Service of the Canton of Berne started searching for alternative measures, which led to the first installation of sand-containing mats in 2003. For this project a special floating machinery was developed, which now is used to lay heavy geotextile mats ↘ Fig. 4.28. The ROBOR-catamaran has a shutter floor which enables to cover large areas efficiently with a consistently thin layer of gravel. Using the new technology, the time it takes to lay the geotextile and spread the gravel has been greatly reduced.

↘ p. 322

Fig. 4.28 The Archaeological Service of Canton Berne (Switzerland) has developed a special floating device for covering the well-preserved settlement layers with geotextile and gravel.

The sand mats have the advantage of being of better quality. They are much more robust and have excellent filtering characteristics.
With the erosion protection measures 2000–2004 in place in the bay of Lattrigen, all extant settlement remains with preserved cultural layers have been covered over. A total of 6,000 m² of lakebed were covered with geotextile and gravel fills. Today this method provides the best possible protection against erosion. The Archaeological Service of the Canton of Berne will continue in the 2010–2016 period with substantial works for the protection of underwater cultural heritage in erosion endangered sites as for example Sutz-Lattrigen–Rütte (CH-BE-06).

Environmental pressures (ii)

The pile-dwelling sites are especially endangered by the pressures of nature. Underwater erosion in particular has caused more than one site to disappear completely. The causes of the erosion are varied: disappearance of the protective reed belts, increased water traffic on lakes and rivers ↘ see paragraph iv and the artificial adjustment of the lake levels and the lowering of the groundwater table or even just inclement weather conditions ↘ see paragraph iii.

Protection measures must be put in place where archaeological layers are still present. Active measures to prevent erosion are multi-faceted. On one hand, there is the option of physically protecting threatened sites by covering them with specially modified textiles and gravel deposits or by erecting wooden fences in order to prevent erosion ↘ text box, ↘ Figs. 4.28–4.34. The latter are often installed in close collaboration with the authorities in charge of nature conservation. A very important element in the protection strategy of the sites entails regular archaeological monitoring, which includes digging test trenches, carrying out excavations and documenting the sites in as much detail as possible in cases where they cannot be saved from destruction.

Fig. 4.28
↘ p. 322

Fig. 4.29
↘ p. 323

Fig. 4.30
↘ p. 323

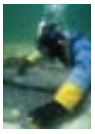

Fig. 4.31
↘ p. 323

Fig. 4.32
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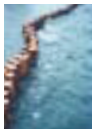


Fig. 4.33
↘ p. 325

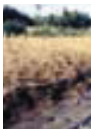


Fig. 4.34
↘ p. 326

Natural disasters and risk preparedness (iii)

In terms of natural disasters, storms pose the biggest threat to the pile-dwelling sites. Unprotected sites can, in fact, be seriously endangered by wave action as well as flotsam and jetsam etc. Protection measures (covering, breakwaters) put in place to prevent natural erosion help to diminish the destructive impact of storms ↘ text box.

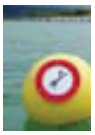
Visitor / tourism pressures (iv)

In general visitors do not present any danger for the sites. There are no potential tourism pressures since visiting the sites is not foreseen. Underwater wave action created by the overuse of motor craft can put archaeological underwater sites in danger by causing erosion that is difficult to manage. Also highly problematic are buoys whose anchor chains if installed incorrectly, tear deep holes in the archaeological layers. For this reason, anchoring has been banned at several lakes.

On the other hand, visitors and tourists on dry land do not usually pose a direct problem because the sites are either located in nature reserves or are protected by quays and other constructions from the impact caused by people.

Scuba divers must also be mentioned as a potential threat to underwater sites. Special courses are intended to sensitise hobby scuba divers to the fragility of the sites ↘ Chapter 5.i. If uninformed, they can cause damage to sites (by dislodging posts or recovering objects from the lakebed etc.). For this reason, a preventative ban on scuba diving was issued in 2009 in Sutz-Lattrigen (Lake Bienne, ↘ Fig. 4.35) because there were suspicions that some divers were taking artefacts from the site. Indeed, illicit excavations can also sometimes cause problems. Positive results have been achieved for instance in canton Thurgau (Switzerland) by setting up local surveillance systems with the help of volunteers, local residents, land owners and local authorities.

One important component of protection measures is the information provided to the public, e.g. at 'open excavation days' ↘ Fig. 4.36, since the more knowledge the population has of the richness of its heritage, the more likely it is to accept that it is worthy of conservation and the efforts necessary to achieve this. Museums, local associations and other institutions (schools, universities) play an important role in this respect by working alongside the authorities in charge of the protection of the archaeological heritage.



↘ p. 326

Fig. 4.35 Divers can cause damage to sites by dislodging posts or recovering objects from the lakebed. For this reason, a preventative ban on scuba diving was issued in 2009 in Sutz-Lattrigen (Lake Bienne).

↘ p. 327

Fig. 4.36 The best protection measure is to inform and educate the public, for example at 'open excavation days' (Freienbach–Hurden Rosshorn, CH-SZ-01).

Number of inhabitants within property (v)

Members of the public who come into direct contact with pile-dwelling sites do not pose any threat to these sites if the aforementioned measures are in place. As a rule, the sites are not located in the immediate catchment area of settlements: only 3,500 people ↘ cf. Figs. 4.37–4.42 live in the buffer zone area which extends over 6,000 ha in total. The only exception to this rule are the sites on lower Lake Zurich (CH-ZH-09–CH-ZH-11). However, this area has a large number of workplaces rather than high numbers of inhabitants.

Component part	Name of the component part	Population living in nominated area	Population living in buffer zone	Total population
CH-AG-01	Beinwil am See–Ägelmoos	0	0	0
CH-AG-02	Seengen–Riesi	0	0	0
CH-BE-01	Biel–Vingelz Hafen	0	30	30
CH-BE-02	Lüscherz–Dorfstation	10	210	220
CH-BE-03	Moosseedorf–Moossee Ost	0	3	3
CH-BE-04	Mörigen–Bronzestation	0	0	0
CH-BE-05	Seedorf–Lobsigensee	0	0	0
CH-BE-06	Sutz-Lattrigen–Rütte	0	40	40
CH-BE-07	Twann–Bahnhof	0	100	100
CH-BE-08	Vinelz–Strandboden	0	40	40
CH-FR-01	Delley-Portalban II	0	2	2
CH-FR-02	Gletterens–Les Grèves	4	4	8
CH-FR-03	Greng–Spitz	0	0	0
CH-FR-04	Haut-Vully–Môtier I	0	5	5
CH-FR-05	Murten–Segelboothafen	0	2	2
CH-FR-06	Muntelier–Baie de Muntelier	20	50	70
CH-FR-07	Noréaz–En Praz des Gueux	0	0	0
CH-FR-08	Vernay–En Chéseau	0	0	0
CH-GE-01	Collnge-Bellerive I	0	0	0
CH-GE-02	Corsier–Port	0	0	0
CH-GE-03	Versoix–Bourg	0	0	0
CH-LU-01	Egolzwil 3	0	40	40
CH-LU-02	Egolzwil 4	0	[CH-LU-01]	[CH-LU-01]
CH-LU-03	Hitzkirch–Seematte	0	0	0
CH-LU-04	Schenkon–Trichtermoos-Altstadt	0	0	0
CH-LU-05	Sempach–Uferpromenade	0	100	100
CH-LU-06	Sursee–Halbinsel	0	0	0
CH-NE-01	St. Aubin-Sauge–Port-Conty	0	8	8
CH-NE-02	Gorgier–Les Argilliez	0	0	0
CH-NE- 03	Bevaix–Treytel	0	0	0
CH-NE-04	Bevaix–L'Abbaye 2	0	0	0
CH-NE-05	Cortaillod–Petit Cortaillod	0	0	0
CH-NE-06	Auvernier–La Saunerie	0	0	0
CH-NE-07	Auvernier–Les Graviers	0	0	0
CH-NE-08	La Tène (Marin-Epagnier)–Les Piécettes	0	0	0
CH-NW-01	Stansstad–Kehrsiten	0	0	0
CH-SG-01	Rapperswil-Jona / Hombrechtikon–Feldbach	0	0	0
CH-SG-02	Rapperswil-Jona –Technikum	0	0	0
CH-SH-01	Thayngen–Weier I – III	0	0	0
CH-SO-01	Aeschi SO–Burgäschisee Ost	0	60	60
CH-SO-02	Bolken / Inkwil–Inkwilersee Insel	0	150	150
CH-SZ-01	Freienbach–Hurden Rosshorn	0	0	0

↓

Example of a global protection plan on Lake Chalain (France)

An analysis of the causes of the deterioration of the littoral sites on the western bank of Lake Chalain (FR-39-02) shows complex processes that are ongoing simultaneously: the artificial lowering of the lake, landslides, erosion from backwash, layer erosion and incisions from the leaching of the marshes, drying-up of the littoral peat bogs and stress caused by poorly supervised tourist development; all of these are variables directly connected with recent social and technological developments.

The resumption of archaeological research in 1986 enabled a new archaeological assessment to be made, leading to a global protection project, taking into account the regulation of fluctuations in the lake level, land control in the hinterland, legal procedures for historical monument classification and limited experiments involving the physical protection of the shores which should result in the reconstitution of the plant coverage round the lake. This complex procedure, pursuing a middle way between the simultaneous advance of the processes of nature and the workings of society, emerges as a somewhat fragile set-up, given the numerous participants who defend contradictory points of view on the use of the lacustrine and littoral environments. In 1995, the legal measures of protection (classification of sites, stabilisation and partial control of the lake level, creation of a 'no entry' zone for the public) were supplemented by work to consolidate and revegetate the banks (earth spreading, laying down of geotextiles, planting, ↘ Fig. 4.34), in order to try to slow the erosion and deterioration of the pile-dwelling sites of Lake Chalain. Ten years later the plant coverage has reappeared on nearly all of the western bank and erosion has been effectively stopped, particularly on the emergent calcareous mud surfaces. The protection of the eroded faces by sacks of fill, geotextiles and planting has also been successful. However, there are still doubts: the reed beds are developing and their long-term effects on the archaeological remains are unknown; the use of wattling on some eroded fronts has had no effect; lastly, the new vegetation does not always correspond to the natural disposition of the bands of vegetation round the lake. But generally the legal and material measures put into effect at Chalain may be considered encouraging; they will nevertheless require regular on-the-spot follow-up.

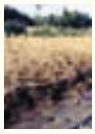


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Fig. 4.34. In addition to the historical monument classification of the sites on Lake Chalain (FR-39-02), the physical protection of the shores has been implemented which has resulted in the reconstitution of the plant coverage around the lake.

Component part	Name of the component part	Population living in nominated area	Population living in buffer zone	Total population
CH-SZ-02	Freienbach–Hurden Seefeld	0	70	70
CH-TG-01	Arbon–Bleiche 2-3	50	50	100
CH-TG-02	Ermatingen–West	0	50	50
CH-TG-03	Eschenz–Insel Werd	10	300	310
CH-TG-04	Gachnang-Niederwil–Egelsee	0	0	0
CH-TG-05	Hüttwilen–Nussbaumersee	4	0	4
CH-TG-06	Mammern–Langhorn	0	20	20
CH-VD-01	Bonvillars–Morbey	0	0	0
CH-VD-02	Chabrey–Pointe de Montbec I	0	0	0
CH-VD-03	Chevroux–La Bessime	0	0	0
CH-VD-04	Chevroux–Village	20	90	110
CH-VD-05	Corcelles-près-Concise–Stations de Concise	20	20	20
CH-VD-06	Cudrefin–Champmartin	0	0	0
CH-VD-07	Cudrefin–le Broillet I	0	0	0
CH-VD-08	Faoug–La Gare	0	0	0
CH-VD-09	Faoug–Poudrechat	10	60	70
CH-VD-10	Grandson–Corcelettes Les Violes	0	0	0
CH-VD-11	Morges–Les Roseaux	0	0	0
CH-VD-12	Morges–Stations de Morges	0	0	0
CH-VD-13	Mur–Chenevières de Guévaux I	0	0	0
CH-VD-14	Rolle–Ile de la Harpe	0	0	0
CH-VD-15	Yverdon-les-Bains–Baie de Clendy	0	0	0
CH-VD-16	Yvonand–Le Marais	0	70	70
CH-ZG-01	Cham–St. Andreas, Strandbad	0	700	700
CH-ZG-02	Hünenberg–Strandbad	0	200	200
CH-ZG-03	Risch–Oberrisch, Aabach	0	100	100
CH-ZG-04	Zug–Oterswil / Insel Eielen	0	10	10
CH-ZG-05	Zug–Riedmatt	0	150	150
CH-ZG-06	Zug–Sumpf	0	0	0
CH-ZH-01	Erlenbach–Winkel	0	3	3
CH-ZH-02	Greifensee–Storen-Wildsberg	0	2	2
CH-ZH-03	Horgen–Scheller	0	20	20
CH-ZH-04	Maur–Schifflände	0	10	10
CH-ZH-05	Meilen–Feldmeilen Vorderfeld	5	15	20
CH-ZH-06	Meilen–Rorenhaab	0	5	5
CH-ZH-07	Wädenswil–Vorder Au	0	30	30
CH-ZH-08	Wetzikon–Robenhausen	0	0	0
CH-ZH-09	Zürich–Enge Alpenquai	0	300	300
CH-ZH-10	Zürich–Grosse Stadt Kleiner Hafner	0	[CH-ZH-10]	[CH-ZH-10]
CH-ZH-11	Zürich–Riesbach Siedlungskammer Seefeld	120	180	300
Total	**Switzerland**	**273**	**3299**	**3552**

Fig. 4.37 Estimated number of people living in the area of the nominated properties in Switzerland (2009).

Component part	Name of the component part	Population living in nominated area	Population living in buffer zone	Total population
AT-KT-01	Keutschacher See	0	0	0
AT-OÖ-01	Abtsdorf I	0	0	0
AT-OÖ-02	Abtsdorf II	0	0	0
AT-OÖ-03	Abtsdorf III	0	0	0
AT-OÖ-04	Aufham	0	0	0

↓

Component part	Name of the component part	Population living in nominated area	Population living in buffer zone	Total population
AT-OÖ-05	Litzlberg Süd	0	0	0
AT-OÖ-06	Nussdorf	0	0	0
AT-OÖ-07	Mondsee–See	0	0	0
Total	**Austria**	**0**	**0**	**0**

Fig. 4.38 Estimated number of people living in the area of the nominated properties in Austria (2009).

Component part	Municipality	Population living in nominated area	Population living in buffer zone	Total population
FR-39-01	Le Grand Lac de Clairvaux	3	0	3
FR-39-02	Lac de Chalain, rive occidentale	0	0	0
FR-73-01	Lac d'Aiguebelette, zone sud	0	0	0
FR-73-02	Lac d'Aiguebelette, zone nord	0	0	0
FR-73-03	Baie de Grésine	0	0	0
FR-73-04	Baie de Châtillon	0	0	0
FR-73-05	Baie de Conjux-Portout	0	0	0
FR-73-06	Hautecombe	0	0	0
FR-73-07	Littoral de Tresserve	0	0	0
FR-74-01	Lac d'Annecy, zone nord-ouest	0	0	0
FR-74-02	Lac d'Annecy, zone nord-est	0	0	0
FR-74-03	Littoral de Chens-sur-Léman	0	0	0
FR-74-04	Les Marais de Saint-Jorioz	0	0	0
FR-74-05	Le Crêt de Chatillon	0	0	0
FR-74-06	Secteur des Mongetsx	0	0	0
Total	**France**	**3**	**0**	**3**

Fig. 4.39 Estimated number of people living in the area of the nominated properties in France (2009).

Component part	Name of the component part	Population living in nominated area	Population living in buffer zone	Total population
DE-BW-01	Wangen-Hinterhorn	0	5	0
DE-BW-02	Hemmenhofen-im Leh	0	0	0
DE-BW-03	Hornstaad-Hörnle	0	0	0
DE-BW-04	Allensbach-Strandbad I	0	0	0
DE-BW-05	Wollmatingen-Langenrain	0	0	0
DE-BW-06	Konstanz-Hinterhausen I	0	0	0
DE-BW-07	Litzelstetten-Krähenhorn	0	0	0
DE-BW-08	Bodman-Schachen / Löchle	0	0	0
DE-BW-09	Sipplingen-Osthafen	0	0	0
DE-BW-10	Unteruhldingen-Stollenwiesen	0	0	0
DE-BW-11	Ödenahlen	0	0	0
DE-BW-12	Achwiesen	0	0	0
DE-BW-13	Grundwiesen	0	0	0
DE-BW-14	Täschenwiesen	0	0	0
DE-BW-15	Siedlung Forschner	0	0	0
DE-BW-16	Olzreute-Enzisholz	0	0	0
DE-BW-17	Königseggsee	0	0	0
DE-BW-18	Schreckensee	0	0	0
DE-BW-19	Steeger See	0	0	0
DE-BW-20	Reute-Schorrenried	0	0	0

Component part	Name of the component part	Population living in nominated area	Population living in buffer zone	Total population
DE-BW-21	Ehrenstein	0	0	0
DE-BY-01	Pestenacker	0	7	7
DE-BY-02	Unfriedshausen	0	0	0
DE-BY-03	Rose Island	1	0	1
Total		**1**	**12**	**13**

Fig. 4.40 Estimated number of people living in the area of the nominated property in Germany (2009).

Component part	Name of the component part	Population living in nominated area	Population living in buffer zone	Total population
IT-FV-01	Palù di Livenza – Santissima	0	40	40
IT-LM-01	Lavagnone	0	0	0
IT-LM-02	San Sivino, Gabbiano	0	0	0
IT-LM-03	West Garda, La Fabbrica	0	0	0
IT-LM-04	Lugana Vecchia	0	0	0
IT-LM-05	Lucone	0	0	0
IT-LM-06	Lagazzi del Vho	0	0	0
IT-LM-07	Bande - Corte Carpani	0	0	0
IT-LM-08	Castellaro Lagusello - Fondo Tacoli	0	10	10
IT-LM-09	Isolino Virginia-Camilla-Isola di San Biagio	10	0	10
IT-LM-10	Bodio centrale o delle Monete	0	0	0
IT-LM-11	Lagozza	0	0	0
IT-LM-12	Il Sabbione o settentrionale	0	0	0
IT-LM-13	La Maraschina-Tafella	0	0	0
IT-PM-01	VI.1-Emissario	0	0	0
IT-PM-02	Mercurago	0	30	30
IT-TN-01	Molina di Ledro	0	0	0
IT-TN-02	Fiavé-Lago Carera	0	10	10
IT-VN-01	Bor di Pacengo	0	0	0
IT-VN-02	La Quercia	0	0	0
IT-VN-03	Dossetto	0	0	0
IT-VN-04	Belvedere	0	0	0
IT-VN-05	Frassino	0	0	0
IT-VN-06	Tombola	0	3	3
IT-VN-07	Laghetto della Costa	0	4	4
Total		**10**	**97**	**107**

Fig. 4.41 Estimated number of people living in the area of the nominated property in Italy (2009).

Component part	Name of the component part	Population living in nominated area	Population living in buffer zone	Total population
SI-IG-01	Kolišča na Igu, severna skupina	0	0	0
SI-IG-02	Kolišča na Igu, južna skupina	0	0	0
Total	**Slovenia**	**0**	**0**	**0**

Fig. 4.42 Estimated number of people living in the area of the nominated property in Slovenia (2009).

4.b.2 Extent of potential threat to the sites

General

The extent of the threat to the pile-dwelling sites is listed in the indicator 'Threats':
- Category A: Threat inexistent or very limited due to the presence of sufficiently thick cover and high groundwater table.
- Category B: Threat exists in certain areas or pile fields, danger of drying out caused by the temporary lowering of the groundwater table or erosion.
- Category C: Threat by erosion of the cultural layers or permanent drying out due to low groundwater table.

The extent of the threat can vary considerably within the site: if a site consists of several overlying cultural strata, it is usually the top-most layer that is directly affected by erosion ↘ cf. Fig. 4.43, while the lower layers are well protected. Parts of a site can be submerged, while other parts are situated on dry land. In the submerged parts, the preservation of the organic finds is ensured, while uncovered cultural layers are exposed to erosion. The parts on dry land, on the other hand, are more threatened by drainage (drying out) and the impact of development pressure. The situation in the main area of a site and the condition of the majority of its layers determines which category it is associated with.

Over a third of the sites are not threatened and belong to category A ↘ Fig. 4.44. In more than half the cases, sections of the archaeological layers and the piles are threatened by erosion or drying out (category B). Monitoring schemes are planned or have already been set up and will assist in implementing suitable protection measures.

Only a small number of sites listed for nomination are particulary threatened and thus fall into category C. Urgent and immediate protection measures are currently underway as listed in the detailed descriptions (see below); for further details ↘ see Volume III, Management plan.

↘ p. 327

Fig. 4.43. The extent of the threat can vary considerably within the site: if a site consists of several overlying cultural strata, it is usually the top-most layer that is directly affected by erosion, while the lower layers are well protected (example of Zug–Riedmatt, CH-ZG-05).

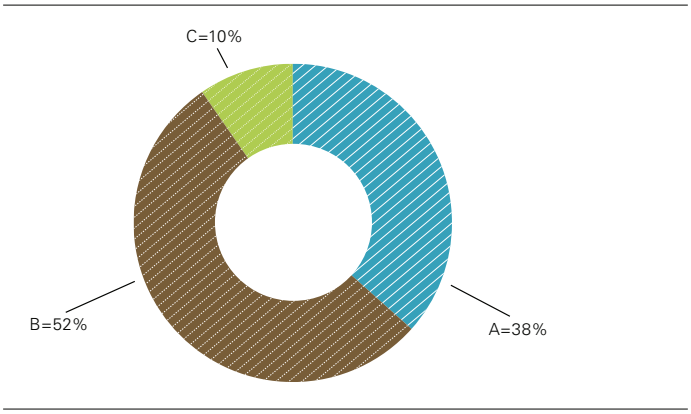


Fig. 4.44 Proportion of categories in the indicator 'Threats' within the series Prehistoric Pile Dwellings around the Alpes.

Switzerland

Lake Geneva (Swiss shoreline)

At the present time only a tenth of the shores of Lake Geneva have not been artificially stabilised by means of quays, riprap construction or artificial beaches. The shorelines have been the first to be affected by population pressure round the lake; this explains

for the most part why no littoral sites have been preserved on the emergent shores, unlike the situation found on Lakes Neuchâtel and Morat.

The sites currently conserved on the shores of Lake Geneva are mainly located in the lake itself, in water deep enough to keep them relatively untouched by natural erosion. The two types of danger to the Lake Geneva settlements are shore and harbour developments and improvements, and natural erosion.

The means of protection employed to deal with these two threats are very different; the threat of planned developments requires strictly enforced administrative measures and monitoring to prohibit or restrict civil engineering work in areas under protection (buffer zones), while natural erosion requires continuous surveillance of the state of the submerged sites and selective measures of protection where the threat of erosion may become too severe.

The activity of amateur divers also constitutes a modest but steady risk of destruction, particularly of assemblages where there is very little protection of the archaeological layer. Protection against damage of this type or looting is furnished by informing the public about the fragile nature of underwater remains, but also by regular surveillance by the services of the lake police and persons professionally involved with the lake who keep all human activities in the littoral zones under constant observation.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
CH-GE-01	Collonge–Bellerive I			×	×	B	Regular spot-checks monitor the stability of the erosion face of the archaeological remains.
CH-GE-02	Corsier–Port			×	×	B	Where necessary, a protection scheme will be put in place (geotextile and gravel).
CH-GE-03	Versoix–Bourg	×		×	×	B	Regular erosion controls and monitoring of the water activities (ships and scuba divers).
CH-VD-11	Morges–Les Roseaux	×		×	×	B	Regular monitoring of the water activities (ships and scuba divers).
CH-VD-12	Morges–Stations de Morges	×		×	×	B	Regular monitoring of the water activities (ships and scuba divers).
CH-VD-14	Rolle–Ile de la Harpe			×	×	B	No direct threatens; periodic control of erosion.

Fig. 4.45 Overview of the main factors posing a threat to the sites on Lake Geneva (Swiss shoreline).

Three Lakes Region

On the northwestern shore of Lake Neuchâtel, natural erosion is the main threat, hardly to be stopped by civil engineering, as it would involve the construction of 2 m high dams. Therefore until now, the implemented measures in this area mainly consisted in underwater rescue excavations, which particularly concerned the most-top Late Bronze Age layers. The most exposed sites had to be excavated and are thus not included in the candidature. Some sites, like the site CH-NE-04, have been stabilised by a dense layer of gravel, which has reinforced the piles. The sites CH-NE-02 and CH-NE-03 are located in areas that are less exposed. Protection measures such as geotextile and gravel coverings might be recommended in the areas where organic layers are still preserved. The sites CH-NE-06 and CH-NE-07 are protected from wave action by fills brought in during the construction of the A5 motorway 30 years ago.

In canton Neuchâtel, the World Heritage candidature of the pile-dwelling sites has introduced new momentum into efforts to reinforce the administrative protection measures regarding the lakeside settlements ↘ see Chapter 5.b particularly by imposing a ban on anchoring or restricting shipping, thereby emphasising the importance of the cultural heritage in conjunction with other interest groups, for instance with nature conservation.

On the northern part of the shore belonging to canton Vaud, a dyke was built in the 1980s in Grandson–Corcelettes les Violes (CH-VD-10) to protect the shore and to

preserve the terrestrial zone of the site threatened by erosion. The western extremity of the lake, next to the town of Yverdon-les-Bains, encloses numerous settlements conserved under a thick layer of sediment: They have been under threat of urban pressure since the early 1960s.

The southern shore of Lake Neuchâtel has been showing particular features since the nature reserve of 'la Grande-Cariçaie' was created in the 1980s. On the emerged shore of the beginning of the 20th century, the settlements CH-FR-02, CH-VD-03 CH-VD-07, CH-VD-16, which are preserved in land area, are covered by a thin layer of humus. The vegetable cover protects the sites from the wearing of the roots and the rootstocks of the reeds. However, the level variations of the groundwater and the alternation between dry and wet periods disintegrate the piles.

A reduced water section still protects the immersed sites. Nevertheless, during storms, waves reach them, working the piles loose and sweeping the cultural layers away. A regular surveillance is needed to consider an efficient protection. A pilot project on protection against erosion was initiated in the early 1990s in two associated pile-dwelling sites, one in the community of Forel and one in Font. Geotextile sacks and gravel were put on the parts of the sites that were exposed to the waves. The area of Gletterens-Les Grèves (CH-FR-02) underwent a partial natural revitalisation in 2009, in the context of the development of the new harbour.

In Lake Morat, a large part of the archaeological features in the submerged and partially submerged sites or sections of sites are particularly vulnerable to natural errosion. A first series of protection measures has therefore been put in place to prevent the advance of the erosion. In Greng–Spitz (CH-FR-03), for example, a gravel layer has been put on the shoreline. On other sites, e.g. Muntelier–Baie de Muntelier (CH-FR-06), an underwater rescue excavation is currently underway on the first cultural layer, whereas the remaining important substance can be preserved in situ.

Regarding some dry-land sites (CH-FR-06, CH-VD-08, CH-VD-09), it is urban development along the shoreline that poses the main threat. Regional policy towards construction reinforced by the Archaeological Department of Canton Fribourg and Vaud in partnership with the community authorities assesses this threat, prohibiting, for instance, underground works.

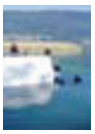
Most of the sites on Lake Bienne are threatened by erosion caused by natural currents, wave action and also to some extent by wind. Other factors (boating traffic, construction in the shallows etcetera) are quite insignificant today in terms of the condition of the sites.

Since 2000, intensive efforts have been made around Lake Bienne to protect selected settlement areas with intact archaeological layers ↘ cf. text box, ↘ Fig. 4.28. Regular monitoring of the areas has revealed that so far the measures can be considered a success. One of the aims is to gain long-term experience in implementing these protection measures.

The next project that will introduce active protection measures is planned to take place from 2010 to 2016 in Sutz-Lattrigen–Rütte (CH-BE-06). In addition to carrying out rescue excavations in the already eroded parts of the site, 10,000 m^2 of the lake bed will be covered over with geotextile matting and gravel.

Furthermore, various sites in Lake Bienne have been tagged with so-called erosion markers, plastic pipes driven into the lake bed ↘ Chapter 6.a. The markers are checked regularly.

The Lake Seedorf isn't subjected to the phenomenon of dessication as it hasn't undergone drainage works and it is not subject to urban development pressure: The site of Lake Seedorf (CH-FR-07) is situated in a protected natural area (Federal Inventory of lower wetlands) which guarantees that this positive situation will be maintained.



↘ p. 322

Fig. 4.28 The Archaeological Service of Canton Berne (Switzerland) has developed a special floating device for covering the well-preserved settlement layers with geotextile and gravel.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
CH-FR-01	Delley–Portalban II	×				B	Not necessary (urban zone and wooded area)
CH-FR-02	Gletterens–Les Grèves	×				B	Renaturation of a part of the shore since 2009 (compensation measure to the new port).
CH-FR-03	Greng–Spitz	×	×	×	×	B	Not necessary (well protected by gravel cover).
CH-FR-04	Haut-Vully–Môtier I	×				B	Not necessary. The archaeological layers are covered by fills and a soil deposit.
CH-FR-05	Morat–Segelboothafen		×	×	×	C	Geotextile and gravel covering are planned.
CH-FR-06	Muntelier–Baie de Muntelier	×	×		×	B	On dry land, the protection of the archaeological layers is ensured by restricting subsurface construction (dimensions fixed in accordance with the regulations for development in detail).
CH-FR-07	Noréaz–En Praz-des-Gueux	×				B	Not necessary at the moment.
CH-FR-08	Vernay–En Chéseau		×	×	×	A	Protection measures (geotextile layer and gravel cover) on the sumerged part of the site since 1992.
CH-NE-01	Saint-Aubin-Sauges–Port Conty	×	×	×		A	Protected by natural cover (riparian forest, reeds and deposits). Submerged areas: ban on anchoring (from 2010–2011).
CH-NE-02	Gorgier–Les Argilliez			×	×	C	Anchoring ban (from 2010–2011).
CH-NE-03	Bevaix–Treytel	×	×			B	Nature reserve (riparian forest and reeds). The submerged parts, limited in size, do not appear to be affected by erosion.
CH-NE-04	Bevaix–L'Abbaye 2			×	×	A	Well protected by natural cover (reeds). Shipping is prohibited near the submerged section.
CH-NE-05	Cortaillod–Petit Cortaillod	×				A	Protected by fills (these may pose a problem because they are polluted).
CH-NE-06	Auvernier–La Saunerie		×			A	Well protected by natural cover (riparian forest, reeds and a building without foundations)
CH-NE-07	Auvernier–Les Graviers	×				A	Protected by fills (used as a car park)
CH-NE-08	La Tène (Marin-Epagnier)–Les Piécettes	×				A	Within the framework of the UNESCO project, the community agreed in 2009 to list the zone and not to interfere with the subsoil.
CH-VD-01	Bonvillars–Morbey		×	×		B	One area of the site is not covered by water but protected by sediments of the foreshore. The submerged section is covered by mud and sand layers.
CH-VD-02	Chabrey–Pointe de Montbec I			×	×	B	Submerged and protected by molassic sand.
CH-VD-03	Chevroux–La Bessime		×	×		B	Protected by foreshore sediments.
CH-VD-04	Chevroux–Village	×				B	Protected by foreshore sediments.
CH-VD-05	Corcelles-près-Concise–Stations de Concise		×	×		B	The not submerged part is protected by foreshore sediments, the submerged part by mud and sand layers.
CH-VD-06	Cudrefin–Champmartin		×		×	B	Protected by foreshore sediments.
CH-VD-07	Cudrefin–Le Broillet I		×	×		B	Protected by foreshore sediments.
CH-VD-10	Grandson–Corcelettes-Les Violes		×	×		B	Protected by foreshore sediments.
CH-VD-15	Yverdon-les-Bains–Baie de Clendy	×				B	Protected by foreshore sediments.
CH-VD-16	Yvonand–Le Marais	×				B	Protected by foreshore sediments.
CH-VD-08	Faoug–La Gare	×				B	Protected by foreshore sediments.
CH-VD-09	Faoug–Poudrechat	×				B	Protected by foreshore sediments.
CH-VD-13	Mur–Chenevières de Guévaux I	×				B	Protected by foreshore sediments.
CH-BE-01	Biel-Vingelz–Hafen		×			A	Not necessary (well protected by natural cover and a mole).
CH-BE-02	Lüscherz–Dorfstation		×			B	Cover planned (2017–2022).
CH-BE-04	Mörigen–Bronzestation		×			B	Not necessary.
CH-BE-06	Sutz-Lattrigen–Rütte		×			C	Cover planned (2010–2016).
CH-BE-07	Twann–Bahnhof					A	Not necessary (well protected by natural cover).
CH-BE-08	Vinelz–Strandboden		×	×		A	Not necessary (well protected by natural cover).

Fig. 4.46 Overview of the main factors posing a threat to the sites of the Three Lakes Region.

Small lakes of the Swiss Plateau

The threat posed to the sites in Lake Moossee (CH-BE-03) by erosion is limited, whereas peripheral zones may be threatened from dessication. Over the coming years, the monitoring of sites around small lakes will focus on Lake Lobsigen (see below), and eventually necessary resulting management actions will be applied on other small lakes of canton Bern (Moossee, Inkwilersee, Burgäschisee und Lobsigensee).

The settlement area of Seedorf–Lobsigensee (CH-BE-05) is situated within a nature reserve. Bore-holes were drilled in 2005 and a test excavation carried out in 2007 with the aim of documenting the state of preservation of the site. The examinations clearly showed that the uppermost parts of the site were threatened by drying out. A pilot project was launched in 2008 which aims to collect data regarding the preservation of the site. Four piezometers ↘ **Chapter 6.a** were installed. They constantly measure the groundwater table. A micromorphological study was commissioned from the University of Basel and pedological analyses from the University of Zurich. Environment protection organisations have begun to buy land so that wetland restoration processes can commence. The annual cleaning of the effluent of Lake Lobsigen has already been stopped. This measure will also lead to a higher groundwater table in the mid term.

Due to artificial lake level lowering in the past, the main problems affecting Lake Burgäschi are caused by drying out. Investigations carried out on Lake Inkwil between 2007 and 2009 (diving and augering on land) revealed that the sites were in good condition. However, due to natural silting up, the sites on Lake Inkwil will probably also be affected by drying out in the long term. This problem is currently being tackled by the communities and by the water protection agencies of Cantons Berne and Solothurn in collaboration with the archaeological services of both cantons.

In the 1940s in particular, archaeological objects were gathered up from the bottom of both lakes by bathers. Nowadays, bathers probably pose less of a problem, even though Lake Burgäschi still has official public swimming baths. The last official report of illicit diving dates from the 1960s. Both lakes are regional recreational areas and are subject to limited terms of use (partly for environmental protection reasons).

Due to the fact that the cantonal boundary between Berne and Solothurn runs through the small Lakes of Burgäschi and Inkwil, underwater excavations are carried out in close collaboration between the two cantons. Diving in the lake and augering on land have been carried out in and around Lake Inkwil from 2007 to 2009 in order to localise the sites that had not been investigated in over 50 years and to gain an impression of their condition.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
CH-BE-03	Moosseedorf–Moossee Ost	×				B	Monitoring provided.
CH-BE-05	Seedorf–Lobsigensee	×				A	Piezometers installed to measure the groundwater table.
CH-SO-01	Aeschi SO–Burgäschisee Ost	×	×			B	No protection measures necessary; monitoring provided.
CH-SO-02	Bolken / Inkwil–Inkwilersee Insel	×	×			A	Programme of measures against silting up currently in preparation; monitoring provided.

Fig. 4.47 Overview of the main factors posing a threat to the sites of the small lakes of the Swiss Plateau.

Central Swiss Plateau

Practically all the peat in Wauwil Bog has been cut. Nowadays, the area is being drained and used intensively for farming. But test excavations carried out in 2009 revealed that the sites Egolzwil 3 (CH-LU-01) and Egolzwil 4 (CH-LU-02) are still in good condition because the drains are located above the archaeological layers.

The archaeological layers located on the shoreline areas of Lake Sempach and Baldegg are threatened by drying out (drainage and farming). Parts of the site in Schenkon–Trichtermoos-Altstadt (CH-LU-04), however, are located up to 1.6 m below the topsoil and are thus well protected. Construction in the areas of the lakeside settlement no longer poses a problem. Erosion caused by the current and by wave action is the biggest threat to the settlement areas situated in Lake Sempach. Regularly scheduled shipping planned for Lake Sempach further threatens certain settlement sites by causing added wave action. In the cases of Sursee–Halbinsel (CH-LU-06) and Schenkon–Trichtermoos-Altstadt (CH-LU-04), however, the settlement areas that are actually located in the lake are quite small in relation to the entire settlements so that these sites are not substantially threatened.

The condition of the archaeological layers is being monitored by surveying, by carrying out small test excavations and by measuring the groundwater table. An inventory of the settlements has been partially compiled and will be completed over the coming years.

The main problem here is the overuse of Lake Hallwil by humans, particularly for leisure activities. Other problems are associated with shipping, i.e. the rather large passenger ships of the Lake Hallwil Shipping Company.

The site Beinwil am See–Ägelmoos (CH-AG-01) is superficially eroded and a small area of the layers is exposed along a fault. An installation has been put in place to monitor and periodically measure the erosion. The monitoring process takes place every 3–5 years, with the next time scheduled for 2010 or 2011. Depending on the results of this check, protection measures (covering) will be evaluated. On the other hand, no protection measures are necessary at Seengen–Riesi (CH-AG-02), because the site is sufficiently protected by the natural cover.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
CH-AG-01	Beinwil am See–Ägelmoos				×	B	Erosion monitoring installed, cover will be evaluated depending on the results.
CH-AG-02	Seengen–Riesi					A	Not necessary (well protected)
CH-LU-01	Egolzwil 3	×				B	Not necessary, sufficient natural cover
CH-LU-02	Egolzwil 4	×				B	Not necessary, sufficient natural cover
CH-LU-04	Schenkon–Trichtermoos-Altstadt	×	×		×	B	Regular monitoring of the condition of the archaeological layers
CH-LU-05	Sempach–Uferpromenade	×	×			C	Regular monitoring of the condition of the archaeological layers
CH-LU-06	Sursee–Halbinsel	×	×			B	Regular monitoring of the condition of the archaeological layers
CH-LU-03	Hitzkirch–Seematte	×	×			B	Regular monitoring of the condition of the archaeological layers

Fig. 4.48 Overview of the main factors posing a threat to the sites of the central Swiss Plateau.

Central Switzerland

Dessication initiated in the 16th century, when the groundwater table was lowered, is the main danger to the pile-dwelling sites on Lake Zug. It led to the drying out of several sites. To manage this threat, groundwater observation nets have been installed for the monitoring of the water contents in the still well-preserved sites Risch–Oberrisch (CH-ZG-03) and Zug–Sumpf (CH-ZG-06) to prevent any possible damage by dessication.

Development pressure by construction zones is not a threat to the selected components on Lake Zug: the sites that have been chosen for the World Heritage candidature are no longer threatened by any future construction plans as the protection measures implemented in these sites are sufficient for their long-term preservation.

The site Stansstad–Kehrsiten (CH-NW-01) on Lake Lucerne can only be threatened by shipping, as the settlement is located adjacent to a shipping pier. The exposed and therefore endangered layers, however, are situated 50 m from the shore and the pier, and 6 to 10 metres below the surface of the water. The surface of the site is generally well protected, except for the layers near the slope, that are exposed and thus threatened by the currents in the lake. Erosion monitoring has been put in place in these areas in order to ascertain whether profile protection measures are necessary.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
CH-NW-01	Stansstad–Kehrsiten				×	A	Erosion monitoring installed, protection measures will be evaluated depending on the results.
CH-ZG-01	Cham–St. Andreas, Strandbad	×				B	Regular monitoring of the condition of the site
CH-ZG-02	Hünenberg–Strandbad	×				B	Regular monitoring of the condition of the site
CH-ZG-03	Risch–Oberrisch, Aabach	×				B	Piezometer installed for measuring the groundwater table
CH-ZG-04	Zug-Oterswil–Insel Eielen		×	×		B	Erosion monitoring
CH-ZG-05	Zug–Riedmatt	×				A	Not necessary, sufficient natural cover
CH-ZG-06	Zug–Sumpf	×				A	Piezometer installed for measuring the groundwater table

Fig. 4.49 Overview of the main factors posing a threat to the sites of Central Switzerland.

Region of Lake Zurich

Erosion is the main threat to the sites on Lake Zurich and Obersee. It mainly affects the top-most layers; the lower layers are generally well protected. The swell caused by storms or by the ships' engines churns up the sediments and exposes the cultural layers, particularly in the shallow water area, where there are no roots or lakeshore vegetation. Shipping piers or buoy fields and port entrances, where anchor-chains dig funnel-shaped holes into the sites by turning around the buoy stone if not properly secured, or where areas filled up with sediment need to be dredged, may also damage the layers that are still present in the peripheral areas. To prevent these damages, shipping and anchoring have been prohibited in certain areas, for instance in Rapperswil-Jona / Hombrechtikon–Feldbach (CH-SG-01), Wädenswil–Vorder Au (CH-ZH-07, Lake Zurich) and Rapperswil-Jona–Technikum (CH-SG-02, Lake Obersee). Additional protection measures (covering) are planned for the site at Rapperswil-Jona–Technikum. Erosion monitoring has been put in place at Rapperswil-Jona–Feldbach Ost in an attempt to gauge the extent to which the settlement remains are threatened, with an eye to designing and implementing a protection scheme.

Depending on their condition and endangerment, the state of preservation of the sites is monitored every 2-6 years in canton Zurich and canton Schwyz, and every 5 years in canton St. Gall by the Zurich City Underwater Team (Unterwasserarchäologie Stadt Zürich). The objective of this monitoring process is to observe the changes in the condition of the sites and to determine whether action is necessary. New information is also expected to be generated from regular underwater archaeological controls undertaken within the framework of the newly started Interreg IV-project ↘ **Chapter 6.a**.

A shipping pier is located in the middle of the settlement site at Maur–Schifflände (CH-ZH-04) on Lake Greifensee. Special boats with jet propulsion systems are sweeping the lake bed bare in this area. In the other sites, the roots of reeds are partly affecting the archaeological layers, while at the same time helping to prevent erosion. Finally, the lake level that was lowered 120 years ago generates new shore-topography through erosion procedures. Potentially, one might consider sheet piling or covering in certain areas of the sites. The profile is partially protected and some areas near the shore have been covered. Further covering is required and planned.

Increased wave action due to the lowering of the level of Lake Pfäffikon is causing more erosion on the sites of Lake Pfäffikon. The water balance in the lakeshore areas has also changed considerably because of the fluctuating lake level; this has caused cracks in the calcareous mud and shifting of material, which in turn makes it more difficult to interpret the features. Countermeasures are not an option.

Wetzikon–Robenhausen (CH-ZH-08), however, is not located directly on Lake Pfäffikon, but rather in the adjoining silted area of the Robenhauserried. The site is thus not affected by these developments. Moreover, evidence has been found of illicit excavations taking place at this site, which potentially causes significant damage. However, the sites are not substantially threatened.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
CH-SG-01	Rapperswil-Jona / Hombrechtikon–Feldbach				×	C	Regular monitoring of the condition of the site (every 5 years); shipping and anchoring ban in place; ongoing erosion monitoring, from which a protection scheme will be developed.
CH-SG-02	Rapperswil-Jona–Technikum		×		×	C	Regular monitoring of the condition of the site (every 5 years); shipping and anchoring ban in place; covering planned.
CH-SZ-01	Freienbach–Hurden Rosshorn		×		×	B	Regular checks on the condition of the sites are carried out every six years; the data are saved annually.
CH-SZ-02	Freienbach–Hurden Seefeld		×		×	B	Regular monitoring of the condition of the site (every 6 years)
CH-ZH-01	Erlenbach–Winkel				×	B	Regular monitoring of the condition of the sites is carried out every six years; protection structures are planned to be installed around the walls of the pit of the diving platform.
CH-ZH-03	Horgen–Scheller				×	C	Regular monitoring of the condition of the site (every 4 years)
CH-ZH-05	Meilen–Feldmeilen Vorderfeld				×	B	Regular monitoring of the condition of the site (every 2 years); protection structures are planned to be installed around the walls of the pit of the diving platform.
CH-ZH-06	Meilen–Rorenhaab				×	B	Regular monitoring of the condition of the site (every 4 years); it is planned to cover exposed areas.
CH-ZH-07	Wädenswil–Vorder Au				×	B	Anchoring ban in place; regular monitoring of the condition of the site (every 3 years); the site has also been partially covered.
CH-ZH-09	Zürich–Enge Alpenquai				×	C	Regular monitoring of the condition of the site (every 2 years); the suspension of the berths is currently being discussed.
CH-ZH-10	Zürich–Grosse Stadt Kleiner Hafner				×	C	Large-scale coverings are planned to be put in place. Regular monitoring of the condition of the site is carried out every four years.
CH-ZH-11	Zürich–Riesbach Siedlungskammer Seefeld	×			×	A	Regular monitoring of the condition of the sites is carried out every 6 years, provided they are located in the lake.
CH-ZH-02	Greifensee–Storen-Wildsberg		×	×		B	Regular monitoring of the condition of the site (every 2 years).
CH-ZH-04	Maur–Schifflände				×	C	Regular monitoring of the condition of the sites is carried out. The profile is partially protected and some areas near the shore have been covered. Further covering is required and planned.
CH-ZH-08	Wetzikon–Robenhausen				×	B	Regular monitoring of the condition of the site (every 6 years).

Fig. 4.50 Overview of the main factors posing a threat to the sites in the Region of Lake Zurich.

Small lakes and bogs in northeastern Switzerland

The main pressures on the site of Thayngen-Weier (CH-SH-01) are the lowered groundwater level as well as the continuous introduction of oxygen by ploughing. In 1988 a survey programme was designed as a basis on which to evaluate suitable protection measures. As part of the programme, an extensive survey was carried out with a total of 207 bore holes spread over an area of approximat 14 ha in 1989.

The area of the Late Stone Age settlement is listed today as an archaeological zone with special protection orders: ploughing, driving heavy machinery and spreading manure are prohibited. The land is used as a green area and is to be declared an ecological compensation area in the future (renewal of the lease agreements).

In the meantime piezometers are installed to measure the groundwater table. Future negotiations are geared towards turning the area back into bog land that will no longer be used for agriculture. The long-term plans are to permanently protect the entire area as a nature reserve with a lake.

The lowering of the groundwater tables in the bog settlements in canton Thurgau has been stopped successfully and renaturation has even resulted in the desired wetland restoration. Therefore agriculture no longer poses any great threat in the chosen settlements. Illicit excavations are a minor problem thanks to sufficient local surveillance. Therefore, neither the archaeological layers of Gachnang-Niederwil–Egelsee (CH-TG-04) nor those of Hüttwilen–Nussbaumersee (CH-TG-05) are threatened.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
CH-SH-01	Thayngen–Weier	×				B	Piezometers installed to measure groundwater table. Renewal of lease agreements planned.
CH-TG-04	Gachnang-Niederwil–Egelsee	×			×	A	Successful renaturation and wetland restoration of the site; local surveillance programme in place.
CH-TG-05	Hüttwilen–Nussbaumersee	×			×	A	Successful renaturation and wetland restoration of the site; local surveillance programme in place.

Fig. 4.51 Overview of the main factors posing a threat to the sites on the small lakes and bogs of northeastern Switzerland.

Lake Constance (Swiss shoreline)

Besides natural erosion caused by wave action, the main problems are increased shipping traffic, buoy fields, shoreline constructions and the planned extensions of port facilities. Numerous archaeological layers are still intact and well covered. Therefore, the archaeological layers of Eschenz–Insel Werd (CH-TG-03) are not threatened. Large-scale covering and development will protect the remaining parts of the site Arbon–Bleiche 2-3 (CH-TG-01) for a long time to come. Large-scale covering is also protecting parts of the site of Ermatingen–West (CH-TG-02, ↘ Fig. 4.29). On the other hand, the higher archaeological layers in Mammern–Langhorn (CH-TG-06) are partially threatened by natural erosion. A monitoring programme which includes the sites Ermatingen–West (CH-TG-02) and Mammern–Langhorn (CH-TG-06) (INTERREG IV), ↘ Chapter 6.a should help to better evaluate the situation.

↘ p. 323

Fig. 4.29. In 1998/99 geotextile with reinforcement lattice was installed and covered with a layer of gravel in Ermatingen–West (CH-TG-02).

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
CH-TG-01	Arbon–Bleiche 2-3	x				A	Covering in place.
CH-TG-02	Ermatingen–West	x			x	A	Partial covering in place; monitoring as part of Interreg IV.
CH-TG-03	Eschenz–Insel Werd	x	x		x	A	Not necessary, natural cover existing.
CH-TG-06	Mammern–Langhorn	x	x		x	A	Monitoring as part of Interreg IV; covering planned.

Fig. 4.52 Overview of the main factors posing a threat to the sites on Lake Constance (Swiss shoreline).

Austria

Lake Keutschach

The site Keutschacher See (AT-KT-01) is in an insular situation in the middle of the lake. Thus, there is no erosion due to shore development, and there is no pressure from development plans. In spite of this, there are small-scale interferences, which cannot be clearly classified in the current state of examinations. Possibly, winter storms might play a role here. Because of the terrain which slopes steeply in places, breaking off of layers were noted in the past. An evaluation of the situation in 2010 will show whether new slides are to be expected, and an implementation of suitable countermeasures like protective fencing will be necessary.

Amongst others, large fish like perch introduced in the 1920s cause uncovering of individual spots by stopping in one place and denuding the covering layers by flapping their fins. Especially vulnerable spots have already been covered with geotextiles. As there are research and control dives every year at Lake Keutschach, we can react quickly to erosion developments. In addition, a new monitoring concept is being developed, and additional covering with geotextiles will be undertaken ↘ cf. Volume III, Management plan.

The southern shore is mainly undevelopped, and across the whole lake, diving and motor boating are prohibited. Only the life-guard has special permits for training dives outside the pile dwelling, and owns one motorised emergency boat. The area of the pile dwelling of Lake Keutschach is also a restricted zone for swimming and fishing. These restricted zones have been marked with buoys. Because of the smallness of the lake and the good visibility of the find spot in the lake centre, surveillance of the prohibition zones is easily possible. Strong involvement of the local population into the research on the pile dwelling and close cooperation with the life-guard service ensure high sensibility to the subject and good surveillance.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
AT-KT-01	Keutschacher See		×	×		B	Covering in place, restricted zones and local surveillance; planned monitoring and evaluation of potential dangers.

Fig. 4.53 Overview of the main factors posing a threat to the sites on Lake Keutschach.

Salzkammergut

The nominated pile dwellings on *Lake Attersee* (AT-OÖ-01–AT-OÖ-06) benefit from the natural protection of the still existing reed zones (e.g. Litzlberg, Kammerl, Dickau bay). But many of the associated sites are threatened by erosion. For these find spots, a protection and research plan as well as a monitoring programme will be developed parallel to the management of the nominated UNESCO World Heritage sites ↘ cf. Volume III, Management plan.

On nice summer days, the surface of Lake Attersee is dotted with numerous sailing boats, wind surfers, rowing boats and motor boats. The influence from excursion shipping was counteracted earlier by moving the ship's landing stages outside the settlement areas of pile dwellings (e.g. associated site Attersee; however, none of the nominated pile dwelling stations lies in the immediate zones of shipping routes). Lake Attersee is a popular swimming lake, and in addition a well-known diving water. In order to avoid damage by sport diving, there are extensive no-dive zones. Beside the fact that no-dive zones are opposed to the demands of sport divers, the national diving association of Austria (TSVÖ) and the Working Group Diving (ARGE Tauchen), a group representing the interests of divers, are supporting the underwater monument protection and are important counterparts in the sensible reglementation of diving in the Austrian lakes.

The greatest risk of interference is created by the anchoring of buoy chains for private boating. Therefore new regulations for fastening buoys in archeological zones are being prepared, which will be integrated into the regional buoy regulations. For existing boat houses and footbridges, regulations for maintenance and securing around the localisation of piles are being developed and implemented.

The pile-dwelling station at Lake Mondsee (AT-OÖ-07) lies in the immediate vicinity to the lake's outflow, the Seeache, and a weir built in the 1970s. This already caused first localized erosion within the undertow zone of the outflow. In order to avoid further damages to the lakeward limits of the pile-dwelling site, a package of measures (e.g. protective fencing and covering with geotextiles) is being developed and will be implemented from 2010 onwards, including the two associated pile-dwelling stations Mondsee–Scharfling and Mondsee-Mooswinkel ↘ cf. Volume III, Management plan.

During the examinations of the Bundesdenkmalamt in 1983–1986, stone material was shifted and a test trench was installed in the central settlement area of the Site Mondsee–See. These interferences with the lake floor in the area of the pile dwelling will also be rectified by securing measures, and the disturbances to the find spot will be secured in a sustainable way.

Lake Mondsee, as Lake Attersee, is strongly used touristically. But tourism is mainly limited to small non-motorised boats and swimmers. There is an all-year motor boat prohibition for boats with combustion engines. Because of its unfavourable visibility conditions, Lake Mondsee is only suitable for diving tourism in a few places.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
AT-OÖ-01	Abtsdorf 1				×	A	Buoy management; restricted zones; local surveillance programme in preparation.
AT-OÖ-02	Abtsdorf 2				×	A	Buoy management; restricted zones; local surveillance programme in preparation.
AT-OÖ-03	Abtsdorf 3				×	A	Buoy management; restricted zones; local surveillance programme in preparation.
AT-OÖ-04	Aufham				×	A	Buoy management; restricted zones; local surveillance programme in preparation.
AT-OÖ-05	Litzlberg Süd				×	A	Buoy management; restricted zones; local surveillance programme in preparation.
AT-OÖ-06	Nussdorf	×			×	A	Buoy management; conflict management; restricted zones; local surveillance programme in preparation.
AT-OÖ-07	Mondsee–See		×			B	Covering and protective fence planned; monitoring and local surveillance programme in preparation.

Fig. 4.54 Overview of the main factors posing a threat to the sites in the Salzkammergut.

France

French Jura lakes

Unlike the majority of the large lakes of the Alpine range, the two French Jura lakes are located in an environment which has been little changed by intensive farming; today they seem to be beyond the reach of urbanisation and tourist development.

While the west bank of Lake Chalain (FR-39-02) was the subject of a global protection project ↘ text box, recent archaeological research has shown that the site Clairvaux Grand-Lac (FR-39-01) is still under threat of destruction from the development of tourism and the lack of monitoring of alterations and improvements along its shore (use of fill to reclaim land from the lake, construction of campsites, extension of the municipal beach, installation of a harbour for fishing and dredging, building within the protective perimeters of classified sites, draining of the peat bog between the two lakes and laying of an underground electricity line under the low marshes, etc.).

An archaeological assessment has been carried out in order to compensate this lack of coordination among the various partners and the genuine threats to the littoral sites; it furnishes a basis to face the problems encountered in the management of the archaeological and landscape sites. It should in addition provide an answer to the questions of the demarcation of the main archaeological zoning areas that need legal protection; it will also, depending on the sedimentary and archaeological substratum, contribute to the negotiations on defining how to maintain the landscapes and cultural practices which will be authentified by means of regular field monitoring.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
FR-39-01	Le Grand Lac de Clairvaux	×	×		×	B	Reinforcement of legal protection measures to be provided; measures to protect the banks using geotextiles and natural revitalisation of the sector to be envisaged in the medium term.
FR-39-02	Lac de Chalain, rive occidentale	×			×	A	Reinforcement of existing legal protection measures; continuation of land purchase in the short term; development of the planned archaeological zone.

Fig. 4.55 Overview of the main factors posing a threat to the sites of the French Jura lakes.

Savoyan lakes

The most common characteristic feature of the shoreline morphology of the sub-Alpine lakes is a shelf submerged in shallow water where the archaeological remains are situated, generally not far below the surface. While natural phenomena like the evolution of a shore (progradation) or the fluctuations in levels that cause collapsing, predominate, they are to a large extent disrupted by anthropic causes. Lakefront improvements and harbour work modify current dynamics on the lake shores and intensify the action of erosion. Boating activities (unregulated mooring and illicit diving in particular) also contribute to destabilising the superficial levels of the lake-bed.

Big waves caused by the prevailing winds provide a simple explanation of the generalised disappearance of the organic layers on the south bank of Lake Geneva. Locally, however, the microtopography appears to play a decisive role, as in the case of Chens-sur-Léman where contemporary Late Bronze Age villages are strung along the 5 km shore of the town; but only the village at Tougues has been preserved (FR-74-03). The winds can also be strong on Lake Annecy.

In Lake Aiguebelette, which consists of a small basin where there are no storms, the deterioration on the sites may be caused by the artificial lowering of the lake to meet the energy needs of the industries established on the outflow. In Lake Le Bourget, several of the deposits appear less disturbed (FR-73-03, FR-73-04, FR-73-06, FR-73-07). Preventive measures, in particular the legal protection of the pile-dwelling heritage (FR-74-02, FR-74-03) are being tried in order to stop the processes of destruction.

As part of the protection of the environment, staking has been carried out in the Savoyan lakes to ensure the physical protection of the reed beds in sectors subjected to stress from boats and driftwood. In Lake Le Bourget the reed beds have shrunk 75% in some fifty years, essentially because of the lack of a tidal range. In Lake Annecy, reed bed coverage has dropped from 180 ha at the start of the 20th century to less than 15 ha today. Given the distribution of the remaining reed beds, the topographical context has allowed the deposits to be grouped behind these 'palisades', as is the case at Saint-Jorioz–Les Marais (FR-74-04) where the remains of the prehistoric habitat have been partially isolated from boating activities. This has not, however, reduced the effects of the swell. Although these examples of the incorporation of remains in natural protected sectors are fortuitous, they reveal the ineffectiveness of these early measures and will guide our choices in setting up other mesures of protection in the future.

Particular attention will be given in this regard to the impact of the work of

the Conservatoire du patrimoine naturel de la Savoie (Agency for the protection of the natural heritage of Savoie) on the East bank of Lake Le Bourget where gabions have been sunk in the lake parallel to the bank to serve as a breakwater. Barriers of stakes and wattling have been built behind them in order to create areas of calm which will allow the reeds to grow up again. This type of revegetation fronted by fascines is extremely interesting: The bottom sectors of the banks are rehabilitated using a medium resembling a natural environment. The new bank profile of these remodelled shorelines will slow erosion and consequently reduce its impact on pile-dwelling remains just below the surface. The retreat of the shoreline at the edge of the lake should also be stabilised and the effect of the undertow considerably weakened by the revegetation.

Following the drawing up of the inventories and assessments which revealed the archaeological potential of the Savoyan lakes, future action will be directed at reinforcing legal and physical means of protection (boating regulations, consolidation of the banks and stabilisation of the lake bed by means of capping). Regular on-the-spot monitoring will be programmed in order to ensure this follow-up and full compliance with it.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
FR-73-01	Lac d'Aiguebelette, zone sud		×		×	B	Reinforcement of legal protection measures; provision of a 'no anchor' zone.
FR-73-02	Lac d'Aiguebelette, zone nord		×		×	C	Reinforcement of legal protection measures; provision of a 'no anchor' zone.
FR-73-03	Baie de Grésine	×	×		×	B	Reinforcement of legal protection measures; provision of a 'no anchor and no diving' zone.
FR-73-04	Baie de Châtillon	×	×	×	×	b	Reinforcement of legal protection measures; provision of a 'no anchor and no diving' zone.
FR-73-05	Baie de Conjux-Portout	×	×	×	×	C	Reinforcement of legal protection measures; provision of a 'no anchor and no diving' zone.
FR-73-06	Hautecombe		×	×	×	B	Reinforcement of legal protection measures; provision of a 'no anchor and no diving' zone.
FR-73-07	Littoral de Tresserve	×	×	×	×	B	Reinforcement of legal protection measures; provision of a 'no anchor and no diving' zone.
FR-74-01	Lac d'Annecy, zone nord-ouest	×	×	×	×	c	Reinforcement of legal protection measures; provision of a 'no anchor' zone; temporary buoying during seasonal work.
FR-74-02	Lac d'Annecy, zone nord-est	×	×	×	×	B	Temporary buoying during seasonal work; planned 'no anchor' zone.
FR-74-03	Littoral de Chens-sur-Léman	×	×	×	×	B	Estimated erosion and current measures for the physical protection of the site with geotextiles; planned 'no anchor' zone.
FR-74-04	Les Marais de Saint-Jorioz	×	×	×	×	B	Submerged site partially covered by a protected reed bed; reinforcement of legal protection measures; provision of a 'no anchor' zone; natural revitalisation of the sector and measures envisaged to protect the banks.
FR-74-05	Le Crêt de Chatillon		×	×	×	C	Reinforcement of legal protection measures; provision of a 'no anchor' zone.
FR-74-06	Secteur des Mongetsx	×	×	×	×	B	Reinforcement of legal protection measures; provision of a 'no anchor' zone.

Fig. 4.56 Overview of the main factors posing a threat to the sites of the Savoyan lakes.

Germany

Lake Constance (German shoreline)

Depending on the melt water from the Alps, the water level fluctuates during the year by about 1.60 m. Differences of 4 m have been measured in the historical period. The pile-dwelling sites are subject to yearly water level variation and the erosion it causes. Already in the 19th century the shoreline constructions had a negative influence on the flat water zone. Shipping, wash and changes in current led to erosion in the flat

water zone and on the shoreline. The decline of the reed zone (reed dying) in the 1960s accelerated the erosion.

The influence of erosion is especially critical on the exposed shorelines of the Überlingersee and the upper part of the lake. During storms the waves wash against a vulnerable contact surface.

In many cases, harbour dredging has caused substantial damage to the archaeological substance of the sites. Harbours enjoy continuance rights. However, the regular issuing of the necessary operating permits influences the conservation practices exercised around the harbours. Structural alterations to protect the archaeological areas in the vicinity can be stipulated. A specific example here is the retaining wall in the harbour entrance channel in Sipplingen, reducing erosion due to harbour traffic. Since 1986, the Baden-Württemberg State Cultural Heritage Department, in cooperation with the Waterways Authorities, has undertaken numerous erosion protection projects, some of which were associated with shoreline renaturation schemes. The first widespread erosion protection measures using gravel coverage and geotextile took place in Wangen bay in 1986. Further measures followed in Sipplingen (DE-BW-09), Bodman-Schachen / Löchle (DE-BW-08), Nussdorf, Hornstaad-Hörnle (DE-BW-03), Unteruhldingen (DE-BW-10) and Litzelstetten-Krähenhorn (DE-BW-07). Since 2008, work has continued on optimising erosion protection methods within the scope of an Interreg-IV-Project.

Lake Constance is popular with amateur divers. They are however hardly interested in the shallow water zone. Sitelooting has therefore so far played little or no role. Recreational use in the form of bathing areas, boating and campsites is present on many sections of the Lake Constance shoreline. Hemmenhofen im Leh (DE-BW-02) and Allensbach-Strandbad I (DE-BW-04) are traditional public swimming areas accelerating erosion by bathing activities. Regular monitoring and the construction of erosion-protection structures are necessary, like in the shoreline section of the Allensbach bathing area. The sites at Hornstaad-Hörnle (DE-BW-03), Wollmatingen-Langenrain (DE-BW-05), Litzelstetten-Krähenhorn (DE-BW-07) and Bodman-Schachen / Löchle (DE-BW-08) are within nature conservation areas and therefore not influenced by tourism.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
DE-BW-01	Wangen-Hinterhorn			×		A	Extensive erosion protection with geotextile and gravel covering implemented.
DE-BW-02	Hemmenhofen-im Leh		×		×	B	Monitoring with erosion markers is planned.
DE-BW-03	Hornstaad-Hörnle		×			A	Gravel covering of the threatened area implemented. Partial natural covering adequate.
DE-BW-04	Allensbach-Strandbad I		×		×	B	Large areas with adequate natural covering. Partial erosion protection implemented in shoreline area.
DE-BW-05	Wollmatingen-Langenrain		×			A	Monitoring with erosion markers is planned.
DE-BW-06	Konstanz-Hinterhausen I		×	×	×	B	Monitoring with erosion markers is planned.
DE-BW-07	Litzelstetten-Krähenhorn		×	×		C	Monitoring with erosion markers is planned for 2011.
DE-BW-08	Bodman-Schachen / Löchle		×	×		B	Erosion protection in threatened areas implemented; monitoring with erosion markers.
DE-BW-09	Sipplingen-Osthafen		×		×	B	Partial erosion protection implemented; Monitoring with erosion markers; clearance of buoy field in 2009.
DE-BW-10	Unteruhldingen-Stollenwiesen		×	×	×	B	Partial erosion protection implemented; Monitoring with erosion markers is planned.

Fig. 4.57 Overview of the main factors posing a threat to the sites on Lake Constance (German shoreline).

Federsee and Upper Swabia

Around the Federsee, agricultural use and the associated land drainage have had a strongly negative influence on the conservation of the wetland sites. In cooperation with nature conservation agencies and local authorities, projects have been carried out since 1985 to restore the wetlands. In the course of these schemes, new nature conservation areas are designated and land is bought or exchanged to bring priorised archaeological areas into the possession of the State. These stretches of land can be rewetted. The Federsee Nature Conservation Centre (Naturschutzzentrum Federsee) administers the reserves according to a management plan agreed upon with the Cultural Heritage Department.

In the area around the small lakes of Upper Swabia the water table is stable and the wetland sites are under no noteworthy threat. The drained wetlands at Reute-Schorrenried (DE-BW-20) and Olzreute-Enzisholz (DE-BW-16) are the only sites, where rewetting actions similar to those on the Federsee are planned but not yet implemented. The first land has still to be acquired. Hydrological analysis has already begun.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
DE-BW-11	Ödenahlen	×				A	Rewetting initiated in 2009; monitoring by water level measurement.
DE-BW-12	Achwiesen	×				A	Rewetting initiated in 2009; monitoring by water level measurement.
DE-BW-13	Grundwiesen	×				A	Rewetting initiated in 2009; monitoring by water level measurement.
DE-BW-14	Täschenwiesen	×				B	Rewetting planned.
DE-BW-15	Siedlung Forschner	×				B	Land acquisition implemented in 2009; rewetting planned in 2010 / 2011.
DE-BW-16	Olzreute-Enzisholz	×				A	Deforestation implemented in 2007; rewetting planned; land acquisition initiated in 2008.
DE-BW-17	Königseggsee					A	Protection measures unnecessary, natural terrain without water level variation, no agriculture.
DE-BW-18	Schreckensee					A	Protection measures unnecessary, natural terrain without water level variation, no agriculture; maintenance of the terrain through management.
DE-BW-19	Steeger See				×	A	Protection measures unnecessary; site permanently under water; monitoring by regular checks.
DE-BW-20	Reute-Schorrenried	×				B	Hydrological analysis carried out in 1999–2001; land acquisition and rewetting planned.

Fig. 4.58 Overview of the main factors posing a threat to the sites on Federsee and in Upper Swabia.

Swabian Jura

The settlement at Ehrenstein (DE-BW-21) is protected by a clay layer. The site lies on the edge of a local building development area but has been excluded from it. It is used as a local recreation area. In view of the thick protective layer, recreation activities pose no threat to the archaeological substance of the site.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
DE-BW-21	Ehrenstein				×	A	Protection measures unnecessary; enough cover present; water table stable.

Fig. 4.59 Overview of the main factors posing a threat to the sites in Swabian Jura.

Loosbach Valley

The sites at Pestenacker (DE-BY-01) and Unfriedshausen (DE-BY-02) in the Loosbach Valley are primarily endangered by dehydration and drainage. Measurements of the water level around the settlement area in Pestenacker shall help to improve control of the fluctuating groundwater table of the wetlands. Both the straightening of the Loosbach brook's course as well as the construction of the NATO pipeline had negative effects on the local water level, causing it to sink. The man-made embankments along the shores of the Loosbach are densely covered with trees and shrubbery in some places. This results in massive root penetration of the soil – which, in turn, loses even more water. A possible result is further dehydration or leeching of the earth. Erosion and avulsion, on the other hand, are hindered by root growth. Other potential dangers are the preliminary plans to erect a holiday-home development scheme, the unavoidable modernisation of country road St. 2052, the renewal of a small bridge crossing the Loosbach – all this at the edge of the buffer zone of the site at Pestenacker – and also the intensive agricultural cultivation of the floodplain. However, all building activities are of course restricted by the Bavarian Monument Protection Law (BayDSchG) as stated in ↘ Chapter 5.b. Furthermore, dialogues with local corn farmers are intended to encourage less erosive crop growing. As an element of a meadow-breeder programme, parts of the site in Unfriedshausen have been included in a bird sanctuary of the Bavarian Society for the Protection of Birds (Landesbund für Vogelschutz e.V.). This area is thus protected from agricultural cultivation ↘ Chapter 2.b.3.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
DE-BY-01	Weil–Pestenacker	×				B	Water-level monitoring
DE-BY-02	Geltendorf–Unfriedshausen	×				B	Bird sanctuary

Fig. 4.60 Overview of the main factors posing a threat to the sites Pestenacker (DE-BY-01) and Unfriedshausen (DE-BY-02) in the Loosbach Valley, Bavaria.

Lake Starnberg

The archaeological features at Rose Island (DE-BY-01) are primarily endangered by erosion. Since the 1970s, the continuous dying-out of the reeds have left many areas along the shores of Lake Starnberg exposed and vulnerable to the onslaught of the waves. Many routes of the Bavarian Boating Company lie within sight of Rose Island. The passenger-ferries on the lake also intensify the waves. The exposed eastern shore of the island has suffered the most from these factors.

Every year from spring to autumn, Rose Island attracts up to 4,000 tourists per month who want to visit the former summer refuge of the royal House of Wittelsbach. Furthermore, in the summer months numerous privately-owned sail- and motorboats anchor uncontrolled in the shallow-water areas of the island's northern and eastern shores – areas that contain relevant archaeological features. Landscaping, gardening, and avulsion on the island repeatedly uncover finds which are then collected by visitors.

The Bavarian Society for the Protection of Birds (Landesbund für Vogelschutz e.V.) ministers a bird sanctuary which incorporates the island and its shore zones as well as the water zones between the western shore and the beach across the lake in Feldafing ↘ Chapter 5.b. Buoys block entrance to these areas. In the spring of 2008, a small trial trench in the shallow waters in front of the northeastern tip of Rose Island was covered with geotextiles and gravel after excavation. The effect of this action is being studied currently.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
DE-BY-03	Rose Island		×	×	×	B	Bird sanctuary, small covering in place and being studied.

Fig. 4.61 Overview of the main factors posing a threat to the site Rose Island (DE-BY-03) on Lake Starnberg, Bavaria.

Italy

Small lakes or bogs of Piedmont

Although there is a good level of protection (for example, the Viverone Lake is protected under strict environmental laws), one of the most serious risks for the pile-dwelling sites of Piedmont is the huge water withdrawal for irrigation purposes in the rice fields in the plains. Besides, in the case of the Viverone Lake, some serious menace to the archaeological remains are motor vehicle navigation in the lake and water pollution; on the other hand, illegal archaeological underwater research is now very limited. For the Viverone Lake, however, a feasibility study has been drafted in order to create an archaeological protection system for the lake.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
IT-PM-01	VI.1-Emissario					A	Strong legal protection measures of in force; regular monitoring of the condition of the site.

Fig. 4.62 Overview of the main factors posing a threat to sites on the small lakes or bogs of Piedmont.

Region of Lakes Maggiore and Varese

In this region there is a good level of protection for the site Mercurago, in Piedmont, which belongs to a thematic regional park; the only risk is the progressive drying up of the peat bog.

On the Varese Lake and the Monate Lake, in Lombardy, motor vehicle navigation is forbidden and water pollution is scarce, due to a recent manifold (Lake Varese) or to natural conformation (Lake Monate).

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
IT-LM-09	Isolino Virginia / Camilla / Isola di San Biagio		×		×	A	Strong legal protection measures in force; regular monitoring of the condition of the site.
IT-LM-10	Bodio centrale o delle Monete		×		×	A	Reinforcement of legal protection measures; regular monitoring of the condition of the site.
IT-LM-11	Lagozza	×				A	Strong legal protection measures in force; regular monitoring of the condition of the site.
IT-LM-12	Il Sabbione o settentrionale		×		×	A	Strong legal protection measures in force; regular monitoring of the condition of the site.
IT-PM-02	Mercurago		×		×	A	Strong legal protection measures in force; regular monitoring of the condition of the site.

Fig. 4.63 Overview of the main factors posing a threat to the sites in the region of Lakes Maggiore and Varese.

Small lakes, bogs and rivers of eastern Lombardy

The river pile dwelling of Lagazzi di Vho (Piadena, CR) falls within the southern sector of an area enjoying special protection as a Natural Monument, entitled 'I Lagazzi' of Piadena. The monument coincides with a well preserved sector of an ancient river bed, through which a modern drain ditch named Lagazzo flows. The majority of

surrounding agricultural land is constituted by grassy fields, while a small wood of hydrophilic vegetation grows in the central part of the northern stretch of the ancient river bed. Close to the southern bank of the Lake Iseo lies the area known as 'Riserva Naturale Regionale Orientata delle Torbiere di Sebino' which safeguards the area's ecosystem, as well as constituting a highly interesting environmental area, on account of the many bird species which live in the reedy areas and in the so-called 'cariceti', namely, alkaline bog characterised by sedge vegetation.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
IT-LM-06	Lagazzi del Vho	×				A	Reinforcement of legal protection measures; regular monitoring of the condition of the site.

Fig. 4.64 Overview of the main factors posing a threat to the sites on small lakes, bogs and rivers of eastern Lombardy.

Region of Lake Garda

Several concomitant factors pose threats to the pile-dwelling villages of this large region: These are mainly due to human action on one hand, and to natural events on the other. In the first case, the major risks are illegal underwater archaeological researches, agricultural practices in nearby peat bog zone territories and building activity, which is continuing at a strong pace, also along the lake shores. As for natural events, the most serious threat are the water-level fluctuations in the lakes, the progressive drying up of the peat bog zones and the erosion processes of the deposits.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
IT-LM-01	Lavagnone	×				A	Strong legal protection measures in force; regular monitoring of the condition of the site.
IT-LM-02	San Sivino, Gabbiano		×		×	B	Reinforcement of legal protection measures; 'No anchor' zone; reinforcement of site monitoring.
IT-LM-03	West Garda, La Fabbrica		×		×	B	Reinforcement of legal protection measures; 'No anchor' zone; reinforcement of site monitoring.
IT-LM-04	Lugana Vecchia		×		×	B	Reinforcement of legal protection measures; 'No anchor' zone; reinforcement of site monitoring.
IT-LM-05	Lucone	×				A	Reinforcement of legal protection measures in progress; regular monitoring of the condition of the site.
IT-LM-07	Bande - Corte Carpani	×				A	Reinforcement of legal protection measures; regular monitoring of the condition of the site.
IT-LM-08	Castellaro Lagusello - Fondo Tacoli	×				B	Reinforcement of legal protection measures; reinforcement of site monitoring.
IT-LM-13	La Maraschina-Tafella		×		×	B	Reinforcement of legal protection measures; 'No anchor' zone; reinforcement of site monitoring.
IT-VN-01	Bor di Pacengo		×		×	A	Extention of the strong legal measures of protection in force; 'No anchor' zone; regular monitoring of the condition of the site.
IT-VN-02	La Quercia		×		×	A	Reinforcement of legal protection measures; 'No anchor' zone; regular monitoring of the condition of the site.
IT-VN-03	Dossetto	×				A	Reinforcement of legal protection measures; 'No anchor' zone; regular monitoring of the condition of the site.
IT-VN-04	Belvedere		×		×	A	Reinforcement of legal protection measures; 'No anchor' zone; regular monitoring of the condition of the site.
IT-VN-05	Frassino		×			A	Reinforcement of legal protection measures; 'No anchor' zone; regular monitoring of the condition of the site.
IT-VN-06	Tombola		×			A	Reinforcement of legal protection measures; regular monitoring of the condition of the site.

Fig. 4.65 Overview of the main factors posing a threat to the sites in the Region of Lake Garda.

Small lakes or bogs of Trentino

Molina di Ledro is threatened by road traffic and by those working activities involving earth moving and transport along the lake shores, which, however, are constantly monitored. These activities raise conservation problems and the need for a change of mind regarding the conditions and the extension of the buffer zone protected under the current law. Another major risk for the site is the constant lake-level variations due to water use of the Ponale power station at Riva del Garda.

The Fiavé area is also subject to environmental protection, but the spontaneous vegetation growing on the upper part of the wooden piles emerging from the water of the old Renato Perini's trenches is a serious threat, because it seriously spoils the archaeological remains. Anyhow, this menace is being monitored and risk assessment is under way.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
IT-TN-01	Molina di Ledro	×				B	Extention of the strong legal protection measures in force; reinforcement of site monitoring.
IT-TN-02	Fiavé-Lago Carera		×			A	Strong legal protection measures in force; regular monitoring of the condition of the site.

Fig. 4.66 Overview of the main factors posing a threat to the sites on small lakes or bogs of Trentino.

Small lakes or bogs of Berici and Euganei Hills

Among factors that pose threat to the pile-dwelling villages in this area, there are agricultural practices and building activity. As for natural events, the most serious threat is the water-level fluctuations in the lakes, the progressive drying up of the peat bog zones and the erosion processes of the deposits.

The archaeological sites are protected under existing law (law D.Lgs 42/2004) of the Ministry for Cultural Heritage and Activities through the peripheral office for the archaeological heritage (Soprintendenza for archaeological heritage of Veneto). Both the territories of Berici and Euganei Hills are included in environmental protection parks.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
IT-VN-07	Laghetto della Costa		×			A	Reinforcement of legal protection measures; regular monitoring of the condition of the site.

Fig. 4.67 Overview of the main factors posing a threat to the sites on the small lakes or bogs of Berici and Euganei Hills.

Small lakes and rivers of eastern Veneto and Friuli Venezia Giulia

The major threat for the Palù di Livenza area, which mostly falls within the juridiction of the Caneva municipality, is the gradual drying up of the peat bog. This phenomenon has already generated a partial change of the landscape, transforming the peat into bushes and tree-like vegetation. It is also producing an erosion of the drainage channel in the central area, despite some hydraulic works built by the regional Soprintendenza.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
IT-FV-01	Palù di Livenza – Santissima		×			B	Reinforcement of legal protection measures; reinforcement of site monitoring.

Fig. 4.68 Overview of the main factors posing a threat to the sites on the small lakes and rivers of eastern Veneto and Friuli Venezia Giulia.

Slovenia

The biggest threat to the remains of pile dwellings in the Ljubljansko barje comes from uncontrolled urbanization. Sites on the marginal sections of the marsh, where the tendency for new construction is the biggest, are especially threatened, whereas sites located in the open or central moors are relatively safe. In the margins of settlements, especially, waste material, such as construction material, is frequently dumped and quickly turned into groundwork for parking spaces or even for new construction.

To prevent uncontrolled urbanization some areas of Ljubljansko barje are protected with the strictest protective regime, which doesn't allow any interventions in those areas. The State's legislation also forces everyone who intervenes in the areas which are under a less strict protection regime to assure preliminary archaeological research, or else an inspection procedure and a fine follow. Sites are also being protected according to conservation directions in all planning development documents.

Furthermore, a specific problem tied to the Ljubljansko barje are also drainage works, which started as early as the 18th century. Therefore, maintaining the suitable level of groundwater is undoubtedly the most appropriate and long-term solution for protecting archaeological findings. To maintain the same level of groundwater various legal measures have been initiated: The land should be continuously used the same way and the intensively cultivated land should be replaced by meadows. In case the level of the groundwater lowers it is not allowed to dig any additional drainage ditches.

(i) Development pressures / **(ii)** Environmental pressures / **(iii)** Natural disasters / **(iv)** Visitor / tourism pressures / **T** Indicator 'Threat'

Component part	Name of the component part	(i)	(ii)	(iii)	(iv)	T	Protective measures
SI-IG-01	Kolišča na Igu, severna skupina	×	×			B	Regular monitoring of the condition of the sites
SI-IG-02	Kolišča na Igu, južna skupina	×	×			B	Regular monitoring of the condition of the sites

Fig. 4.69 Overview of the main factors posing a threat to the sites near Ig.

↖ **p. 293 Fig. 4.27** Wetland restoration measures are implemented to prevent sites from drying out, which is one of the greatest dangers to bog settlements (example of Lake Federsee, Baden-Württemberg).

↖ **p. 295 Fig. 4.28** The Archaeological Service of canton Berne (Switzerland) has developed a special floating device for covering the well-preserved settlement layers with geotextile and gravel.

↖ **p. 296 Fig. 4.29** In 1998/99 geotextile with reinforcement lattice was installed and covered with a layer of gravel in Ermatingen–West (CH-TG-02).

↖ **p. 296 Fig. 4.30** A diver spreads the gravel over the cultural layer at Bodman-Schachen (DE-BW-08).

↖ **p. 296 Fig. 4.31** Monitoring of the condition of the sites is carried out every three years at Wädenswil–Vorder Au (CH-ZH-07). Besides a partial covering of the site, an anchoring ban is also in place to prevent anchor chains from tearing holes in the archaeological layers.

↖ **p. 296 Fig. 4.32** Protection measures (gravel in geotextile bags) were put in place in the submerged areas of the site Vernay–En Chéseau (CH-FR-08) in 1992.

↖ **p. 296 Fig. 4.33** In order to prevent the disappearance of the reed belts, authorities in charge of nature conservation often install wooden fences. These also protect archaeological sites from erosion (Lake Zug, Switzerland)

↖ **p. 296 Fig. 4.34** In addition to the historical monument classification of the sites on Lake Chalain (FR-39-02), the physical protection of the shores which has been implemented has resulted in the reconstitution of the plant coverage around the lake.

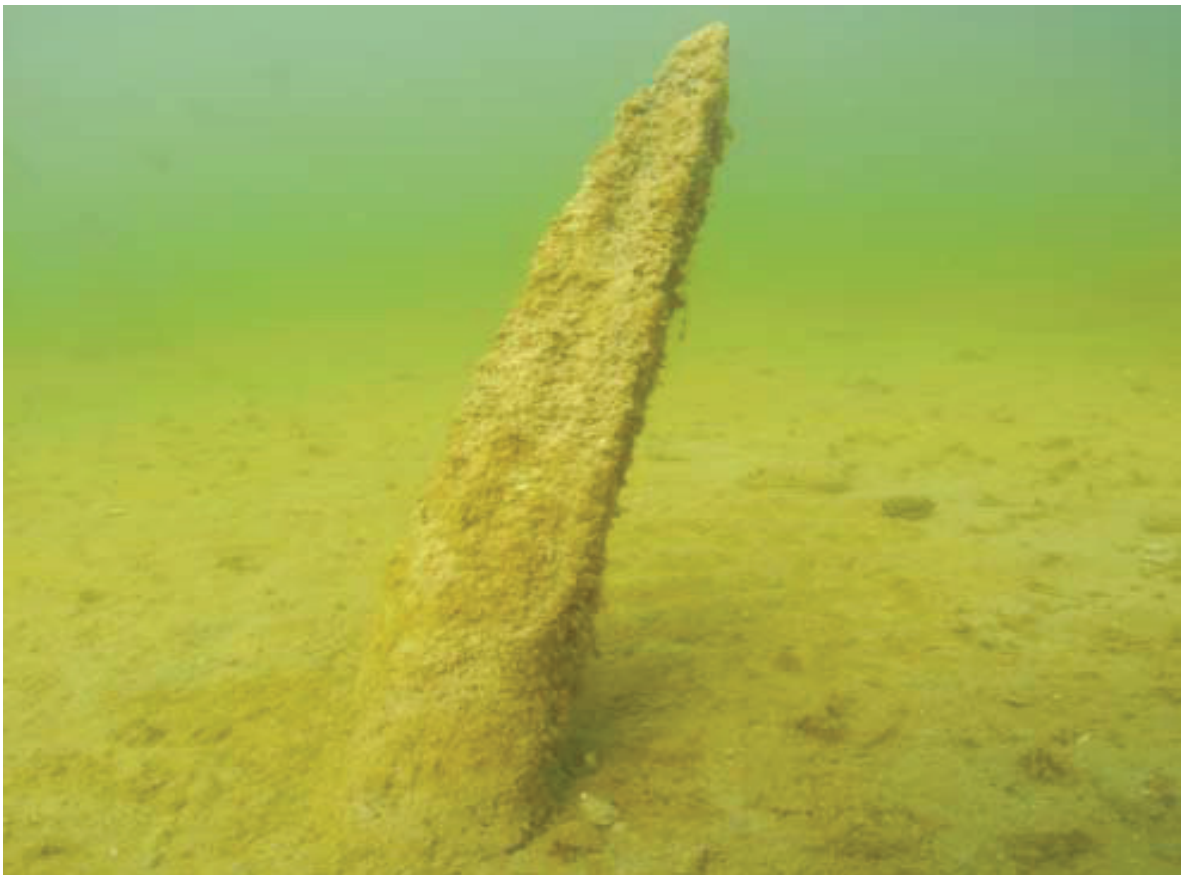
↖ **p. 296 Fig. 4.35** Divers can cause damage to sites by dislodging posts or recovering objects from the lakebed. For this reason, a preventive ban on scuba diving was issued in 2009 in Sutz-Lattrigen (Lake Bienne).

↖ **p. 302 Fig. 4.43** The extent of the threat can vary considerably within the site: if a site consists of several overlying cultural strata, it is usually the top-most layer that is directly affected by erosion, while the lower layers are well protected (example of Zug–Riedmatt, CH-ZG-05).

↖ **p. 296 Fig. 4.36** The best protection measure is to inform and educate the public, for example at 'open excavation days' (Freienbach–Hurden Rosshorn, CH-SZ-01).

5. Protection and Management of the Property

Volume I



5.a Ownership

Switzerland

Many of the wetland sites are located in lakes, rivers and bogs. Bodies of water in public ownership as well as areas that are unsuitable for farming and are not privately owned, fall under the legislation of the State (canton) in which they are located (Swiss Civil Code RS 210, art. 664). Sites situated in public bodies of water (lakes and rive beds) are thus always viewed as State- (or canton-) owned property. Pile-dwelling sites on lakeshores and riverbanks and in boggy areas can be in public or private ownership. ↘ Fig. 5.1 gives an overview of the ownership of the sites. It is important to note that finds recovered from archaeological sites in private or public ownership always belong to the State and are inalienable (SCC RS 210, art. 724).

The federal, cantonal and municipal governments and authorities have the right to restrict private land ownership if it serves the public interest, notably as regards measures for the conservation of antiquities or the protection of sites (SCC RS 210, art. 702). All cantonal legislation contains legal instruments limiting the authority of private owners for reasons of heritage protection (expropriation, limiting exploitation etc.).

Component part	Canton	Municipality	Place name	Country	Canton	Municipality	Private	Other
CH-AG-01	Aargau	Beinwil am See	Ägelmoos		×		×	
CH-AG-02	Aargau	Seengen	Riesi		×	×		
CH-BE-01	Berne	Biel	Vingelz-Hafen			×		
CH-BE-02	Berne	Lüscherz	Dorfstation		×		×	
CH-BE-03	Berne	Moosseedorf	Moosee Ost		×	×		
CH-BE-04	Berne	Mörigen	Bronzestation		×			
CH-BE-05	Berne	Seedorf	Lobsigensee			×		
CH-BE-06	Berne	Sutz-Lattrigen	Rütte		×			×
CH-BE-07	Berne	Twann	Bahnhof	×	×	×	×	×
CH-BE-08	Berne	Vinelz	Strandboden		×		×	
CH-FR-01	Fribourg	Delley-Portalban	Portalban II		×	×	×	
CH-FR-02	Fribourg	Gletterens	Les Grèves		×	×		
CH-FR-03	Fribourg	Greng	Spitz				×	
CH-FR-04	Fribourg	Haut-Vully	Môtier I		×		×	
CH-FR-05	Fribourg	Murten	Segelboothafen		×	×	×	
CH-FR-06	Fribourg	Muntelier	Baie de Muntelier		×		×	
CH-FR-07	Fribourg	Noréaz	En Praz des Gueux				×	
CH-FR-08	Fribourg	Vernay	En Chéseau	×	×			×
CH-GE-01	Geneva	Collonge-Bellerive	Bellerive I		×			
CH-GE-02	Geneva	Corsier	Port		×			
CH-GE-03	Geneva	Versoix	Bourg		×			
CH-LU-01	Lucerne	Egolzwil	Egolzwil 3				×	
CH-LU-02	Lucerne	Egolzwil	Egolzwil 4				×	
CH-LU-03	Lucerne	Hitzkirch	Seematte				×	
CH-LU-04	Lucerne	Schenkon	Trichtermoos / Altstadt		×		×	
CH-LU-05	Lucerne	Sempach	Uferpromenade		×	×		
CH-LU-06	Lucerne	Sursee	Halbinsel		×	×		
CH-NW-01	Nidwalden	Stansstad	Kehrsiten		×			
CH-NE-01	Neuchâtel	Saint-Aubin-Sauges	Port Conty		×	×	×	
CH-NE-02	Neuchâtel	Gorgier	Les Argiliez		×	×		
CH-NE-03	Neuchâtel	Bevaix	Treytel		×	×	×	
CH-NE-04	Neuchâtel	Bevaix	L'Abbaye 2		×	×		

↓

↓

Component part	Canton	Municipality	Place name	Country	Canton	Municipality	Private	Other
CH-NE-05	Neuchâtel	Cortaillod	Petit Cortaillod		×	×		
CH-NE-06	Neuchâtel	Auvernier	La Saunerie		×	×		
CH-NE-07	Neuchâtel	Auvernier	Les Graviers		×	×		
CH-NE-08	Neuchâtel	La Tène (Marin-Epagnier)	Les Piécettes		×	×		
CH-SO-01	Solothurn	Aeschi SO	Burgäschi Ost				×	
CH-SO-02	Solothurn	Bolken / Inkwil	Inkilersee Insel			×		
CH-SG-01	St. Gall	Rapperswil-Jona / Hombrechtikon	Feldbach		×			
CH-SG-02	St. Gall	Rapperswil-Jona	Technikum		×			
CH-SH-01	Schaffhausen	Thayngen	Weier			×		
CH-SZ-01	Schwyz	Freienbach	Hurden Rosshorn		×			
CH-SZ-02	Schwyz	Freienbach	Hurden Seefeld		×			
CH-TG-01	Thurgau	Arbon	Bleiche 2–3			×	×	×
CH-TG-02	Thurgau	Ermatingen	West		×			
CH-TG-03	Thurgau	Eschenz	Insel Werd		×		×	
CH-TG-04	Thurgau	Gachnang-Niederwil	Egelsee				×	
CH-TG-05	Thurgau	Hüttwilen	Nussbaumersee				×	
CH-TG-06	Thurgau	Mammern	Langhorn		×			
CH-VD-01	Vaud	Bonvillars	Morbey		×	×		
CH-VD-02	Vaud	Chabrey	Ponte de Montbec I		×			
CH-VD-03	Vaud	Chevroux	La Bessime		×			
CH-VD-04	Vaud	Chevroux	Village		×	×		
CH-VD-05	Vaud	Corcelles-près-Concise	Stations de Concise		×	×		
CH-VD-06	Vaud	Cudrefin	Champmartin		×			
CH-VD-07	Vaud	Cudrefin	Le Broillet I		×			
CH-VD-08	Vaud	Faoug	La Gare				×	
CH-VD-09	Vaud	Faoug	Poudrechat			×	×	
CH-VD-10	Vaud	Grandson	Corcelettes Les Violes		×			
CH-VD-11	Vaud	Morges	Les Roseaux		×			
CH-VD-12	Vaud	Morges	Stations de Morges		×			
CH-VD-13	Vaud	Mur	Chenevières de Guévaux I		×			
CH-VD-14	Vaud	Rolle	Ile de la Harpe		×	×		
CH-VD-15	Vaud	Yverdon-les-Bains	Baie de Clendy			×	×	
CH-VD-16	Vaud	Yvonand	Le Marais		×		×	
CH-ZG-01	Zug	Cham	St. Andreas, Strandbad			×	×	
CH-ZG-02	Zug	Hünenberg	Strandbad			×	×	×
CH-ZG-03	Zug	Risch	Oberrisch, Aabach				×	
CH-ZG-04	Zug	Zug	Oterswil / Insel Eielen		×			×
CH-ZG-05	Zug	Zug	Riedmatt				×	
CH-ZG-06	Zug	Zug	Sumpf					×
CH-ZH-01	Zurich	Erlenbach	Winkel		×	×	×	
CH-ZH-02	Zurich	Greifensee	Storen / Wildsberg		×		×	
CH-ZH-03	Zurich	Horgen	Scheller		×		×	
CH-ZH-04	Zurich	Maur	Schifflände		×	×	×	
CH-ZH-05	Zurich	Meilen	Feldmeilen Vorderfeld		×	×	×	
CH-ZH-06	Zurich	Meilen	Rorenhaab		×	×	×	
CH-ZH-07	Zurich	Wädenswil	Vorder Au		×	×		
CH-ZH-08	Zurich	Wetzikon	Robenhausen				×	
CH-ZH-09	Zurich	Zürich	Enge Alpenquai		×	×		
CH-ZH-10	Zurich	Zürich	Grosse Stadt Kleiner Hafner		×	×		
CH-ZH-11	Zurich	Zürich	Riesbach Siedlungskammer Seefeld		×	×	×	

Fig. 5.1 Overview of the ownership of the Swiss sites (Other: semi-public institutions such as cooperatives).

Austria

In Austria, the ownership of real estate on which pile dwellings are located is registered in the land register. This public register kept by the district courts is based on the cadastre, in which the cadastral municipalities and plots are defined. The cadastre is compiled by the Federal Office of Surveying and Mapping (Bundesamt für Eich- und Vermessungswesen), and administered and kept up to date by the land surveying offices of the provinces.

Throughout, the core zones of the nominated find spots are submerged completely. The lakes Mondsee and Keutschacher See are in private property, while Lake Attersee is the property of the Republic of Austria and is managed by the Austrian Federal Forests (Österreichische Bundesforste AG – www.bundesforste.at). Thus, the core zones of the settlements of Lake Mondsee and Lake Keutschach are on private property, while those of Lake Attersee are on territory owned by the Republic of Austria.

Accidental finds are subject to § 399 of the Austrian Civil Code Law (Allgemeines Bürgerliches Gesetzbuch ABGB), and are one half each the property of the finder and of the owner of the property. According § 8 of the Landmark Protection Law (Denkmalschutzgesetz DMSG), accidental finds have to be reported immediately or on the next working day to a competent authority. An intended search, i.e. systematic investigation for ground monuments is only permissible with authorisation by the Federal Historic Preservation Agency (Bundesdenkmalamt, § 11 DMSG). Unauthorised digging as well as omission of reporting a find result in the loss of the title to the moiety (§ 400 ABGB).

On demand by the Federal Historic Preservation Agency, finds have to be made available for scientific examination for a period of a maximum of two years.

Compo vnent part	Federal state	Municipality	Place name	Country	Federal state	Municipality	Private	Other
AT-KT-01	Carinthia	Keutschach	Keutschachersee				×	
AT-OÖ-01	Upper Austria	Attersee	Abtsdorf I	×				
AT-OÖ-02	Upper Austria	Attersee	Abtsdorf II	×				
AT-OÖ-03	Upper Austria	Attersee	Abtsdorf III	×				
AT-OÖ-04	Upper Austria	Attersee	Aufham	×				
AT-OÖ-05	Upper Austria	Seewalchen am Attersee	Litzlberg Süd	×				
AT-OÖ-06	Upper Austria	Nussdorf am Attersee	Nussdorf	×				
AT-OÖ-07	Upper Austria	Mondsee	See				×	

Fig. 5.2 Overview of the ownership of the Austrian sites.

France

Generally speaking, inland waters in France (lakes and rivers) belong to the public domain of the State, although there are a number of exceptions. One of the recent French acts on decentralisation opens the way to a development in lake ownership status, since it provides for the possibility of transferring part of the public domain of the State to territorial collectivities. At the present time, Lakes Annecy, Le Bourget and Geneva (French sector) come entirely within the State's public domain. Lake Aiguebelette is a special case and belongs to a private owner and to the public sector company Electricité de France (EDF); these two owners have delegated their rights to the Communauté de communes du Lac d'Aiguebelette (Community of municipalities of Lake Aiguebelette) ↘ Fig. 5.3.

Ownership rights over groups of pile dwellings in the French Jura lakes are more heterogeneous since these dwellings are found partly in the submerged zone and partly in the wetlands bordering the lakes. Since awareness of environmental and

heritage risks has emerged, areas of water and the land bordering them have progressively been moved into the public domain of the territorial collectivities.

Ownership of the Clairvaux lakes is shared between the municipality of Clairvaux-les-Lacs (Grand Lac) and the private domain (Petit Lac). Ownership of Lake Chalain is shared between the Department of the Jura and the Régie de Chalain (local government authority); Electricité de France has a development concession. In view of the ongoing adaptation of rights of ownership, the Communauté de communes du Pays des Lacs will in the near future own the archaeological zone of the west bank of Lake Chalain.

Component part	Departement	Municipality	Place name	Country	Depar-tement	Munici-pality	Private	Other
FR-39-01	Jura	Clairvaux-les-Lacs	Le Grand Lac de Clairvaux			×		
FR-39-02	Jura	Doucier / Fontenu / Marigny	Lac de Chalain, rive occidentale		×			×
FR-73-01	Savoie	Aiguebelette-le-Lac / Saint-Alban-Montbel	Lac d'Aiguebelette, zone sud				×	
FR-73-02	Savoie	Novalaise	Lac d'Aiguebelette, zone nord				×	
FR-73-03	Savoie	Brison-Saint-Innocent	Baie de Grésine	×				
FR-73-04	Savoie	Chindrieux	Baie de Châtillon	×				
FR-73-05	Savoie	Conjux	Baie de Conjux-Portout	×				
FR-73-06	Savoie	Saint-Pierre-de-Curtille	Hautecombe	×				
FR-73-07	Savoie	Tresserve	Littoral de Tresserve	×				
FR-74-01	Haute-Savoie	Annecy	Lac d'Annecy, zone nord-ouest	×				
FR-74-02	Haute-Savoie	Annecy-le-Vieux	Lac d'Annecy, zone nord-est	×				
FR-74-03	Haute-Savoie	Chens-sur-Léman	Littoral sur Chens-sur-Léman	×				
FR-74-04	Haute-Savoie	Saint-Jorioz	Les Marais de Saint-Jorrioz	×				
FR-74-05	Haute-Savoie	Sévrier	Le Crêt de Chatillon	×				
FR-74-06	Haute-Savoie	Sévrier / Saint-Jorrioz	Secteur des Mongets	×				

Fig. 5.3 Overview of the ownership of the French sites.

Germany

Baden-Württemberg

All 21 pile-dwelling sites suggested for the UNESCO list are protected monuments according to the Baden-Württemberg Cultural Heritage Protection Act (§ 2 bwDSchG) and are under the protection of the appropriate heritage management agency. The majority of the sites, including those lying far out under the water of Lake Constance, belong to the State of Baden-Württemberg. Ownership questions only arise along the shoreline. On and around the Federsee the State of Baden-Württemberg has since 1985 been able to buy and thus protect many areas, including the buffer zone.

The site at Königseggsee (DE-BW-17), in the district of Hosskirch, is the only wholly privately owned site. The Allensbach-Strandbad I site (DE-BW-04) is owned by the village of Allensbach. The sites at the Aulendorf-Steeger See (DE-BW-19) and Reute-Schorrenried (DE-BW-20) are partly under private ownership and partly under communal ownership. Most of the ground area occupied by the three sites Bodman-Schachen / Löchle (DE-BW-08), Achwiesen (DE-BW-12) and Forschner (DE-BW-15) respectively is in possession of the State of Baden-Württemberg, though there is some private ownership. The sites of Wangen–Hinterhorn (DE-BW-01), Litzelstetten–Krähenhorn (DE-BW-07) and Ehrenstein (DE-BW-21) lie in areas belonging to the State of Baden-Württemberg, local authorities and private persons. The ownership of the sites Hemmenhofen im Leh (DE-BW-02), Hornstaad-Hörnle (DE-BW-03) und Wollmatingen-Langenrain (DE-BW-05) is shared by the State of Baden-Württemberg and the village of Gaienhofen / city of Constance.

Under the Baden-Württemberg Cultural Heritage Protection Act § 12 the sites of Ehrenstein (DE-BW-21) and Unteruhldingen–Stollenwiesen (DE-BW-10) are listed monuments of exceptional importance. The Sipplingen–Osthafen site (DE-BW-09) is already a protected area (§ 22 bwDSchG). Applications for their designation as protected areas have been made for the sites of Wollmatingen–Langenrain (DE-BW-05) und Wangen–Hinterhorn (DE-BW-01). Further registrations according to § 21 or § 22 of the Baden-Württemberg Cultural Heritage Protection Act (bwDSchG) are intended.

Bavaria

Lake Starnberg is one of the 214 unincorporated areas (*Gemeindefreie Gebiete*) that can be listed in Bavaria at present and therefore not part of any municipality (Effective date: 1st January 2008). Unincorporated areas are uninhabited and owned by the Free State itself. Their administration lies with the local District Office (*Landratsamt*) of the correspondent administrative district. Rose Island (DE-BY-03) however is run as component locality 'Wörth' of the Feldafing community and does not belong to the unincorporated area of Lake Starnberg.

The Free State of Bavaria serves as proprietor, as it acquired the island in the year 1970 from the House of Wittelsbach, the former Bavarian Royal dynasty. The island as well as Lake Starnberg are both supervised by the outposted section Starnberg of the Bavarian Administration of State-owned Palaces, Gardens and Lakes (*Bayerische Verwaltung der staatlichen Schlösser, Gärten und Seen*). Rose Island as such, and also its surrounding shallow waters, are in possession of the Bavarian State although they are administered by different bodies.

The archaeological sites at Pestenacker (DE-BY-01) and Unfriedshausen (DE-BY-02) are both located in the administrative district Landsberg am Lech (LL). They belong to the corresponding municipal areas of Weil and Geltendorf. Some parts of the sites are privately owned, other parts affect the public sector, too. The prehistoric settlement at Pestenacker is mainly situated on a meadow which is used for growing forage. It is property of the administrative district. The country road St. 2052 which borders the site to the east is maintained and owned by the Free State of Bavaria, according to article 11, paragraph 1 and article 41 of the Bavarian Street and Road Law (*Bayerisches Straßen- und Wegegesetz*, BayStrWG), last changed by § 6 of the law from December 20th 2007.

It is important to note that the title on all movable monuments as defined in article 1, § 4 of the BayDSchG (*Bayerisches Denkmalschutzgesetz*), is regulated by § 984 (Treasure trove) of the German Civil Code (*Bürgerliches Gesetzbuch*, BGB), ↘ **cf. Chapter 5.b**.

Property number	Federal / Free State	Municipality	Place name	Country	Federal / Free State	Municipality / Disctrict	Private	Other
DE-BW-01	Baden-Württemberg	Öhningen	Wangen-Hinterhorn		×	×	×	
DE-BW-02	Baden-Württemberg	Gaienhofen	Hemmenhofen-im Leh		×	×		
DE-BW-03	Baden-Württemberg	Gaienhofen	Hornstaad-Hörnle		×	×		
DE-BW-04	Baden-Württemberg	Allensbach	Allensbach-Strandbad			×		
DE-BW-05	Baden-Württemberg	Konstanz	Wollmatingen-Langenrain		×	×		
DE-BW-06	Baden-Württemberg	Konstanz	Konstanz-Hinterhausen		×			
DE-BW-07	Baden-Württemberg	Konstanz	Litzelstetten-Krähenhorn		×	×	×	
DE-BW-08	Baden-Württemberg	Bodman-Ludwigshafen	Bodman-Schachen / Löchle		×		×	
DE-BW-09	Baden-Württemberg	Sipplingen	Sipplingen-Osthafen		×			
DE-BW-10	Baden-Württemberg	Uhldingen-Mühlhofen	Unteruhldingen-Stollenwiesen		×			

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Property number	Federal / Free State	Municipality	Place name	Country	Federal / Free State	Municipality / Disctrict	Private	Other
DE-BW-11	Baden-Württemberg	Alleshausen	Ödenahlen		×			
DE-BW-12	Baden-Württemberg	Seekirch	Achwiesen		×		×	
DE-BW-13	Baden-Württemberg	Alleshausen	Grundwiesen		×			
DE-BW-14	Baden-Württemberg	Alleshausen	Täschenwiesen		×			
DE-BW-15	Baden-Württemberg	Bad Buchau	Siedlung Forschner		×		×	
DE-BW-16	Baden-Württemberg	Bad Schussenried	Olzreute-Enzisholz		×			
DE-BW-17	Baden-Württemberg	Hosskirch	Königseggsee				×	
DE-BW-18	Baden-Württemberg	Wolpertswende	Schreckensee		×			
DE-BW-19	Baden-Württemberg	Aulendorf	Steeger See			×	×	
DE-BW-20	Baden-Württemberg	Bad Waldsee	Reute Schorrenried			×	×	
DE-BW-21	Baden-Württemberg	Blaustein	Ehrenstein		×	×	×	
DE-BY-01	Bavaria	Weil (LL)	Pestenacker		×	×	×	
DE-BY-02	Bavaria	Geltendorf (LL)	Unfriedshausen				×	
DE-BY-03	Bavaria	Feldafing, unincorporated area (STA) (gemeindefreies Gebiet)	Roseninsel		×			

Fig. 5.4 Overview of the ownership of the German sites.

Italy

Italian pile dwellings are situated in lakes, bogs and rivers and may have different kinds of property. The sites located in public bodies of water (lakes) are State owned property; pile dwellings on lakeshores in boggy areas and riverbanks can be in public or private ownership.

In Italy the protection of archaeological heritage, even underwater, is regulated by the Legislative Decree 22 January 2004, n. 42 (Code of Cultural Heritage and Landscape). It contains the legal instruments for the tutelage of cultural heritage that belongs to State, regions and other public subjects and the rules that restrict the authority of private owners for reasons of heritage protection (limiting exploitation, expropriation, etc.). The pile dwellings, as well as being subject to State rules of protection (Legislative Decree 42/2004), are situated in areas regulated by town-and-county planning of regional, provincial and municipal level. Finds from archaeological sites are subject to the Legislative Decree 42/2004 too; they are all State owned property.

Property number	Region	Municipality	Place name	Country	Region	Municipality	Private	Other
IT-FV-01	Friuli Venezia Giulia	Caneva and Polcenigo	Palù di Livenza – Santissima		×	×	×	
IT-LM-01	Lombardy	Desenzano del Garda / Lonato del Garda	Lavagnone				×	
IT-LM-02	Lombardy	Manerba del Garda	San Sivino, Gabbiano	×				
IT-LM-03	Lombardy	Padenghe del Garda	West Garda – La Fabbrica	×				
IT-LM-04	Lombardy	Sirmione	Lugana Vecchia	×				
IT-LM-05	Lombardy	Polpenazze del Garda	Lucone			×	×	
IT-LM-06	Lombardy	Piadena	Lagazzi del Vho			×	×	
IT-LM-07	Lombardy	Cavriana	Bande – Corte Carpani				×	
IT-LM-08	Lombardy	Monzambano	Castellaro Lagusello – Fondo Tacoli				×	
IT-LM-09	Lombardy	Biandronno	Isolino Virginia / Camilla / Isola S. Biagio	×		×		
IT-LM-10	Lombardy	Cadrezzate	Il Sabbione o settentrionale	×				
IT-LM-11	Lombardy	Bodio Lomnago	Bodio Centrale o delle Monete	×				
IT-LM-12	Lombardy	Besnate	Lagozza				×	
IT-LM-13	Lombardy / Veneto	Sirmione and Peschiera del Garda	La Maraschina – Tafella	×				

Property number	Region	Municipality	Place name	Country	Region	Municipality	Private	Other
IT_TN-01	Trentino South Tyrol / Autonomous Province of Trento	Molina di Ledro	Molina di Ledro		×			
IT-TN-02	Trentino South Tyrol / Autonomous Province of Trento	Fiavé	Fiavé – Lago Carera		×			
IT-PM-01	Piedmont	Viverone / Azeglio	Vi1 – Emissario	×				
IT-PM-02	Piedmont	Arona	Mercurago	×				
IT-VN-01	Veneto	Lazise	Bor di Pacengo	×				
IT-VN-02	Veneto	Lazise	La Quercia	×				
IT-VN-03	Veneto	Nogara	Dossetto				×	
IT-VN-04	Veneto	Peschiera del Garda	Belvedere	×				
IT-VN-05	Veneto	Peschiera del Garda	Frassino	×				
IT-VN-06	Veneto	Cerea	Tombola				×	
IT-VN-07	Veneto	Arquà Petrarca	Laghetto della Costa				×	

Fig. 5.5 Overview of the ownership of the Italian sites.

Slovenia

The majority of the sites situated at the Ljubljana Marshes (Ljubljansko barje) are located in the boggy meadows spread over the marshes, while some are found in rivers or in smaller streams. These bodies of water are the property of the State and therefore, by extension, the sites themselves are also owned by the State. On the other hand, the pile-dwelling sites on the riverbanks and in the boggy areas are mostly situated on land (meadows, boggy meadows, fields and wooded areas) which is owned by private persons or is the property of the State, managed by the Farmland and Forest Fund of the Republic of Slovenia.

All archaeological finds or archaeological remains are the property of the State, regardless of who owns the land, or whether the artefact was found in the water, on the surface or underneath it (Cultural Heritage Protection Act, art. 6).

Property number	Municipality	Place name	Country	–	Municipality	Private	Other
SI-IG-01	Ig	Kolišča na Igu, severna skupina	×			×	
SI-IG-02	Ig	Kolišča na Igu, južna skupina	×			×	

Fig. 5.6 Overview of the ownership of the Slovenian sites.

5.b Protective designation

The legal protection of the components of the serial nomination *Prehistoric Pile Dwellings around the Alps* is submitted to the national and regional / local legislations of the States Parties in which territory they are situated as well as to a number of international conventions, ratified by all or some of the participating States Parties. If the legal protective designation and its terminology may vary for the different components, its effect is equal: it guarantees adequate protection of the serial nomination of the nominated property as well as of its corresponding buffer zone. Chapter 5.b gives an overview over the legal protective designation that applies to protect the pile dwellings in the different countries, whereas the corresponding id-file of the component part, as well as the table in the annex, summarizes all legal disposition site by site, explaining its effect and way of implementation.

5.b.1 International

The legal protection of the component parts of the serial nomination *Prehistoric Pile Dwellings around the Alps* is submitted to a number of international conventions ↘ Fig. 5.7. Some concern the protection of archaeological heritage in general terms (Valletta Convention 1992; The Hague Convention 1954). Others imply the prevention of illicit transfer of cultural property (UNESCO 1970 or UNIDROIT 1985) and others yet more specifically the underwater cultural heritage (UNESCO Underwater Convention 2001 and Ramsar Convention 1971). All these conventions back up the national legislations of all signatory States Parties, which of course are the basic elements of heritage management in each country.

The *Valletta Convention* insures that all signatory countries apply protection measures (conservation, excavation, financing and information policies, etc.) for their archaeological heritage. It takes over and develops the recommendations issued in the *European Convention on the Protection of the Archaeological Heritage* (London 1969). It is for each Government to apply the European Convention on the Protection of the Archaeological Heritage in ways that fit in with national practice and legislation. Although not all countries in our project have ratified the Convention, current measures in place already largely meet the convention›s requirements.

The *Convention for the Protection of Cultural Property in the Event of Armed Conflict* (The Hague 1954) assures the protection of cultural heritage in case of armed conflict and catastrophes. It implies in particular an inventory of all sites needed to be protected. Most pile dwellings are mentioned on the Swiss list.

The *UNESCO Recommendation on International Principles Applicable to Archaeological Excavations* (New Delhi 1956) is a document setting recommendations for the protection of archaeological heritage on an international level and sets regulations for the implementation of archaeological excavations.

The *UNESCO Recommendation concerning the Protection, at National Level, of the Cultural and Natural Heritage* (Paris, 1972) proposes that each State Party should formulate, develop and apply as far as possible and in conformity with their jurisdictional and legislative requirements, a policy whose principal aim should be to co-ordinate and make use of all scientific, technical, cultural and other resources available to secure the effective protection, conservation and presentation of the cultural and natural heritage.

With the *UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property* (1970) also called the UNESCO 1970 Convention, the State Parties announce as illicit the import, export and transfer of ownership of cultural property in a contrary way to the provisions adop-

ted by this Convention. The States Parties must undertake to oppose such practices with the means at their disposal, and particularly by removing their causes, putting a stop to current practices, and by helping to make the necessary reparations.

The *UNIDROIT Convention on Stolen or Illegally Exported Cultural Objects* (Rome 1995) aims more particularly the restitution of stolen or illegally exported cultural heritage. It can also concern finds coming from pile dwellings, which continue to be exported illegally in different European countries.

The *UNESCO Convention on the Protection of the Underwater Cultural Heritage* (Paris 2001) is the youngest Convention. It aims to ensure and strengthen the protection of underwater cultural heritage. All signatory Parties are to cooperate in the protection of underwater cultural heritage and preserve underwater cultural heritage for the benefit of humanity. This convention also concerns the pile dwellings as long as they are underwater. Since the Valetta Convention covers the protection of all archaeological sites, some European countries have not signed or ratified this Convention which is particular to the underwater cultural heritage.

The *Convention on Wetlands* (Ramsar, 1971) is an intergovernmental treaty which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources ↘ **Chapter 6.a.6**. Since all prehistoric pile dwellings are found in wetlands, their preservation depends on the wise use of all wetlands, contributing therefore towards achieving sustainable development.

	Legal instrument	**ratified / signed**
Conventions	UNESCO Convention for the Protection of Cultural Property in the Event of Armed Conflict with Regulations for the Execution of the Convention (The Hague 1954) and Protocol I (1954)	Switzerland (1962), Austria (1964), France (1957), Germany (1967), Italy (1958), Slovenia (1992)
	Protocol II to the Convention for the Protection of Cultural Property in the Event of Armed Conflict (The Hague 1954)	Switzerland (2004), Austria (2002), Italy (2009), Slovenia (accession 2004)
	European Convention on the Protection of the Archaeological Heritage (London 1969)	Switzerland (1970), Austria (1974), France (1972), Germany (1975), Italy (1974), Slovenia (1992)
	UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property (1970)	Switzerland (2003), France (1997), Germany (2007), Italy (1978), Slovenia (1992)
	Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar 1971)	Switzerland (1976), Austria (1983), France (1986), Germany (1976), Italy (1976), Slovenia (1991)
	European Convention for the protection of the archaeological heritage (Valletta, 1992)	Switzerland (1996), France (1996), Germany (2003), Slovenia (1999), Italy (1992)
	UNIDROIT Convention on Stolen or Illegally Exported Cultural Objects (Rome 1995)	Italy (1999), Slovenia (2004), France (1995), Switzerland (1996)
	UNESCO Convention on the Protection of the Underwater Cultural Heritage (Paris, 2001)	Italy (ongoing), Slovenia (2008)
Recommendations	UNESCO Recommendation on International Principles Applicable to Archaeological Excavations (New Delhi, 1956)	-
	UNESCO Recommendation concerning the Protection, at National Level, of the Cultural and Natural Heritage (Paris, 1972)	-

Fig. 5.7 Overview of other international conventions, recommendations and charters that can play a role in the protection of prehistoric pile-dwelling sites.

5.b.2 Switzerland

Introduction

Switzerland is a federal State organized at three administrative levels: the Swiss Confederation – the Federation – comprises 26 cantons, which are also referred to as 'States' in Switzerland, and which all have their own constitution and their own legislation. The cantons in turn are subdivided into communities. Community laws must, of course, obey cantonal legislation and the Constitution and also the cantonal order of law, the federal Constitution and legislation. The distribution of competence between federation and cantons is regulated precisely in the relevant articles of the Constitution or federal laws.

Historic review of the development of Swiss legislation on archeological heritage

The study of wetland sites started in Switzerland with the discovery of Meilen–Rorenhaab (CH-ZH-06) on the shores of the Lake of Zurich in 1854 and spread rapidly to take in all the Swiss sites. This contributed significantly to the initiation of legislative measures for the protection of the Swiss archaeological heritage as a whole. Indeed, pile-dwelling treasure hunting soon gained a momentum that was impossible to control, whether on the lakes on the Swiss Plateau, the Lake of Geneva or the Lake of Constance. That is why the canton of Thurgau took a progressive decision in 1861 issuing a prohibition on appropriating archaeological objects found in the canton. When the first water correction was undertaken in the Jura (1868 to 1891) the water level of the lakes of Bienne, Neuchâtel and Morat were lowered by more than 2 m ↘ Chapter 2.b.2 revealing the remains of numerous prehistoric villages with very rich archaeological finds including not only ceramics and stone or bronze tools but also wooden vessels, textiles and other objects that had been hardly known before then. The interests of the collectors of the day, with their fat purses, stimulated a trade in archaeological objects in the villages along the shores that was far more lucrative than fishing, with farming then the principal activity of the local residents. In 1873 the Bernese government acted, for economic reasons, with the issue of a law against the pillage of archaeological objects from the lake. The government of canton Neuchâtel soon followed suit issuing protection measures in 1878. The first cantonal law in canton Vaud dates from 1898 and the corresponding law from canton Bern was issued in 1902. They were rapidly followed by the integration of an article in the Swiss Civil Code (1907) attributing the ownership of any antiquity found below ground to the State in which it was found. This article is still in force today and may be considered as the foundation of the entire body of cantonal laws on the protection of archaeological objects.

Protective provisions today

The protection of prehistoric pile dwellings is based on the laws for the protection of the cultural heritage and spatial planning, which is directly associated with it (in particular the provisions for the protection of lakes and shoreline areas as well as the laws regulating land use) and special laws in the case of certain sites. The protection of the cultural heritage and spatial planning are, in the first place, incumbent on the cantons. However, federal government also has competences in these domains that are relevant in conjunction with prehistoric pile dwellings. Below, the general legal protection of the *Prehistoric Pile Dwellings around the Alps* will be introduced broken down into the three domains 'protection of the cultural heritage', 'spatial planning /

water protection' and 'special laws' and then, specifically. The protection by the Federation (national level) and then by the various cantons (regional level) and finally for the communities (local level).

Protection of the cultural heritage

Various terms are used in Swiss federal and cantonal protection of monuments laws to designate the sites of prehistoric pile dwellings. The sites are in fact referred to as cultural objects, monuments, archaeological sites or as historic sites and are, as such, fundamentally protected. All cantons have laws on the protection of archaeological sites and are bound to set up an archaeology service and to keep inventories of the archaeological objects. These inventories register the protection perimeter even if their definition may vary from canton to canton. Every cantonal legislation also has instruments that restrict private property insofar as this can promote the protection of the cultural heritage.

All the sites proposed for inscription figure on the inventory. A so-called 'balancing of interests' is applied in the relevant protection procedure: the public interest in the preservation of the object is balanced against any (under certain circumstances private) interest in its impairment. In Switzerland, the sites inscribed by UNESCO on the World Heritage List are classed as objects of *national importance*, the highest classification in Swiss legislation, which is a fundamental element of the balancing of interest procedure. On the basis of the same legislation, prehistoric pile dwellings are treated, according to canton, as listed protected monuments. Whereas the cantons are responsible for the inventorying as well as the technical and administrative protection of the sites, the federal government has, in particular, the possibility of protecting objects of national importance, even over-ruling the canton if necessary, by securing them contractually and even resorting to expropriation if the objects should be in imminent danger.

Spatial planning / water protection

The extent to which land use is permitted by law is regulated in detail throughout Switzerland. The differentiation between land where building is generally permitted (building zone) and the rest of the State territory where building is fundamentally prohibited or only authorized in exceptional cases (areas outside the building zones) is a significant factor. Further, protection zones may also be defined. Protection zones, where special measures for the protection of the cultural or natural heritage apply, may be decreed both for land inside and outside the building zones. The pile-dwelling sites (buffer zone and nominated property) are located in such archaeological protection zones, mostly outside the building zones, seldom inside them, often in lakes or within special shoreline protection zones. These are safeguarded by water protection laws or relevant articles in the spatial planning regulations. The archaeological zones – thanks to their location in lakes and wetlands – often correlate with the nature protection zones and therefore benefit from the ban on interventions. The implementation of these zoning provisions is regulated in the cantonal building law and in the communal zoning and land use plans. Similarly, the water protection provisions in fish spawning or renaturalisation zones also contribute indirectly to the protection of the pile-dwelling sites.

Further, the canton issues a cantonal spatial plan (Kantonaler Richtplan) showing the spatial development aims and, for example, including new building areas. These management plans must be authorized by the federal government which, pursuant to the article of the constitution, is bound to safeguard the cultural and natural heritage of the country and, where the public interest prevails, preserve it without impairment.

Special laws

Special laws stipulate a specific legal protection for certain prehistoric pile-dwelling sites prohibiting any intervention whatsoever. Sites, particularly in lakes and wetlands, are frequently located within nature protection areas that were established by special decree and benefit from the prohibition of any human intervention whatsoever in order to protect nature.

Federal legislation

Article 78 (article on the protection of nature and the environment) of the Swiss Federal Constitution of 18th April 1999 (Schweizerische Bundesverfassung vom 18. April 1999) stipulates that the protection of nature and the environment is incumbent on the cantons. However, competences are also attributed to the federal government in this domain. The federal government takes the requirements pertaining to the protection of nature and the national heritage into account in the performance of its duties. It respects landscapes, architectural heritage and historic sites as well as natural and cultural monuments and it ensures their unimpaired conservation when this is in the public interest. This article of the Constitution is the basis for the federal law of 1st July 1966 on the protection of nature and the national heritage (Bundesgesetz vom 1. Juli 1966 über den Natur- und Heimatschutz) and all subsequent cantonal protection laws.

Article 75 (spatial planning article) of the Federal Constitution (Raumplanungsartikel) confers the competence to establish the principles of spatial planning on the Federation. The cantons are responsible for implementing these principles ensuring the expedient and economical stewardship of the land and the well ordered settlement of the country. The federal law on spatial planning and all subsequent cantonal laws are based on this article.

The Federal Law of 1st July 1966 on the protection of nature and the national heritage (Bundesgesetz vom 1. Juli 1966 über den Natur- und Heimatschutz, NHG; SR 451) defines the competence of the federal government with respect to the protection of cultural assets. The Federation, its institutes and services, together with the cantons in the fulfilment of their federal obligations, assure that the historic sites and cultural monuments – and this includes the pile-dwelling sites – are safeguarded and, where the general interest in them prevails, that they are preserved without impairment. They fulfil this obligation by planning and designing their own buildings and installations accordingly or by refraining from their construction altogether, by granting concessions and authorisations only subject to strict conditions or refusing them unconditionally and by granting contributions only conditionally or refusing them out of hand (article 3 NHG). Fulfilment of a federal obligation implies, in particular:

– the planning, setting up and modification of works and installations by the federal government, its installations and services such as national roads, Swiss Federal Railway railtracks, etc.
– grant of concessions and authorizations by the Federation for the construction of traffic installations and transport works, of works and installations for the transport of energy, liquids or gasses or as required for the transmission of information as also authorizations for felling and clearance.
– grant of contributions to planning, works and installations such as melioration projects, the correction of rivers and other waters, installations for water protection and traffic installations (article 2 NHG).

The authorities responsible for the fulfilment of these federal obligations are bound to call on the Federal Office of Culture as competent authority for the care of monuments, archaeology and the protection of cultural sites for the implementation of this

law and for their expert opinion (article 3, paragraph 4 NHG). In this way the Federal Office of Culture can prevent any degradation of the pile-dwelling sites by infrastructure or other planning projects.

Some of the sites are located within an area that is listed in the Federal Inventory of Landscapes and Natural Monuments of national importance (BLN). Although the legal protection of this inventory is oriented to the natural and landscape, the pile-dwelling sites within the area also profit from this protection. The inclusion of an area in this inventory demonstrates that it is particularly worthy of unimpaired preservation and that any deviation from this unimpaired preservation may only be contemplated when it is set against interests, of similar value or higher, that are also of national importance (article 5 NHG). This would not be the case for a site that had been inscribed on the World Heritage list.

And finally, this law invests the federal government with the important competence for the acquisition and safeguarding of objects worthy of protection and to initiate protective measures. If a site in the series is in imminent danger, the Federal Department of Home Affairs can subject this site to short-term protection by the Federation and decree the requisite safeguards to ensure its preservation (article 16 NHG). In this way an endangered object may be protected from a threatened impairment even against the will of the relevant canton.

The so-called associative right of appeal is an important aspect: communities and in particular non-governmental organisations dedicated to the protection of nature, the national heritage, the care of monuments or related objectives are entitled to the associative right of appeal against the federal authorities (article 12 NHG). In this way administrative decisions, namely in connection with federal obligations, may be monitored by non-governmental organisations and, when necessary, examined before the courts with respect to their legality, which contributes significantly to the protection of cultural monuments.

The Federal Law on spatial planning of 22th June 1979 (Bundesgesetz vom 22. Juni 1979 über die Raumplanung, RPG; SR 700) regulates land use, the relevant land use principles as well as the distribution of competence between the federal government and cantons and the relevant correlation of duties in this domain. It determines that the land use plans differentiate between building zones, protection zones and agricultural zones (article 14) whereby wooded areas are protected by forestry legislation (article 18). Protection zones comprise, in particular, streams, rivers, lakes and their banks and shores (article 17). The land use plans are approved by a cantonal authority (article 26). On principle, structures and installations may only be erected subject to authorization by the competent authority (article 22). Prerequisite for an authorization is that the buildings and installations correspond to the purpose of the land use zone and that the land is developed. Structures outside the building zones may only be authorised when the purpose of the buildings demand a location outside the building zone and when there are no overriding interests contradicting them (article 24). The high public interest in the preservation of a World Heritage Site is thus already taken into account in the federal constitution. The federal law further determines that the cantons regulate the relevant competences and procedures (article 25) and that the land use plans or modifications to the same must be made open for public viewing and may be the object of appeal in the event of impermissible utilisation and any annulment of protection zones may be corrected.

The Swiss Civil Code of 10th December 1907 (Schweizerisches Zivilgesetzbuch vom 10. Dezember 1907, ZGB; SR 210) informs us, in particular, on the legal position of the waters and the ownership of archaeological objects. Article 664 of the Swiss Civil Code states that objects without an owner and assets in the public domain are subject to the authority of the State (canton) of the territory where they are located. Similarly, public waters (thus the lakes), regions unsuitable for agriculture (certain marshes), rocks, rocks falls, firns, glaciers and springs are not generally in the private domain.

Article 724 of the Civil Code further affirms that antiquities that do not belong to anyone and which are of scientific interest are the property of the canton on whose territory they were found. They may not be alienated without authorisation of the competent cantonal authorities and may not be the object of an acquisition order nor may they be acquired in good faith.

Article 702 indicates the restrictions on public law. Thus it is the prerogative of the Federation, cantons and communities to issue restrictions to property ownership, also with respect to measures for the conservation of antiquities and natural curiosities or for the protection of sites.

Cantonal legislation

Aargau

According to the constitution of canton Aargau of 25h June 1980 (Verfassung des Kantons Aargau vom 25. Juni 1980), the canton Aargau promotes the conservation of the cultural heritage (article 36). The new cultural law (Kulturgesetz, KG) of 31st March 2009, came into force 1st January 2010 and defines the canton's commitments. Without prior authorisation, listed monuments may be neither changed, removed nor in any way degraded.

The building law on spatial planning, protection of the environment and building of 19th January 1993 (Gesetz über Raumplanung, Umweltschutz und Bauwesen vom 19. Januar 1993, Baugesetz, BauG) completes the applicable legislation for the lakeside settlements by declaring the expanses of water (lakes, rivers etc.) public property (article 114, 116).

Of particular importance for the registration of proposed sites in canton Aargau is the decree for the protection of the Lake Hallwil landscape of 13th May 1986 (Dekret zum Schutze der Hallwilerseelandschaft vom 13. Mai 1986, Hallwilersee Schutzdekret, HSD). The objective of this decree is to preserve the natural character and beauty of the Lake Hallwil. Building development of the lake shore is prohibited or severely restricted. The component part of Seengen–Risi (CH-AG-02) is located within the reserve, Beinwil am See–Ägelmoos (CH-AG-01) within both the reserve and the water zone. The buffer zones also form part of the natural reserve and are incorporated in the cantonal management plan on an informative basis. The reserve zone promotes the conservation and encouragement of indigenous plants and animals, particularly endangered species. Consequently all interventions, with the exception of management measures are prohibited. In the water zone, buildings and installations of any kind including changes to the terrain such as excavations, earthworks and deposits are prohibited (article 3). No access to the reed stands is permitted - for persons or vehicles - except for essential tending.

Berne

The constitution of the canton of Bern (La Constitution du canton de Berne) of 6th June 1993 mentions the protection of the landscape and heritage as a public obligation (article 32). The law of 8th September 1999 on the protection of the heritage (La Loi du 8 septembre 1999 sur la Protection du Patrimoine) and the relevant ordinance of 25th October 2000 on the protection of the heritage (Ordonnance du 25 octobre 2000 sur la protection du patrimoine) regulate the inventorizing, conservation and protection of the movable heritage (including archaeological objects) as well as the non-movable objects (and therefore the archaeological sites in their entirety): The essence of this law is the total conservation of the archaeological sites and permission of digging only

at the moment of inevitable destruction (due to economic or natural causes). When the cantonal archaeological inventory defined according to the law on the protection of the heritage article 23, is compiled, a protection zone (archaeological protection area) is plotted for each site which may be more or less extensive according to knowledge of the site itself. In the case of the component parts put forward for inscription, this protection zone corresponds to the Unesco buffer zone. These zones are subject to stricter monitoring by the responsible community and the archaeological service. The community must report every move to transform the terrain inside this zone to the archaeological service for their opinion according to building law, article 10c. The heritage law advocates the protection of archaeological sites. That is why the service must first analyse all the possibilities for protection (total or partial) before commencing an archaeological rescue excavation. Indeed, the latter action is considered as an ultimate effort to record a site that is disappearing from the terrain as the documentation obtained may be interpreted, published and archived.

The law on the protection of nature of 15th September 1992 (Loi sur la protection de la nature du 15 septembre 1992, LPN) aims to protect vital natural areas. The canton compiles an inventory of the natural sites of national or regional importance which the individual communities have to manage. These may superpose archaeological protection zones. A large part of the shoreline sites are thus located inside the protected natural sites which assures that the land cannot be built on or developed.

The building law of 9th June 1985 (Loi sur les constructions du 9 juin 1985) and the building ordinance of 6th March 1985 (l'Ordonnance sur les constructions du 6 mars 1985) include a number of articles (article 10a–10e for the LC and article 13-113e for the OC) prescribing the builders' obligation to inform in the event of discoveries and for the cantonal authorities the obligation to compile an inventory of the sites. It also requires compilation of landscape inventories.

Similarly, they regulate construction on the lakes and rivers or on their banks (article 16 OC) with the law on the banks and shores of the lakes and rivers of 6th June 1982 (Loi sur les rives des lacs et des rivières du 6 juin 1982). This law also demands that the communities compile a management plan for the shores of the Lake of Bienne (article 2) that includes, inter alia, a protection zone for the shores (article 3). In the area that is already built-up there are building restrictions, in the unbuilt area buildings and installations may only be constructed if they do not impair the shore landscape. The decree concerning the procedure for grant of a building permit (DPC) of 22th March 1994 (Dekret über das Baubewilligungsverfahren, BewD vom 22. März 1994) defines when a building permit must be applied for and the procedure to be followed.

Fribourg

The constitution of canton Fribourg of 16th May 2004 (constitution du canton de Fribourg du 16 mai 2004) affirms that the State and the municipalities must preserve and show to the best advantage both the cultural and natural heritage (article 73). The law of 7th November on the protection of cultural assets (Loi du 7 novembre 1991 sur la protection des biens culturels) defines precisely the obligations of the State with respect to protection of the cultural and archaeological heritage. The regulation of 17th August 1993 on the implementization of the law on the protection of cultural assets of 7th Novembre 1991 defines the measures that may be taken for this protection.

The law of 9 th May 1983 on the development of the land and on building stipulates the measures to be taken for the protection of natural sites including the lakes, rivers and streams and the cultural sites. These measures may extend to prohibiting all building: all the archaeological sites in canton Fribourg (including the pile-dwelling settlements) are included within the archaeological perimeters on the communal

zoning plans. The corresponding articles of the communal regulations stipulate prior application for authorisation for all works tangent to these perimeters. Some 50–100 m correspond to the buffer zone where the archaeological service of canton Fribourg pays meticulous attention to the possibility of any impairment.

On the south shore of the Lake of Neuchâtel, most of the pile-dwelling settlements listed by the archaeological services of the cantons Fribourg and Vaud (so CH-FR-02 and CH-FR-08) are included in the Grande Cariçaie protected natural zones (www.grande-caricaie.ch). A study and management group (GEG) is responsible for the management of la Grande Cariçaie by convention of the cantons of Vaud and Fribourg (Convention of 16th June 2002 between the states of Fribourg and Vaud on the one hand and Pro Natura (NGO) on the other with respect to the management of the natural reserves on the south shore of Lake Neuchâtel). Its duties include, in particular, organisation of the management of the unwooded wetlands.

All maintenance work is first submitted to the archaeological service of canton Vaud which can propose measures likely to prevent any intervention on the archaeological heritage and thus ensuring double protection.

Geneva

The legal bases for the management of the archaeological heritage in Geneva are an element of the law on the protection of monuments, nature and sites of 4th June 1976 (Loi sur la protection des monuments, de la nature et des sites du 4 juin 1976) and of the general implementing ordinance of the law on the protection of monuments, nature and sites of 29th November 1976 (Règlement général d'exécution de la Loi sur la protection des monuments, de la nature et des sites du 29 novembre 1976). This legislation permits the conservation and protection of both the cultural and natural sites (lakes, rivers and streams). Similarly, the law on construction and diverse installations of 14th April 1988 (Loi sur les constructions et installations diverses du 14 avril 1988) defines the construction and protection procedures as well as the protected zones. The aim of the law on the general protection of the lake shores of 4th December 1992 (Loi sur la protection générale des rives du lac du 4 décembre 1992) is to protect and facilitate public access to them. It defines the perimeters of the areas to be protected and where building is prohibited (article 2).

In practice, the buffer zones of the archaeological sites, whether terrestrial or aquatic, constitute an integral element of the cantonal archaeological map which is an administrative instrument for the protection of the cantonal archaeological heritage. When any new application for building permission is made, the relevant services must establish that the construction does not touch any archaeological perimeter. If this should be the case, it is incumbent on the cantonal archaeologist, backed up by competent experts, to evaluate whether the building project must be prohibited or whether demands must be made for adaptation or security measures prescribed to limit, to the maximum, the risk of short or long term destruction. In any case, if it comes to excavation, archaeological interventions are undertaken, scientifically and completely, in order to preserve the remains in the form of archives. In this event, the research costs are borne by the State.

Lucerne

Article 60 of the planning and building law of 7th March 1989 (Planungs- und Baugesetz vom 7. März 1989) defines not only the protection of cultural monuments but also that of public waters. The law on the protection of cultural monuments of 8 th March 1960 (Gesetz über den Schutz der Kulturdenkmäler vom 8. März 1960) is based on the Swiss Code of Civil Law of 10 th December 1907 and defines the role of canton Lucerne in the protection of cultural assets. Cultural monuments of significant scientific, historic or national heritage value including archaeological settlements are listed in the cantonal inventory of monuments (article 5). Thereafter they may neither be renovated, destroyed or otherwise degraded without authorisation.

The cantonal archaeological service is bound to register the location of archaeological finds and define appropriate protection measures. Pursuant to article 15 of the law on the protection of cultural monuments, the wetland settlements must be defined as archaeological protection zones. Accordingly any interventions on the terrain, both within and without the building zones, are subject to authorisation. As none of the pile dwellings are inside the building zones but are located in the agricultural as well as the shoreline and nature protection zones they are only marginally affected by building projects. The only threat is the construction of utilities lines and conduits. Here any intervention in the cultural layers will, as far as possible, be hindered by deliberation of the cantonal archaeological service on the building project.

The Baldeggersee (Lake Baldegg) belongs to Pro Natura (NGO, www.pronatura.ch), one of the major nature protection organisations in Switzerland which also has right of appeal as an association. This provides an additional, effective protection against degradation for Hitzkirch–Seematte (CH-LU-03).

Neuchâtel

The Constitution of the Republic and Canton of Neuchâtel of 24th September 2000 affirms that the state and communities assume the duties conferred on them by law notably, among others, the protection and revitalisation of the landscape and heritage (article 5). In canton Neuchâtel the protection of the archaeological heritage is regulated by the law on the protection of cultural assets of 27th March 1995 and its implementing ordinance of 10th August 1995 (Loi sur la protection des biens culturels du 27 mars 1995 et de son règlement d'application du 10 août 1995). The law expressly mentions archaeological sites as pertaining to the cultural assets (article 4). It enumerates the protection and incentive measures (article 12) notably the compilation of an inventory of cultural assets; this may be the basis for a decision to grant protection. The State council determines the sites of archaeological objects, terrestrial or subaquatic and, where necessary, orders what work must be undertaken (article 31).

The perimeter zones of the archaeological sites were defined and approved by the State council when the development plans for each community in the canton were compiled. These zones do not automatically prohibit building but ensure that the project files be deliberated in advance by the archaeological service which then proposes the measures to be taken.

Article 12 of the implementing ordinance details the type of sites recognized as cultural assets and particularly mentions terrestrial and subaquatic sites but also water craft, bridges and fords. Article 9 specifies that, at all events, archaeological sites are plotted on the land development plans.

The cantonal law on land management of 2nd October 1991 (Loi cantonale sur l'aménagement du territoire du 2 octobre 1991) mentions lakes and water courses as well as their shores and banks (article 18) among the protected areas. The law on the waters of 24th March 1953 (La Loi sur les eaux du 24 mars 1953) defines the

public statute on lakes, and waterways which are indefeasible and unassignable. Public access to the shoreline is permitted.

The lake settlements and their buffer zone are entered on the community management plans in the form of ‚archaeological zone perimeters', on the same grounds as the associated sites. This assumes that any archaeological interventions on these surfaces take precedence over civil engineering: but that does not imply that these layers must be preserved in situ. They are frequently located in zones where land use is already subjected to very strict regulations oriented to respect for the archaeological substrata (community protection zones, sport and recreation zones).

One consequence of the nomination of the pile dwellings to the World Heritage List was the creation of a working group comprising senior officials and jurists to elaborate strategies aiming to strengthen the formal protection measures as a preliminary to the synthesis of the management of the territory service, SAT, of 24 March 2009). The procedure adopted is an intervention through the new land use management plan for the canton (finalisation is scheduled for 2010) with the creation of a special UNESCO pile dwellings fiche followed by modifications of the local land use plans. This procedure also comprises an importance democratic aspect (enquiry, adoption by the general council, possibility of a referendum). These measures, through the cantonal master plan fiche, show the political will of the canton to protect these sites (an initial statement of intent with respect to this project was presented in the official gazette of the Canton of Neuchâtel of 10th July 2009.

Nidwalden

The cantonal constitution of the canton Unterwalden nid dem Wald of 10th October 1965 (Verfassung des Kantons Unterwalden nid dem Wald vom 10. Oktober 1965) expressly names protection of the cultural heritage. As the Stansstad–Kehrsiten (CH-NW-01) site lies completely in the Lake of Lucerne, the most important provisions are found in the protection of monuments legislation. The cantonal spatial planning and building laws do not concern the lake area, or merely the shore regions and land immediately adjacent to the lake. The law on the protection of cultural monuments of 4th February 2004 (Gesetz über den Schutz der Kulturdenkmäler, Denkmalschutzgesetz vom 4. Februar 2004) and the implementing ordinance to the law on the protection of cultural monuments of 21 September 2004 (Vollzugsverordnung zum Gesetz über den Schutz der Kulturdenkmäler vom 21. September 2004, Denkmalschutzverordnung) regulate the protection of archaeological sites. They include, in particular, the obligation to keep a cantonal archaeological excavation protection inventory. Building or earthworks are only permitted under the surveillance of an expert archaeology service. By resolve no. 682/2006 the State council registered Stansstad–Kehrsiten (CH-NW-01) in the excavation protection inventory.

The law on water rights of 30th April 1967 (Gesetz über die Rechte am Wasser vom 30. April 1967), the implementing ordinance (NG 631.11) as well as the agreement on joint water protection dispositions for the Lake of Lucerne of 21th November 1985 (Vereinbarung über gemeinsame Gewässerschutzvorkehren für den Vierwaldstättersee vom 21. November 1985) contain inter-cantonal provisions issued by the cantons of Schwyz, Uri, Lucerne, Obwalden and Nidwalden in particular for the protection of the shore zone, thus the areas adjacent to the site and its buffer zone.

Schaffhausen

As in the majority of the cantons, the protection and conservation of cultural assets is set out in the cantonal Constitution of canton Schaffhausen of 17th June 2002,

article 91 (Verfassung des Kantons Schaffhausen vom 17. Juni 2002). They are explained in the law on the protection of nature and heritage in canton Schaffhausen of 12th February 1968 (Gesetz über den Natur- und Heimatschutz im Kanton Schaffhausen vom 12. Februar 1968) and in the relevant ordinance on the protection of cultural monuments of 20th September 1939 (Verordnung betreffend den Schutz der Kulturdenkmäler vom 20. September 1939). According to article 1 of the ordinance, pile dwellings are also explicitly subject to state protection. The Thayngen–Weier (CH-SH-01) site is registered as an 'archaeological protection zone' and entered as such on the management plan and bindingly on the zone plans as superimposed zone. Consequently changes of any kind whatever are subject to cantonal authorisation. The 'archaeological protection zone' corresponds to the buffer zone.

Schwyz

The decree on the protection of nature and the heritage and the conservation of antiquities and art monuments of 29th November 1927 (Verordnung betreffend den Natur- und Heimatschutz und die Erhaltung von Altertümern und Kunstdenkmälern vom 29. November 1927) defines the obligations of the canton with respect to the protection of archaeological cultural assets. In detail prehistoric sites, inter alia, are under state protection (article 1), whereby the removing, defacing or in any way degrading (article 2) of these objects, particularly in the course of construction whether above or below ground, is prohibited without prior permission of the authorities.

The law on water rights of 11th September 1973 (Wasserrechtsgesetz vom 11. September 1973) defines the principle that expanses of water and rivers are public property (Article 2a).

In the planning and building law of 14th May 1987 (Planungs- und Baugesetz vom 14. Mai 1987) the communities are required to demarcate protection zones in their zoning plans for, inter alia, historic sites as well as natural and art monuments together with their adjacent areas. The purpose is to ensure the protection of areas which certainly include or could include remains or finds. The possibility of archaeological cultural assets being affected must be ascertained before any building measures. If affirmative, permission for the building measures will either be refused or a prior archaeological excavation will be undertaken. As a rule, whole settlements are not affected by building measures but rather only small parts of them.

The buffer zones are defined according to the information currently available (former reports of finds, the results of excavations and soundings) showing the potential area within which archaeological finds and discoveries could be made. The buffer zone provides information for the council on which to base more in-depth, specific clarifications.

Solothurn

The cantonal constitution of canton Solothurn of 8th June 1986 (Verfassung des Kantons Solothurn vom 8. Juni 1986) foresees the protection and conservation of the cultural heritage (article 102). The decree on the protection of historic art monuments of 19th December 1995 (Verordnung über den Schutz der historischen Kulturdenkmäler vom 19. Dezember 1995, Kulturdenkmäler-Verordnung) is based on the Swiss Civil Code and regulates all details concerning the management of archaeological cultural assets.

Pursuant to article 1, paragraphe III of the planning and construction law of 3rd December 1978 (Planungs- und Baugesetzes vom 3. Dezember 1978) all cultural monuments must be protected against degradation. Articles 119–129 of the same law on the protection of the environment and heritage are complemented by the decree

on the protection of the environment and national heritage of 14th November 1980 (Verordnung über den Natur- und Heimatschutz vom 14. November 1980) that implements the planning and building law. In the event of a prevailing public interest in their conservation, historic cultural monuments are placed under protection. A protection inventory is appended to the decree listing the known protected archaeological sites including Aeschi SO–Burgäschi Ost (CH-SO-01) and Bolken/Inkwil–Inkwil Island (CH-SO-02, located partly in canton Solothurn).

The buffer zones correspond to the BLN Steinhof-Burgäschisee area of the cantonal nature reserves (sub-sector canton Solothurn) and the cantonal nature and landscape precedence area (sub-sector canton Solothurn). The strictest protection rules apply within the cantonal nature reserves: these are protected by council of State resolutions. Their primary purpose is the conservation and enhancement of habitats (biotopes) for communities of animals and plants worthy of protection. No measures are permissible here which could impair this natural asset (for example no modifications of the terrain, no fertilisation). The cantonal nature and landscape precedence areas are a clear statement of intent. Their purpose is the conservation and enhanced value of landscapes and the habitats of animals and plants worthy of protection by voluntary measures (agreements in the cantonal several-year programme for nature and landscape) The purpose of the BNL areas – Federal Inventory of Landscapes and Natural Monuments of national importance – is the unrestricted conservation or at least the greatest possible care of scenic beauty and values.

St. Gall

According to the cantonal constitution of canton St. Gall of 10th June 2001 (Verfassung des Kantons St. Gallen vom 10. Juni 2001) the canton St. Gall monitors the conservation of the cultural heritage (article 11) and the landscape (article 17). Ar. 29 further ensures the canton's sovereignty over waters, rivers and streams. The decree relevant to the protection of natural phenomena and antiquities of 21th March 1933 (Die Verordnung betreffend den Schutz von Naturkörpern und Altertümern von 21. März 1933) is based on the Swiss Civil Code and regulates the obligations of the canton with respect to the protection of cultural assets. Thus archaeological finds of significant scientific value belong to the canton (article 1): the latter may permit or prohibit archaeological excavations (article 8).

The law on land use planning and public construction law of 6th June 1972 (Gesetz über die Raumplanung und das öffentliche Baurecht vom 6. Juni 1972, Baugesetz) completes the legislation applicable to pile dwellings with respect to protection of the wetland sites in that it declares not only the historic sites but also the waters (lakes, rivers etc.) as protected objects (article 98).

In canton St. Gall protection of the cultural monuments is incumbent on the communities, consequently the legal position may vary from one community to another. The cantonal archaeological authorities endeavour to have archaeological protection zones plotted when the protection zones are revised (usually every 15–25 years). These protection zones are designed to protect the sites or permit comprehensive documentation before they are destroyed. However, the pile-dwelling sites in canton St. Gall are all located in the water and therefore not, as a rule, endangered by building measures.

In the case of Rapperswil-Jona, the cantonal archaeological authorities were able to have the protection zones put forward when the protection ordinance was revised and duly integrated. The protection zones cover the effective site of the finds together with 'buffer zones' of varying size that are usually plotted according to the terrain.

Thurgau

According to the cantonal Constitution of canton Thurgau of 16th March 1987 (Verfassung des Kantons Thurgau vom 16. März 1987) the canton and communities promote the conservation of cultural assets (article 75). They further protect and preserve the natural equilibrium of the lake and river landscapes around the Lake of Constance, the Untersee and the Rhine (article 76 paragraphe III). The law on the protection and management of nature and heritage of 8th April 1992 (Gesetz zum Schutz und zur Pflege der Natur und Heimat vom 8. April 1992) guarantees protection and management of the natural heritage and cultural assets. The relevant decree on the law on the protection and management of nature and heritage of 29th March 1994 (Verordnung des Regierungsrates zum Gesetz zum Schutz und zur Pflege der Natur und der Heimat vom 29 März 1994) regulates the details of implementation. These two instruments establish the basis for the canton Thurgau archaeological service, the protection of sites and the state monopoly in the domain of excavations.

The planning and building law of 16th August 1995 (Planungs- und Baugesetz vom 16. August 1995) foresees a coordinated procedure in the protected zones through the intermediary of community building regulations. Known archaeological sites are entered on the canton Thurgau management plan as 'archaeological discovery zones'. They also appear in the relevant building regulations as areas liable to contain archaeological finds. Building work and earthworks in these areas liable to contain archaeological finds are under obligation to report which allows the canton Thurgau archaeology service to intervene in good time and to initiate soundings or excavation measures. However, the six Thurgau sites included in the World Heritage candidature are not affected by such building measures.

The law on water construction of 25th April 1983 (Gesetz über den Wasserbau vom 25. April 1983) contains a factual ban on building in shallow water zones. According to article 23 interventions to the high water line and in the shore vegetation are prohibited. Similarly, the construction department is entitled to limit spatial use of the banks if this should prove necessary.

With few exceptions (Arbon–Bleiche 2-3, CH-TG-01) the settlements are not located in the building zone; there are also superimposed zones such as landscape protection zones or similar. The buffer zones are oriented to the 'archaeological finds zones' on the canton Thurgau management and the communal zoning plans. Some sites (e.g. Gachnang-Niederwil–Egelsee (CH-TG-04) or Eschenz–Insel Werd (CH-TG-03) are entered on the cantonal plan of protected objects and thus enjoy the highest protection status in canton Thurgau. This plan includes a comprehensive description of the scope and character of the protection and regulates the management measures and compensation amounts.

Vaud

The conservation and protection of the heritage are an integral element of the obligations of the State and the communities and they are embedded in the Constitution of canton Vaud of 14th April 2003, article 52 (Constitution du canton de Vaud du 14 avril 2003). The cantonal law on the protection of nature, monuments and sites of 10 th December 1969 (Loi cantonale sur la protection de la nature, des monuments et des sites du 10 décembre 1969, LPNMS) comprehensively defines the management of the cultural and natural heritage and the implementing ordinance to the law of 10th December 1969 on the protection of nature, monuments and sites of 22th March 1989 (Règlement d'application de la Loi du 10 décembre 1969 sur la protection de la nature, des monuments et des sites du 22 mars 1989) ensure its implementation. In line with the LPNMS, all prehistoric monuments as well as land containing archaeo-

logical remains and their surrounds are protected. No intervention is permissible that could alter the character of the same (article 46).

The law on land use and construction management of 4th December 1985 (Loi sur l'aménagement du territoire et les constructions du 4 décembre 1985) ensures implementation of the protection of nature and the heritage at master plan and management plan level. Pursuant to article 54 only buildings and installations that conform with the designated purpose of the protected zone may be authorized.

The buffer zones around the known archaeological sites are plotted according to knowledge of the dimensions of the site and their susceptibility to degradation. The exact limits are drawn according to the recognisable elements of the terrain with a view to facilitating the management of these zones. At legal level, the settlement that is registered on the inventory must be differentiated from those which are listed as historic monuments. The latter enjoy legal and judicial protection, approved by the State council that grants the cantonal archaeology service all the means pursuant to the law to ensure long-term protection. In the event of imminent danger to the former, they are the object of discussions with the developers to find the best measures for their long-term protection and safeguarding.

On the south shore of the Lake of Neuchâtel, most of the pile-dwelling settlements listed by the archaeological services of cantons Vaud and Fribourg (so CH-VD-03, CH-VD-06, CH-VD-07, CH-VD-16) are included in the Grande Cariçaie protected natural zones (www.grande-caricaie.ch). A study and management group (GEG) is responsible for the management of la Grande Cariçaie by convention of the cantons of Vaud and Fribourg (convention of 16th June 2002 between the states of Fribourg and Vaud on the one hand and Pro Natura (NGO) on the other with respect to the management of the natural reserves on the south shore of Lake Neuchâtel). Its duties include, in particular, organisation of the management of the unwooded wetlands.

All maintenance work is first submitted to the archaeological service of canton Vaud which can propose measures likely to prevent any intervention on the archaeological heritage and thus ensuring double protection.

Zug

The law on the upkeep of monuments, protection of archaeology and cultural assets of 26th April 1990 (Gesetz über Denkmalpflege, Archäologie und Kulturgüterschutz vom 26. April 1990, Denkmalschutzgesetz) regulates research, maintenance and management of monuments as well as the protection of cultural assets in the event of armed conflict or catastrophes. The inventory of protected monuments in canton Zug lists the monuments under cantonal protection including the pile-dwelling settlements. The archaeological protection of monuments (legislative and physical protection) concentrates primarily on the areas outside the building zones. In the building zones archaeological sites are not, as a rule, subjected to protection but they are studied scientifically before they are destroyed. Inter alia, the consistent aim is to retain the archaeological substance in other sites by technical modifications of the building project. In the event of special circumstances, for example sites in a good state of conservation, sites within the building zone are also protected. Three of the six sites proposed for inscription, namely Zug–Sumpf, (CH-ZG-06); Risch–Oberrisch, (CH-ZG-03) und Zug–Riedmatt, (CH-ZG-05), are subject to cover by the cantonal protection of monuments legislation. Zug–Otterswil / Insel Eielen (CH-ZG-04) is not in the building zone and is further protected by the water protection law and the landscape protection law. The other two sites Cham–St. Andreas, Strandbad (CH-ZG-01) and Hünenberg–Strandbad (CH-ZG-02) are not or only marginally affected under the zoning plan or additionally protected by the shoreline protection regulations.

The waters law of 25th November 1999 (Gesetz über die Gewässer vom 25. November 1999, Gewässerscherschutzgesetz) covers building on and in the water, water utilization and water protection. It also has an influence on archaeological sites under the shoreline protection regulations. The same applies for the law on the protection of nature and landscapes of 1st July 1993 (Gesetz über den Natur- und Landschaftsschutz vom 1. Juli 1993): the canton and the communities initiate measures for the protection of nature, animal and plant species, the landscape and natural objects. These synergies are taken advantage of (reed, ground and shoreline protection). Thus for example the water table at the Zug–Sumpf (CH-ZG-06) site is monitored, together with the support of the nature conservation authorities. This ensures control of the humidity structure of the marsh landscape which is also an advantage for the archaeological deposits in this terrain. As part of the reed protection, the cliff edge elsewhere is reinforced thus stopping erosion of the archaeological deposit layers in the shallows.

The planning and building law of 26th November 1998 (Planungs- und Baugesetz vom 26. November 1998) establishes the legal basis for spatial development in canton Zug. It permits the implementation of the spatial principles and provides the framework for the communal building regulations.

The buffer zones correspond to the zones on the 'archaeological sites' (Archäologische Zone) map which present an extract from the management plan (section S7 management of monuments and archaeology) that was resolved by the Zug cantonal council 28th January 2004. The 'Archaeological Sites' zones should be considered as indicators or 'likely areas' for archaeological finds and findings.

Zurich

As in most cantons, the Constitution of canton Zurich of 27th February 2005 (Verfassung des Kantons Zürich vom 27. Februar 2005) identifies the conservation of the cultural and natural heritage (including the shoreline) as a cantonal commitment (article 103).

The planning and building law on spatial planning and public building law of 7th September 1975 (Gesetz über die Raumplanung und das öffentliche Baurecht PBG vom 7. September 1975) includes a whole chapter (articles 203–217) with provisions on the cultural and natural heritage and defines the canton's obligations (inventory, protection measures, appropriation or expropriation, subsidies). There is a fund to permit the purchase of land to facilitate the protection of archaeological sites. These are regulated in the decree on the protection of nature and heritage and on communal recreation areas of 20th July 1977 (Verordnung über den Natur- und Heimatschutz und über kommunale Erholungsflächen vom 20. Juli 1977, NHV) – primarily in articles 1, 7, 11a, 23, 28. Protection of the shoreline is also anchored in this decree. The water management law of 2nd July 1991 (Wasserwirtschaftsgesetz vom 2. Juni 1991) regulates the use and protection of the waters and also covers lakes and rivers. Pursuant to article 2i of the water management law the natural water resources must be treated cautiously and, where possible, restored.

The city of Zurich heritage protection, and with it the sites Zürich–Enge Alpenquai (CH-ZH-09), Zürich–Grosse Stadt Kleiner Hafner (CH-ZH-10) as well as Zürich–Riesbach Siedlungskammer Seefeld (CH-ZH-11), was delegated by the canton to the city administrative authorities but it is governed by cantonal law.

The buffer zones in canton Zurich correspond to the archaeological zones (Archäologische Zone). These are defined according to the information currently available (former reports of finds, results of excavations and soundings) showing the potential area within which archaeological finds and discoveries could be possible. In the event, these may be modified (enlarged, reduced). They are reported to the communities and may be viewed on the canton Zurich Intranet. Applications for building permits are automatically referred to the cantonal archaeological service for their

appraisal in the course of the building permit procedure. Lakeshore settlements are referred, on the instructuions of the latter, to the subaquatic archaeological service of the city of Zurich to be processed.

Of the eleven sites included in the *Prehistoric Pile Dwellings around the Alps* serial, eight are already, thanks to the zoning regulations and the current situation, not or only marginally affected. In the case of Horgen–Scheller (CH-ZH-03) and Zürich–Riesbach Siedlungskammer Seefeld (CH-ZH-11), all building projects are examined in respect of their archaeology tolerance. In the event of conflicts of interest the projects are discussed and revised to respect the substance as far as possible. Substitute measures (excavations) are undertaken on as restricted an area as possible and always in conjunction with measures to safeguard the remains that are still in the ground. Concrete examples for this exertion of influence are, for example, repositioning basement construction, utilizing an already destroyed configuration, low excavation depth, delicate technical solution (number of support piles, type of drainage) or refusal of permission (appraisal of asset values). The assumption of costs incurred under the planning and building law (article 204), can prevent building measures or have a favourable influence on the cultural asset.

Communal legislation

The building and zoning orders comprise a zoning and land use plan for the whole of the community territory as well as a textual regulation and are, as a rule, within communal competence subject to the provisions of cantonal planning and building laws. Communal legislation must, in particular, take into account the cantonal protection zones by appropriate implementation of the protection aims. In the pile dwelling-site context, the building areas are of particular relevance: the communities define the building zones on their own territory that are subject to various rules. Inter alia the possible utilization factor (calculated from the ratio between living space area and area of the property and stipulating the percentage of the property that may be used) is calculated, the authorized number of storeys and the dimensions of the building (height, length) as well as distance from the perimeter and other architectural planning prescriptions. The creation of new building zones is subject to a revision of the communal building and zoning order which must be authorized by the canton. Every building project within a building zone requires a building permit. This is issued either by the canton or the community according to canton and volume of the project. The application is examined by the cantonal archaeological service in the course of appraisal for a building permit in the archaeological zones. The application for a building permit must be presented for public viewing and there is a right of appeal. Entitled to appeal are, at all events, the adjacent owners and under certain circumstances also non-governmental organisations with right of appeal as also the canton and the federation. The relevant provisions for every single nominated site are listed in the ↘ **Volume II, Id-files**.

5.b.3 Austria

National legislation

Legislative competences between the Federal Republic of Austria and its federal States, the Bundesländer, are regulated in the Austrian Constitution (articles 10 para. 1Z 13 B-V-G). According to it, the protection of historic monuments is a federal responsibility; the law on the protection of historic monuments (Denkmalschutzgesetz) is legislated by the Austrian Parliament. Laws of the federal States pertaining to historic monuments in the sense of the definition of the Denkmalschutzgesetz are therefore nonexistent.

The immediate protection of the pile dwelling arises from the Denkmalschutzgesetz (BGB1 Nr. 533/1923 in the version of BGB1.I Nr. 2/2008). The sites of Mondsee–See (AT-OÖ-07, Bundesdenkmalamt notice Zl. 790/1/92) and Keutschacher See (AT-KT-01, Bundesdenkmalamt notice Zl. 2769/53) are under monument protection. Generally, any destruction or alteration of a protected station are prohibited (article 4 DMSG). In case of a planned alteration (interference), an authorisation by the Federal Monument Protection Agency (Bundesdenkmalamt) is necessary (article 5 DMSG).

For the other pile dwellings nominated for UNESCO World Heritage (AT-OÖ-01–AT-OÖ-06) the process of placing under protection has been initiated, and will be implemented in 2010.

The Monument Protection Law (Denkmalschutzgesetz) is executed almost exclusively by the Bundesdenkmalamt (Federal Monument Protection Agency); in imposing and cancellation of protection orders, it is the first instance. The second instance of monument protection proceedings is the competent federal Ministry (currently the Federal Ministry of Education, Arts and Culture). In environmental impact assessment proceedings, the governor of the federal State decides as the head of the State's administration. In this case, the Bundesdenkmalamt has party status.

Cultural assets in general, also those under a protection order, do not constitute an obligation for environmental impact assessment according to Austrian law. However, this is the case where a World Heritage site is concerned (UVP-G 2009).

The Monument Protection Law (DMSG) defines the term 'monument' in article 1. Ground monuments, i.e. archaeological find sites, are defined in article 8. When monuments are under a protection order – in the case of the pile dwellings, they can be placed under a protection order either by notice (article 3 DMSG) or by legal ordinance (article 2a DMSG) – they are protected against destruction, alteration and transfer abroad. Austrian law does not know terms like archaeological find zones etc. However, the Austrian Monument Protection Law employs the term of the unknown find site, under which Austrian legal practice comprises all sites not under Federal Monument Protection. If such sites are newly discovered or finds are made on them, this has to be reported to the Bundesdenkmalamt, which on its part has to publish the find reports (Fundberichte aus Österreich – find reports from Austria). If such sites are encountered by chance, and / or there is an intention of destroying them in part or wholly, the Bundesdenkmalamt has to decide whether or not to place them under a protection order within a certain term. Alterations call for authorisation by the Bundesdenkmalamt, excepting an environmental impact assessment. Digs are classified as alterations and may only be done with authorisation by the Bundesdenkmalamt.

Find sites, both those under legal protection as those under no protection, have to be made visible both in the cadastre as in the land development plan according to the regulation on map drawing (Planzeichnungsverordnung), but this entry does not constitute any protection status for sites not protected according to the Monument Protection Law. All nominated sites are thus marked as archaeological zones in the land development plans.

In general, investigations by alterations in the surface of the earth or the ground under water and other investigations call for an authorisation by the Bundesdenkmalamt (article 11 DMSG). If ground monuments are protected by a notice, also the use

of metal detectors and other search tools calls for an authorisation by the Bundesdenkmalamt (article 11 para. 8 DMSG).

In addition to that, there is compulsory identification for UNESCO World Heritage sites within the framework of the regulation on map drawing (Planzeichnungsverordnung) of land development plans. In attachment 2 to the law on environmental impact assessment (UVPG), World Heritage sites are identified as protection zones, and provoke an environmental impact assessment in case of larger development projects. This identification means essentially an early warning stage; restrictive measures however can be imposed within the framework of the environmental impact assessment. Also, for water management plans, there is an assessment of possible environmental impacts according to article 55j of water protection law 1969 (WRG 1969) already within the framework of the creation of the national water management plan (Nationaler Gewässerbewirtschaftungsplan). The 'meaning and sensitivity of the area expected to be affected on the basis of special natural features or cultural heritage' have to be taken into account.

'Archaeological zones' (Archäologische Zonen) cannot be protected by means of the DMSG (Monument Protection Law). The protection of whole areas is not within the competence of the DMSG. According to DMSG, only a specific, concrete object can be protected. Only in case of danger, probable facts indicating archaeological materials suffice for placing under protection. For this reason, the protection of buffer zones is not provided by legislation on the federal level, but by State-level notices. For buffer zones, no-dive zones have been defined, which are decreed by notices by the competent district administration (Bezirkshauptmannschaft). No-dive zones in Lake Attersee (AT-OÖ-01–AT-OÖ-06) exist since 1985 (notice of BH Vöcklabruck GZ K-2-1985), those at lake Mondsee since 1982 (notice by BH Vöcklabruck GZ K-5-1982), and those at lake Keutschacher See since 1983 (BH Klagenfurt GZ 215/1/83-2). The no-dive zones are designed in a way that they overlap and comprise neighbouring pile dwellings. The no-dive zones prohibit destruction and alteration in the area of protection zones by diving with diving equipment. Contravention will be prosecuted according to article 14 para. 3 and 4 DMSG.

Carinthia

Large parts of the catchment area and the shores of lake Keutschacher See are under landscape preservation orders (landscape protection area (LSG) Keutschacher-See-Tal, 2,532 ha, LGBl. Nr. 74/1970, 86/1971). Since 2005, the bog and lake landscape Keutschach-Schiefling has been a Ramsar area (BGBl. III Nr. 12/2006).

For the development of certain plans and programmes, which are expected to have considerable environmental impacts, the Carinthian environmental planning law (article 7, K-UPG) requires an environmental report, which also has to contain information on the cultural heritage, namely 'archaeological treasures'.

On all Carinthian lakes (excepting lakes Wörthersee and Ossiachersee), there is a general prohibition of motor boats with combustion engines (LGBl Nr. 28/2002).

Upper Austria

The Upper Austrian Law on the Protection of Nature and Landscapes 2001 contains strict protection clauses for the sensitive landscapes around lakes in the area of the 500 m lake shore protection zone, which require an authorisation by the nature protection agency for interference with the characteristic landscape and the ecosystem. For built-up settlements close to the centre, there may be regulations with exceptions from lakeshore protection.

Also, interference with the landscape and the ecosystem are strictly prohibited within a 50 m protection zone at the mouth of streams.

Lake Attersee as well as Lake Mondsee are European Natura 2000 protection areas according to a decree by the Upper Austrian State government (LGBl. Nr. 131/2006).

For lakes Attersee and Mondsee, buoy plans were decreed (Attersee: LGBl Nr. 76/1984; Mondsee: LGBl. Nr. 66/1988). Here, the number and placement of buoys is decreed for specific lake areas, in order to protect the public interest in preserving the characteristic landscape.

On Lake Mondsee, there is an all-year ban on motor boats with combustion engines, and on lake Attersee, there are temporal boating bans in addition to the lakeshore protection areas defined in the nautic law (Schiffahrtsgesetz SchFG BGBl. I Nr. 62/1997). There are exceptions for commercial shipping.

5.b.4 France

Summary of the main principles of French legislation

French legislation for the protection of the architectural, artistic and archaeological heritage is the result of a long process of arriving at awareness of the existence of a collective heritage of historical value transmissible to future generations. The first measures to safeguard major buildings were taken at the end of the 18th century. The concept of a national heritage and the principle of the responsibility of the State as the guarantor of the public interest gradually took shape in the course of the 19th century. As from 1830, the inspectors of historical monuments, supported by the Commission des monuments historiques (Commission of historical monuments), were the forerunners of a public heritage service, but their action was restricted by the lack of binding legislation.

Following a number of projects, the first Act on the conservation of monuments and art objects of historical and artistic importance was promulgated in 1889. It was on the basis of this legislation that France's oldest 'lake settlements' in the Jura lakes could be legally protected; three sites of Lake Chalain (Jura) were thus classified as historical monuments in 1911. Parallel discoveries in the Alpine lakes, however, were not so fortunate. The major historical monuments act of 1913 reinforced the earlier act by extending State control to the owners of monuments:

- It expanded the notion of classification to what was in the public and not just the national interest.
- It provided for a stricter supervision of work on classified monuments.
- It reinforced the protection of movable objects.
- It introduced official classification in the event of a dispute or disagreement with the owners. This act with its very modern conception has proved to be totally effective since today it is the essential reference for the historical monuments services.

Overall, however, archaeological remains are still minimally and poorly protected since the 1913 Act refers essentially to standing buildings. It was only in September 1941 that the law placed restrictions on individual initiatives in archaeological research, regulated the ownership of objects and gave the State the power to intervene on private land to ensure the study or safeguard of remains. As from the late 1970s, other requirements emerged as regional economic planning picked up speed and the 1941 Act proved inadequate to limit the destruction caused by major works; the concept of rescue archaeology became vital. In this context, the Act of 15th July 1980 on the protection of public collections against vandalism is a tool of last resort; it incorporates in the Criminal Code (article 257) the protection of the cultural heritage (classified

or registered buildings, archaeological discoveries, land containing remains, objects publicly exhibited …). At the same time, during the 1980s and the 1990s, the concept of preventive archaeology progressively filtered into the regulations on rural and urban development (Town Planning Code and environmental law, for example). France, like the majority of Western European countries, has had to bring its legislation into line with the recommendations of the international conventions: London in 1969 and Malta in 1992, ratified in 1995 (decree No. 95-1039). This development has resulted in the adoption of new and the adaptation of earlier texts which are now grouped in the Code du patrimoine (Heritage Code) and the Code de l'environnement (Environmental Code). As regards the cultural heritage, the most important improvements concern the archaeological heritage, in the recent reformed Act 2001-44 (act 2003-707) concerning preventive archaeology, now incorporated into Book V of the Heritage Code and supplemented by decree 2004-490 on administrative and financial procedures for preventive archaeology.

Acts, regulations and incentives for the protection of pile-dwelling sites

The texts on which State action for the protection of the architectural, archaeological and natural heritage is based can be found in three documents:
– Le Code du patrimoine (Heritage Code), in particular Book V 'Archaeology' and Book VI ' 'Historical monuments, sites and protected areas';
– Le Code de l'environnement (Environmental Code), in particular in articles L.341-1 to L.341-22 and R.341-1 to R. 341-31, 'Classified and registered sites';
– Le Code de l'urbanisme (Town Planning Code), in so far as it includes the cultural and natural heritage in the various procedures for town planning permits (article R.111-4 and R.442-6): refusal or special requirements in relation to the Heritage and Environmental Codes. The Plans locaux d'urbanisme (PLU) (local town plans) summarise the main points of the regulations governing constructions and regional development (map of easements).

In addition to statutory protection, heritage conservation policy also makes use of contractual measures to encourage the inhabitants and local authorities to take the heritage into account in regional economic development procedures (parks and natural reserves, zones de protection de patrimoine architectural, urbain et paysager, ZPPAUP (zones for the protection of the architectural, urban and landscape heritage), zones naturelles d'intérêt écologique, faunistique et floristique, ZNIEFF (natural zones of ecological importance for their flora and fauna etc.).

Cultural heritage legislation: built heritage and archaeological remains

In French domestic law the archaeological heritage of the inland waters (waterways and lakes) is regarded as the *continuum* of the dry land heritage; the Heritage Code thus contains no specific tools for the protection of archaeological remains in lakes. While the administration of the Ministry of Culture and Communication does recognise this scientific specificity (a national service for underwater archaeology exists: Département de recherches en archéologie subaquatique et sous-marine, DRASSM (Department of underwater and submarine archaeological research), it must be admitted that the laws concerning the cultural heritage are not really applicable to submerged remains, especially those located at a distance from the banks.

Historical monuments Act of 31st December 1913
(Loi du 31 décembre 1913 sur les monuments historiques)

The measures concerning buildings (Heritage Code, Book VI, article L.621-1 to L.621-34) enable buildings, the conservation of which is of public importance in terms of history or art (order of a prefect, or ministerial or Council of State order), to be classified as historical monuments or to be registered in the additional inventory of buildings. The act specifies that buildings subject to classification include land containing prehistoric sites or deposits (Heritage Code, article L.621-1a). The pile-dwelling sites therefore meet these criteria. These measures enable the State services to supervise work affecting the historical monument and to prohibit work liable to destroy or deface it (Heritage Code, article L.621-9). The protective perimeter of classified and registered historical monuments entails a public easement included in the local town plan. Unlike standing buildings, however, buried or submerged remains, classified or registered as historical monuments, do not require a protective perimeter.

Preventive archaeology Act of 17th January 2001
(Loi du 17 janvier 2001 relative à l'archéologie préventive)

The preventive measures concerning archaeological remains (Heritage Code, Book V, Title II, article L.521-1 to L.524-16) are set out in decree 2004-490, article 1 which states that operations involving improvements, construction of structures or work which, on account of their location, nature or importance, affect or are liable to affect features of the archaeological heritage, may only be undertaken in compliance with measures of detection and, where necessary, conservation and safeguarding by means of scientific studies, and with applications for the modification of the substance of such operations. In particular, they enable regional prefects, on the proposal of the archaeology services of the regional departments for cultural matters, to identify by prefectorial decree zones de présomption de prescription archéologique, ZPPA (zones of presumption of an archaeological claim) (Heritage Code, article L.522-5). The communes are informed of these archaeological zones which may be entered in the local town plans (PLU) (Town Planning Code, article L.123.1, 7). While they do not constitute a public easement, the ZPPA are of essential importance to the services which examine town planning documents.

Act of 8th January 1993 establishing zones for the protection of the architectural, urban and landscape heritage (Loi du 8 janvier 1993 instaurant les zones de protection du patrimoine architectural, urbain et paysager, ZPPAUP)

Zones for the protection of the architectural, urban and landscape heritage may be established 'round historical monuments or in districts, sites and areas to be protected or developed on aesthetic, historical or cultural grounds' (communal order). Special architectural or landscape instructions may be established (Heritage Code, Book VI, article 642-1 to 642-7). The ZPPAUP constitutes a public easement entered in the local town plan.

Legislation concerning the natural heritage: natural landscapes, sites and monuments

The conditions in which underwater archaeological sites exist are very special; their conservation requires the careful combination of tools both for the protection of the

cultural and the natural heritage. The regulations aimed at preserving the natural areas of lakes and littorals contribute directly to the conservation of archaeological remains in submerged environments and wetlands particularly sensitive to the consequences of damage to the ecosystem.

Act of 2nd May 1930 on the protection of natural monuments and sites (Loi du 2 mai 1930 relative à la protection des monuments naturels et des sites)

Inventory and classification levels (ministerial order or decree of the Council of State) are part of the measures relating to the protection of natural sites, as in the case of the built heritage. They ensure that work liable to modify or destroy the state or appearance of sites, the conservation or preservation of which is of general importance from an artistic, historical or scientific standpoint or of legendary or picturesque importance (Heritage Code, article L.630-1 and Environmental Code, article L.341-1 to L.341-22) can be kept under control or prohibited. The perimeter of classified and registered sites entails a public easement entered in the local town plan (Town Planning Code, article R.126-1).

The circular of 14th May 1991 of the ministry responsible for the environment concerning the inventory of Zones naturelles d'intérêt écologique, faunistique et floristique (ZNIEFF) (natural zones of ecological importance for their flora and fauna)

The ZNIEFF are the subject of a national inventory. They correspond to sectors defined by the presence of species or environments that are rare, exceptional or characteristic of the regional or national natural heritage (Environmental Code, article L.411-5, L.411-22, L.411-30). This is essentially an incentive since the demarcation of a ZNIEFF does not provide it with statutory protection. This category of measures is well adapted for ensuring local authority awareness of the vulnerability of wetlands, first and foremost for their flora and fauna, but also by extension as regards the cultural heritage conserved in them.

Act No.76-629 of 10th July 1976 on the protection of nature and the institution of nature reserves (Loi n° 76-629 du 10 juillet 1976 relative à la protection de la nature instituant les réserves naturelles (RN)

Parts of the territory of one or more communes may be classified as nature reserves when the conservation of the fauna, flora, soil, water, mineral and fossil deposits and the natural environment in general is of particular importance. This measure ensures that they are not subject to any human intervention or activity liable to cause their deterioration (Rural Code, article I.242-1 to I.242-27 and R.242-1 to R.242-49 and Environmental Code article L.332-1 et seqq.). The act of classification defines the conditions for the management of the nature reserve which may be entrusted to a body (association, public establishment, territorial community). It entails a public easement entered in the local town plan. The aims of this measure are to preserve animal or vegetable species, biotopes and exceptional geological formations and to permit scientific and technical studies indispensable for the development of knowledge and the preservation of sites of special interest for the study of the evolution of life and the earliest human activities.

Act of 25th November 1977 on the protection of biotopes: prefectorial order for biotope protection (Loi du 25 novembre 1977 relative à la protection des biotopes: arrêté préfectoral de protection de biotope (APB)

An area covered by a biotope protection order is a part of the territory where human activities are regulated either to preserve the biotopes necessary for the survival of protected and identified animal or vegetable species or to protect the biological balance of certain environments (Rural Code, article R.111-12 and Environmental Code, article L.411-1 and L.411-2, R.411-15 to R.411-17). Ponds, swamps, marshes, etc., or any other natural formation where there has been little exploitation by man and which are necessary for the nourishment, reproduction, rest or survival of protected species may be included. A biotope protection order may also be intended to prohibit an action indirectly damaging to the biological balance of such environments. It entails a public easement entered in the local town plan.

Local town plans (Les plans locaux d'urbanisme, act 2000-1208 of 13 December 2000)

In France, the local town plan (PLU) is the main document for communal and possibly inter-communal town planning. It replaces the land occupation plan (POS) since the urban solidarity and renewal act 2000-1208 (Loi 2000-1208 relative à la solidarité et au renouvellement urbains) or SRU of 13th December 2000. The PLU is codified in the Town Planning Code for the most part in articles R.123-1 et seqq. The Town Planning Code provides that the PLU may demarcate districts, blocks, buildings, public areas, monuments, sites and sectors to be protected, improved or reassessed on cultural, historical or ecological grounds (article L.123-1). The plan is a local initiative drawn up within a commune, an urban agglomeration community or an urban community. At the present time, the great majority of the communes on land where the objects selected for the nomination dossier are located are in possession of an approved POS or PLU.

The PLU includes the principal points of all the regulations concerning communal land, including the regulations that concern us here contained in the Heritage and Environmental Codes for the protection of the cultural and natural heritage. The relevant State services keep the municipalities informed of the measures of protection that fall within their competence and that should be included in the PLU.

Some of these measures entail public easements; these are set out in detail in the PLU regulations which contain maps indicating their area in the case of registered or classified sites, perimeter protection for classified or registered historical monuments and zones for the protection of the architectural, urban and landscape heritage (ZPPAUP). Other measures without direct legal effect in the PLU regulations must be taken into account in drawing up town planning documents (building permits, land-parcelling permits, authorisations for various types of work); included are zones of presumption of an archaeological claim (ZPPA), natural areas of ecological importance for their flora and fauna (ZNIEFF), biotope orders and regional nature reserves. In addition to the above-mentioned procedures, zones or parts of the communal land where special protection is justified may be included in an 'N' or 'ND' zone of the PLU (Town Planning Code, article R.123-8).

Criteria for the definition of buffer zones

The definition of buffer zones for the component parts figuring in the nomination dossier is based on the three main sets of regulations which combine protection of the cultural and natural heritage and ensure its safekeeping and the study of its environment.

– The historical monuments Act of 31st December 1913
– The Act of 2nd May 1930 on the protection of natural monuments and sites
– The preventive archaeology Act of 17th January 2001

They identify communal or inter-communal public easements entered in the local town plans (PLU), within the purview of the act of 13th December 2000, known as the urban solidarity and renewal Act. The special nature of pile-dwelling sites, however, submerged or buried in wetlands and therefore not visible, limits the range of protection as historical monuments in terms of buffer zones since in such cases classification or registration does not determine perimeter protection. It is for this reason that the definition of buffer zones is also based as far as possible on the additional effects of the protection – in effect defined by a perimeter – of natural monuments and sites in certain sectors.

The third Act is a precautionary measure which makes it possible to define archaeologically sensitive zones – an essential issue in the examination of building permits, land-parcelling permits and authorisations for work to be done. In order to take account of the ancient underwater heritage these zones provide wide coverage of littoral areas.

Other preventive regulations, for the natural heritage in particular, may take the form of special regulations in the local town plans and are indicated by specific 'zones' in the communal plan ('N' in the PLU and ND in the POS, etc.). The buffer zones will be able to take advantage of some of these provisions.

The act of 8th January 1993 establishing zones for the protection of the architectural, urban and landscape heritage (ZPPAUP) also merits mention as a possible tool, to the extent that the objects are located on dry land and have thus been incorporated within the perimeter of the ZPPAUP. While this provision has little relevance for the Savoyan lake sites, it is more appropriate for those of the Jura lakes.

In order to reinforce the coherence and efficiency of the buffer zones, the strategy employed is the classification and registration as historical monuments or natural monuments and sites of the largest possible number of objects or of sectors of lakes in which objects are to be found. The creation of archaeologically sensitive zones in the case of communes which are home to these sites and objects will be given full effect for this purpose.

5.b.5 Germany

Protection of cultural heritage as the responsibility of the federal states

Germany is a federal country. According to the constitution, care and preservation of ancient monuments are the responsibility of the individual states. The protection of historical and cultural monuments is anchored in most cases specifically in the Constitutions of the 16 individual federal states.

Pile dwellings only occur in the prealpine area in the south of the Federal Republic of Germany. Therefore the laws of Baden-Württemberg and Bavaria are relevant.

Protection of cultural heritage and federal law

The care and preservation of ancient monuments as matters of public interest are anchored in many federal laws such as the federal railway laws (Railway Rearrangement Act (Eisenbahnneuordnungsgesetz, ENeuOG) and in particular article 5 of that law, the General Railway Law (Allgemeines Eisenbahngesetz, AEG)), the Federal Building

Code (Baugesetzbuch, BauGB), the Federal Mining Act (Bundesberggesetz, BBergG), the Federal Spatial Planning Act (Raumordnungsgesetz, ROG), the Federal Environmental Impact Assessment Act (Umweltverträglichkeitsprüfungsgesetz, UVPG), the Federal Waterways Law (Bundeswasserstraßengesetz, WaStrG) and the Federal Nature Conservation Act (Bundesnaturschutzgesetz, BNatSchG). The latter is of particular importance for prehistoric wetland and lake shore sites in nature reserves, since it implements European protection ambitions such as the 'Natura 2000' network (see below) within the German civil law (article 32–38 BNatSchG).

Monument conservation interests are not only legally binding when a construction permit-application touches monument protection laws alone, but also when the statutory provisions defined in other federal or state laws are touched. In this respect, all the individual State laws for the protection of cultural heritage have similar provisions, calling for the approval of the appropriate cultural heritage protection authority for a project to go ahead. It is for the regulatory authority responsible for issuing the permit to make sure that the cultural heritage protection authority is heard.

The history of cultural heritage protection legislation in Germany

The first law on cultural heritage protection was passed in Baden. The Badensian Cultural Heritage Protection Act of 12th July 1949 served as an example for other federal states. With two exceptions, the Acts were passed in the original federal States in the 1970s. Since then some of them have been changed often and sometimes radically. The laws in the 'new' federal States were all formulated in the 1990s after the reunification of Germany. Since then some of them have undergone multiple changes.

The aim of 'modern' cultural heritage protection laws is to provide for the preservation, protection, maintenance and study of the monuments. In the case of archaeological monuments the aim is to leave them untouched in the soil, excavation being a form of destruction. This intention goes beyond earlier policies such as the Prussian Excavation Act of 1914, which, until the introduction of the individual State laws, regulated the modalities of excavations deemed as unavoidable within the area previously under Prussian rule.

Baden-Württemberg

The legal basis for Baden-Württemberg is the Cultural Heritage Protection Act (Baden-Württembergische Denkmalschutzgesetz, DSchG) which was passed on 1st January 1972. It obliges all owners of ancient and historical monuments, whether they be private individuals, the church, a municipality or the State itself to 'preserve and maintain (the monument) as far as is just and reasonable' (article 6 DSchG).

Objects, ensembles, and parts of objects – including archaeological sites – the preservation of which is deemed, for scientific, artistic or regional historical reasons, to be in the public interest are defined as cultural monuments (article 2 DSchG). The task of protecting, maintaining and especially monitoring these cultural monuments as well as prevention of damage and the rescue and salvage thereof is the duty of the cultural heritage authority (article 1 DSchG). A cultural monument may only be destroyed or eliminated, compromised in its appearance or removed from its vicinity with the permission of the cultural heritage protection authority (article 8 DSchG).

Cultural monuments of particular importance enjoy additional protection as listed monuments in the cultural monuments list (Denkmalbuch, article 12 DSchG). The highest level cultural heritage authority is responsible for adding or deleting a monument from the list (article 15). Areas in which monuments of particular importance may be reasonably presumed to exist can be protected indefinitely against distur-

bance (Grabungsschutzgebiete, article 22 DSchG). The assent of the cultural heritage authority at the highest level is obligatory for work in an area thus protected.

Protection status of the pile-dwellings sites in Baden-Württemberg

All pile-dwellings sites are cultural monuments as defined by the cultural heritage protection Act article 2. The following pile dwellings sites enjoy special protection status (7/2009):

Unteruhldingen-Stollenwiesen (DE-BW-11) and Blaustein–Ehrenstein (DE-BW-22) are already listed in the 'Denkmalbuch' Act article 12–15. A listing application will be made for all of the sites on the UNESCO list.

Sipplingen–Osthafen (DE-BW-10) is a specially protected area (Grabungsschutzgebiet Act article 22). The same protection has been applied for the sites of Wangen–Hinterhorn (DE-BW-01) and Wollmatingen–Langenrein (DE-BW-05).

Other Laws

The archaeological sites are protected not only by cultural monument legislation but also by environmental protection laws (areas of natural beauty, landscape conservation areas, flora and fauna habitat protection, bird reserves), the Lake Constance Shore Line Plan (Bodenseeuferplan) of the Upper Rhine-Lake Constance-Regional Alliance (Regionalverband Hochrhein-Bodensee) and water legislation, as listed individually in the following:

– The Nature Conservation Act, for landscape management and the provision of recreation in the natural environment (Naturschutzgesetz, NatSchG) of 13th December 2005: Some areas are designated as nature reserves by statutory order as defined by article 26. Access and land use is therefore restricted. This affords the archaeological wetland sites extra protection.
– The European Council Directive 92/43/EEC of 21st May 1992 on the conservation of natural habitats and of wild fauna and flora, known as the 'Habitats Directive' respectively 'FFH-Directive' (Fauna, Flora and Habitats), which, together with Council Directive 79/409/EEC of 2nd April 1979 on the conservation of wild birds, or 'Birds Directive', form the cornerstone of the European Ecological Network 'Natura 2000'. 'Natura 2000' is a network of numerous wildlife reserves within the European Union that are protected by coherent standards. It includes Special Areas of Conservation (SACs) designated by member States under the Habitats Directive, and bird sanctuaries, or Special Protection Areas (SPAs). Protection of 'Natura 2000' sites is more precisely defined in article 6, para. 1 and 2 of Council Directive 92/43/EEC, and Article 3 of Directive 79/409/EEC. According to these articles, member states are obligated to take appropriate steps to preserve and protect the SACs and the SPAs as well as to initiate measures to reinstall the balance of the ecological systems, where necessary.
– The IGKB guidelines from 1987 formulated by the International Water Protection Commission for Lake Constance (Internationale Gewässerschutzkommission für den Bodensee) aim to protect the form and the biocoenoses of the shoreline and the flat water zone, to protect against detrimental effects and to promote positive development.
– The Lake Constance Shoreline Plan (Bodeseeuferplan) of the Upper Rhine-Lake Constance Regional Alliance (Regionalverband Hochrhein-Bodensee) and the Lake Constance-Upper Swabia Regional Alliance (Regionalverband Bodensee-Oberschwaben), both of which were accredited by Baden-Württemberg's Interior Ministry on 15th November 1984, has the same aim. The Lake Constance Shore-

line Plan divides the shoreline into protected zones, in which use is restricted. Category I zones are to be kept free of buildings and other constructions. In category II zones, construction and other encroachment are highly restricted.
– The Baden-Württemberg Water Protection Act (Wassergesetz für Baden-Württemberg, WG) of 20th January 2005 (GBL. S. 219) last modified on 11th October 2005 (GBl. No. 15, p. 668):
– With this legislation the Directive 2000/60/EC of the European Parliament and of the Council of 23rd October 2000 establishing a framework for Community action in the field of water policy was adopted into state law as the so called 'Water Framework Guidance' (Wasserrahmenrichtlinie, WRRL). Article 1 of the Water Framework Guidance in particular, which aims to avoid further degradation of the aquatic ecosystems, provides a further legal instrument to prevent activities such as harbour dredging, for example, where waterlogged sites are present.

Buffer zones

When the individual buffer zones were designated, the local conditions were taken into account. If the cultural heritage sites are embedded in the natural landscape or actually within nature reserves, it is likely that off-site information on the landscape and settlement history of the surrounding wetlands is present. The buffer zone in this case is as large as possible. If the site is only partially embedded in the natural landscape, the buffer zone will be smaller.

The buffer zones themselves are not cultural heritage sites and therefore not legally protected by Baden-Württemberg's cultural heritage protection laws. They are however regulated by common law and monitored by the administrative authorities. This means that the cultural heritage authority must be informed of any construction or other encroachment in order to assess their compatibility with the pile dwelling cultural heritage sites. If the buffer zones lie within nature reserves or landscape conservation areas, they enjoy the protection applicable in those areas.

Bavaria

The Bavarian Constitution (Bayerische Verfassung, BV) in the version of 15th December 1998 and last revised on 10th November 2003 recognises the responsibility of the Free State of Bavaria to its cultural heritage. Key aspects of heritage management are defined therein as public duties. According to article 3, para. 1 and 2, Bavaria is a legal, cultural and social state that protects its cultural traditions. Article 141, para. 2 further states that the State, municipalities and legal bodies have the duty to care for and preserve artistic treasures, historical and natural monuments, and the landscape.

The legal basis for the preservation of archaeological monuments is the Bavarian Law for the Protection and Preservation of Monuments, or Monument Protection Law (Bayerisches Denkmalschutzgesetz, BayDSchG), which took effect on 25th June 1973 and was last revised on 20th December 2007.

Article 1, para. 1 of the Monument Protection Law states that monuments are man-made objects, or parts thereof, from a past epoch whose preservation is in the interests of the general public. Article 1, para. 4 defines archaeological monuments. Specifically, 'archaeological monuments are movable and immovable monuments which are or were in the earth and in general date from prehistorical or early historical times'. The entry of all (known) archaeological monuments in the Monument List of the Free State of Bavaria is carried out by the Bavarian State Conservation Office (Bayerisches Landesamt für Denkmalpflege; Article 2, para. 1 BayDSchG).

According to Article 3, para. 2 BayDSchG, the construction projects and land development plans of every community must take into consideration the interests of monument protection and monument care. Excavation work that touches archaeological monuments and the excavation of archaeological monuments themselves are regulated under article 7. Permission is required for any movements of earth that are undertaken on property containing archaeological monuments. Permission can be refused by the responsible authorities insofar as this is necessary to protect the archaeological monument (article 7, para. 1). Owners can also be forced to allow archaeological excavation on their property if the State Conservation Office has determined that those measures lie in the public interest (article 7, para. 5).

Anyone who finds an archaeological monument is required to register his discovery promptly with the Local Monument Protection Authority (Untere Denkmalschutzbehörde) or with the State Conservation Office (article 8, para. 1). article 8, para. 4 and para. 5 as well as article 9 of the Monument Protection Law stipulate that the owners of property on which archaeological monuments have been discovered must allow all necessary archaeological measures to take place on the property and must hand over any objects found to the State Conservation Office for safekeeping (should the danger of their loss exist) or (for a limited time) for scientific analysis and documentation. Article 10, para. 1 and 2 further state that permission from the respective authorities is required for the destruction, alteration, relocation, or sale of a listed movable monument. As such, permission may also be denied by the authorities.

It should be noted here that in accordance with article 984 of the German Civil Code (Bürgerliches Gesetzbuch, BGB) of 18th August 1896, in the new version promulgated on 2nd January 2002 and last amended by statute of 4th July 2008, movable archaeological monuments (finds) in Bavaria fall under the category of treasure trove and as such belong in half to the discoverer and in half to the owner of the property in which the object is found, in line with the so-called principle of Hadrianic splitting (Hadrianische Teilung). On private property, a treasure trove belongs in full to the owner of the property if the owner is also the finder of the treasure. On public grounds the state and the – usually private – discoverer share the find equally. The State of Bavaria does not grant archaeological treasure troves a special status by which their ownership would automatically be transferred to the State upon their discovery.

Whoever unlawfully – deliberately, or in a grossly negligent way – destroys or damages a movable or immovable monument, carries out any kind of activity altering the ground without the required permission, or excavates without permission is required by article 15, para. 3 and 4 BayDSchG to restore the monument to its original state as far as possible. In addition, the person must make restitutions for the full extent of the damages caused. Article 7, para. 3 BayDSchG regulates that excavations can only be ordered or undertaken by the State Conservation Office, or with that body's participation. Articles 16, 18 and 20 of the BayDSchG, especially article 16, para. 1 and article 18, para. 1 regulate the legal basis for rights of access and expropriation procedures which the respective authorities may take to protect a monument.

The Bavarian State Development Programme of 2006 (Landesentwicklungsprogramm Bayern 2006, LEP), dated 8th August 2006, defines in its legally-binding goals (Ziele, Z) and general principles (Grundsätze, G) the handling of monuments. Part B of the LEP concerns the goals and principles relevant for the sustained development of regional planning. Chapter B III, titled ‚Sustained social and cultural infrastructure', states in point 5.1.5 (Z) that monuments, including UNESCO World Heritage Sites, are to be maintained, kept in good condition and to be treated appropriately and protected from danger according to the prevailing legal guidelines. The integration of archaeological monuments in nature sanctuaries, among others, is additionally granted importance under point 5.1.7 (G).

Protection status of the nominated sites in Bavaria

All nominated wetland and lakeshore settlements in Bavaria are immovable archaeological monuments as defined in Article 1, para. 4 of the state's Monument Protection Law (BayDSchG). Article 2, para. 1 BayDSchG requires that they be entered in the Monument List of the Free State of Bavaria.

Additional laws

The wetlands in which the nominated Bavarian sites are located are often not only protected by monument protection laws, but are also covered under nature or water protection programmes. The archaeological monuments in these regions thus enjoy heightened protection, as anthropogenic activities in such regions are restricted, if not completely forbidden.

On the Bavarian State level, the goals of 'Natura 2000' are anchored in the Bavarian Nature Conservation Act (Gesetz über den Schutz der Natur, die Pflege der Landschaft und die Erholung in der freien Natur, Bayerisches Naturschutzgesetz, BayNatSchG) from 18th August 1998, last revised by article 5 of the Law of 23rd December 2005. In particular, articles 13b, 13c, and 13d in section IIIa on the protection of the European Ecological Network 'Natura 2000', biotopes, and the statewide network of biotopes should be mentioned. Changes to, or the destruction of SACs or European bird sanctuaries are prohibited by Article 13c, para. 1–3 of the Bavarian Nature Conservation Act. The same is true for activities in ecologically extremely valuable biotopes such as marshes and wetlands (Article 13d, para. 1, BayNatSchG).

The Bavarian law governing bodies of water (Bayerisches Wassergesetz, BayWG) from 19th July 1994, last revised by article 3 of the Law of 27th July 2009, regulates water law in Bavaria. The federal framework of the Bavarian law is provided by the nationwide law regulating the water balance (Gesetz zur Ordnung des Wasserhaushalts, Wasserhaushaltsgesetz, WHG) from 19th August 2002, last revised by article 8 of the Law of 22nd December 2008. Article 3a of the BayWG on management principles (para. 1a and 1 WHG) declares that bodies of water, as integral parts of the ecosystem, are to be managed in a way that ensures their sustained development. The goals of nature protection and landscape preservation must be regarded in these areas as well as in land-based ecosystems and wetlands that are directly dependent on these waters. The third part of the BayWG about the use of water bodies and water protection is also of importance, in particular article 22 on the regulation of common usage. This can be restricted or prohibited by the local authorities in order to protect the nature or the water and its shores. Section IV of the third part of the BayWG on water protection refers in article 41j to the fact that the Bavarian State Ministry of the Environment and Public Health (Bayerisches Staatsministerium für Umwelt und Gesundheit) is empowered to pass directives in accordance with the regulations of the European Community and international agreements on water protection in order to protect these waters and the land-based ecosystems and wetlands that are dependent on them as a part of the region's ecological balance.

Buffer zones

Buffer zones are defined as areas with the potential of additional archaeological sites, either unknown (Vermutungsgebiet) or known. Therefore, they are protected by the Bavarian Monument Protection Law, in particular Article 7, para. 1. Independently of its monument-related attributes, a buffer zone constitutes the vicinity of a monument, as described in Article 7, para. 4, BayDSchG. The designation of a buffer

zone is oriented around other known archaeological monuments that have not been nominated for recognition as World Heritage Sites as well as natural landscape features and existing bird sanctuaries. If the buffer zone lies in a body of water, a Special Area of Conservation (SAC) or a Special Protection Area (SPA), the laws mentioned above concerning water and nature conservation apply to the region, in addition to the Bavarian Monument Protection Law.

5.b.6 Italy

Summary of the main principles of Italian legislation

Italian law guarantees the conservation, protection and enhancement of the country's heritage, including both cultural heritage and landscape resources; Italy's main law on these issues is the one entitled *Decreto Legislativo 22th January 2004, n.42 'Codice dei beni culturali e del paesaggio'*. This instrument regulates all activities affecting cultural heritage and its main concern is heritage preservation for future generations, and therefore, its safeguard and enhancement.

The said *Codice* is composed of three main sections, the first of which identifies the entirety of cultural and landscape heritage as cultural heritage, the second identifies cultural heritage and lays out norms for its conservation, while the third deals with the identification of landscape worthy of preservation and rules concerning landscape heritage.

The sites of pile-dwelling settlements which are proposed for candidacy form part of the country's national archaeological heritage. The safeguard norms relating to excavation and conservation of archaeological finds are described in the second section of the *Codice*. At the same time these prehistoric villages are mostly placed near lakes and are often totally or partially submerged. They are sometimes located in protected areas such as regional parks or areas of environmental interest. Therefore these areas are often subject to further safeguarding measures, whose application refers to the third section of the instrument mentioned above, which deals with landscape conservation.

We must conclude that the examination of the legal safeguarding system for Italian prehistorical pile-dwelling sites is a complex issue, as it affects different aspects and different fields, which can overlap, or act as a complement to each other. A further in-depth survey is provided below.

A brief overview on Italian laws on conservation

The above mentioned *Codice* is the final outcome of the processing of a series of documents aiming to ensure the legal framework to protect cultural heritage. These sources date back to the 19th century, at the time in which the first norms for the safeguarding of cultural resources were being drawn up in various Italian States present in Italy before its Unification.

The first factual protection instrument for the conservation of historic and artistic heritage is an edict drawn up by Cardinal Pacca, published in 1820 in the Pontifical States, which inspired similar initiatives in other Italian States. This edict lays down the basis for later conservation norms, setting out a few principles which will form the basis of all future Italian legislation, some of which remained substantially unchanged up to the present day. For example, with particular reference to archeological heritage, Pacca's edict sets down the principle that the State owns all finds recovered during an excavation; also there is a ban on exporting of cultural heritage without proper authorization, which concerns archaeological heritage, but also historical and artistic

heritage. There is finally a third, crucial principle, namely, the idea of cataloguing cultural heritage, and the institution of a mandatory communication to State authorities to be issued by owners of culturally important resources.

After Unification, a first law for the conservation of cultural heritage was drawn up in 1909. It was based on Cardinal Pacca's edict and enlarged the scope and competence, introducing some new principles. The most important innovation we find in this law is represented by the principle than any cultural resource falls within the scope of the law, regardless of whether it is listed or not. This ensures the mandatory inclusion in the catalogue's archives does not represent an obstacle in the path of those in charge of preservation. This same law introduced for the first time the principle that State-owned cultural property could not be sold. According to this same law, mandatory communication to the State authorities must also be issued when cultural property belonging to private citizens and have been declared of historical and artistic interest are subject to any change of ownership. Moreover, cultural property cannot be demolished, removed, or altered or restored without the relevant Ministry's authorization. The new law describes in detail the rules pertaining archaeological excavations.

In 1939, two laws were approved in Italy and were named after Minister Bottai, who proposed them. Law number 1089 is entitled *Tutela delle cose di interesse storico artistico* and focuses on protection of cultural heritage, and law 1497 *Protezione delle bellezze naturali*, focused on the natural environment and landscape. The two laws enshrine the principles mentioned earlier, in an composed and detailed form. The completeness of the two normative instruments and the clarity of the application norms ensured these two instruments should prove the hardiest and they thus remained in force, albeit undergoing modifications, and with the support of other means, up to 1999. On the basis of these two laws, other provisions were made, in particular the instrument entitled *Codice dei beni culturali e del paesaggio*, which was published in 2004.

During its history, legislation concerning conservation of heritage has benefited from important norms code, which was published in 1942. This instrument lays down the principle that all cultural property, including among others archaeological sites, museum collections, picture galleries, and all archaeological finds are owned by the State and local public institutions. The entirety of public estates, known as the *demani,* include all State-owned property and property belonging to public institutions; their purpose is to satisfy public interest.

In 1948, Italy became a Republic and gained a Constitution which introduced among its Founding principles, article 9, the principle according to which 'the Italian Republic promotes the development of culture, as well as scientific and technical research. It also safeguards landscape and the historical and artistic heritage of the Nation'. In this way the public function of preservation of cultural and environmental heritage is sanctioned definitely and unambiguously.

Legal measures of protection for pile-dwelling sites

All archaeological sites are protected by the national conservation Law *Codice dei beni culturali e del paesaggio*, whose norms establish that all archaeological research goes under the Ministry of Cultural Heritage and Activities, which can grant research concessions. All the finds from archaeological excavations belongs to the State, but can be held by the Regional institutions or by other public local institutions for exhibition purposes. Archaeological areas declared to be of cultural interest according to article 13 of the said *Codice* are subject to stringent conservation norms, banning any activity which can damage cultural heritage. The *Codice* establishes also, with the article 28 'measures of protection and prevention', a strong measure of prevention against the risk of destruction of archaeological finds.

Other safeguarding provisions which can affect areas surrounding pile-dwelling sites are limitations known as *vincoli* and relate to landscape conservation. These too are comprised within the *Codice*, and in particular in the third section which deals with natural landscape and environment.

Among the categories of landscape resources safeguarded by the third part of the *Codice*, we find in the article 142, section 1, paragraph b) lakeside areas comprising land up to 300 m distance from the waterline including territories situated above lakes; c) rivers, torrents, water courses... and the banks or foot of the embankments up to 150 m distance from the waterline d) parks and national and regional reservations, and buffer zones external to such parks.

The areas described in article 142 of the *Codice* refer in many cases to places in which archaeological research has revealed the presence of pile dwelling villages. In this case safeguard and protection measures are also carried out under the control of the relevant authority, the Ministry for Cultural Heritage and Activities, which exercises its control over the relevant public institutions in charge of granting building permission. Again, the Ministry can grant or deny its authorization based on the project's compatibility with heritage conservation conservation.

In some cases the pile dwelling sites are located in areas which are themselves subject to special landscape conservation provisions, according to article 136. In this case there is a special decree, limiting activity in the area, known as a *decreto di vincolo*, which describes the boundaries of the area as comprising landscape of cultural interest and specifies the reasons for which the *vincolo* was applied. Protective activities are exercised according to the ways and means previously described.

Eventually, most of the pile-dwelling sites are submerged and accessible under special circumstances only. This simple fact represents in itself a measure of protection.

National measures of protection

Direct Legislative limitation for archaeological purposes

Decreto Legislativo 42/2004, *Codice dei beni culturali e del Paesaggio*. Article 13 *declaration of interest*. A saveguarding measure which ensures that any activity on the site must be authorized by the relevant Soprintendenza (peripheral office of the Ministry for Cultural Heritage and Activities), which can deny it for conservation reasons, authorize intervention including limitations, authorizing only intervention which does not harm the resource in question.

Safeguarding provisions for archaeological areas: measures of protection and prevention

Decreto Legislativo 42/2004, *Codice dei beni culturali e del Paesaggio*. Article 28 *measures of protection and prevention*. A safeguarding measure which provides for the possibility for the relevant Soprintendenza, to suspend or inhibit interventions which can damage archaeological heritage also in those cases in which there is no direct legislative limitation for archaeology or other purpose.

Legislative limitation for landscape conservation purposes, instituted by means of a law decree

Decreto Legislativo 42/2004, *Codice dei beni culturali e del Paesaggio.* Article 134, comma1, lettera a). *Landscape.* A safeguarding measure which is applied in areas declared by a law decree to be of interest for their landscape resources. Authorization for any form of intervention is granted or denied by the relevant authority (e.g., a Region can delegate to a Municipality). The Soprintendenza ensures the authorization is legitimate, by verifying that the local body has actually verified the compatibility of the project with the conservation of the resource in question.

Legislative limitation for landscape conservation purposes

Decreto Legislativo 42/2004, *Codice dei beni culturali e del Paesaggio.* Article 134, comma 1, letter b). *Landscape.* Areas protected by law. A safeguarding measure is applied in areas which have been declared to be of interest because of their landscape resources (article 142, section 1) according to the force of law, and not according to the normal procedures. It applies in areas close to lakes up to 300 meters from the water's edge, also in the case of areas situated above lakes; it also applies in the case of rivers, torrents, water courses included in special lists; in the case of parks, national and regional parks, and in buffer zones surrounding parks; in the case of forest and wooded areas; humid areas; areas of archaeological interest.

Intervention authorizations are granted or denied by the relevant authority (e.g., the Region, which can transfer this power to the Municipality). The Soprintendenza ensures the authorization is legitimate, by verifying that the local body has actually verified the compatibility of the project with the conservation of the resource in question.

Community Council Conservation Directive: identification of SIC sites (Sites of Community Importance) Ministry's decree 26 march 2008, by article 4 of the Council Directive 92/43/CEE.

The Ministerial Decree identifies the SIC (Sites of Community Importance) for the bio-geographical Alpine region in Italy to ensure the conservation of natural and semi-natural habitats enjoying special conservation priority or species enjoying special priority. Special conservation measures are applied to each Member State in whose territory these resources belong, and the application of such measures is monitored by the other Members.

Regional and over regional and local measures of protection

Provision for the protection of State-owned land around lake Garda

Rules concerning State-owned land around lake Garda, and navigation on the lake. Jointly agreed draft drawn up by the Lake Garda community for the Region of Lombardy and Veneto, and for the South-Tyrol / Autonomous Province of Trento. This protection measure provides in article 13 for the banning of all areas of archaeological importance.

Regional protection provisions: laws instituting Regional Parks

– Piedmont Regional Law n.43/1975
– Lombardy Regiona Law n.86/1983
– Veneto Regional Law n.40/1984
– Friuli Venezia Giulia Regional Law n.42/1996.

Regional Parks are areas in which sometimes archaeological remains can also be found, and represent an important local safeguard instrument to protect particular natural, environmental and landscape features of a given area.

Different institutions manage the parks (i.e., provincial authority, mountain communities as well as relevant Communes, acting either alone, or in conjoined form, as well as consortia comprising different agencies). They carry out environmental refurbishment projects, reintroduce local animal species, carry out environmental engineering projects, and enhance impoverished agricultural areas and sustainable tourism.

Territorial planning instruments

– P.A. (Area Plan) or P.T. P.R. (Regional Territorial Landscape Plan)
– P.T.C. (Coordination Territorial Plan) of the Provinces
– P.G.T (Territorial Management Plan) o P.A.T. (Layout Territorial Plan) of the Municipalities.

These territorial management instruments have various purposes. They describe which Local Agencies are in charge of the different territories within a given area; they identify the areas for which a particular set of rules apply, regarding, firstly, the sustainable use of environmental resources and the safeguard and enhancement of landscape resources; secondly, they deal with the promotion of research activity, setting up limitations regarding the use of these areas, as well as limitations to the activities allowed by law e.g., by banning all building activity.

The so-called PGT or PAT are new urban planning instruments for the Communes; PTC is the document thanks to which the Province governs its territory while liaising and taking into account the territorial policies of the Region, while coordinating and guiding urban planning at Communal level; the PA or PTRP is a new overall instrument regarding landscape law, relevant to the entire regional territory, which is in force until more in-depth landscape protection laws are set in place.

5.b.7 Slovenia

A brief overview on Slovenian laws on conservation

The Constitution of the Republic of Slovenia
OJ RS nos. 33/91-I, 42/97, 66/00, 24/03, 69/04, 69/04, 69/04, 68/06

Article 5: In its own territory, the state ….. shall provide for the preservation of the natural wealth and cultural heritage and create opportunities for the harmonious development of society and culture in Slovenia…

Article 73 (Protection of the Natural and Cultural Heritage): Everyone is obliged in accordance with the law to protect natural sites of special interest, rarities and cultural monuments. The state and local communities shall promote the preservation of the natural and cultural heritage.

Cultural Heritage Protection Act
ZVKD-1 – CHPA; OJ RS nos. 16/08, 123/08

The Act provides for the methods of cultural heritage protection and the related competencies required for an integrated policy of heritage conservation. It sets the uniform national system for the protection of cultural heritage. A special part is related to the protection of archaeological heritage.

In terms of subject of public interest for protection under the Cultural Heritage Act, pile dwellings in Ljubljansko barje Landscape Park are registered heritage. The Institute for the Protection of Cultural Heritage of Slovenia has already prepared an expert proposal for proclamation of pile dwellings for cultural monument. Registered immovable heritage may be proclaimed a monument on account of its extraordinary significance for the State (monument of national significance). A preservation Decree is an Act on the proclamation of a monument of national significance. It is issued by the government. This Decree is now in its preparation phase.

Decree on the Ljubljansko barje Landscape Park
OJ RS no. 112/08

With the objective to protect natural resources, preserve biodiversity and conserve and enrich landscape variety, the Ljubljansko barje area is designated Ljubljansko barje Landscape Park. A further objective of Landscape Park protection is to support the quality of life of the inhabitants of the Landscape Park by promoting sustainable development harmonised with the local tradition of the area. This includes efforts for improved living conditions for the inhabitants, stimulation of new jobs and development opportunities, improvement of public economic infrastructure, reduction of the existing and prevention of additional burdening of the environment and provision of research, education and relaxation, as well as the spiritual enrichment of the local people. The Landscape Park enables and encourages the integration of social and economic development, the achievement of environmental standards, sustainable use of natural resources, preservation of cultural heritage and cultural values, and preservation of recognisable characteristics of the area.

Decision establishing the Ljubljansko barje Landscape Park as a public institute
OJ RS no. 55/09

This Decision is based on the Decree on the Ljubljansko barje Landscape Park and regulates the legal status of relations between the State and the Institute and issues regarding the organisation and operation of the Institute, as well as detailed issues regarding the use of the symbol and the name of the Institute, its translations and derivations.

Cultural Heritage Registry

The official State registry of the immovable cultural heritage in Slovenia. All entries have a basic protection.

Regional and local measures of protection

In recent years strategic development documents, expert groundwork, evaluation documents and specialized documents dealing with the preservation of cultural herit-

age and the development of the area were drafted at regional and local level. Below the most important documents are listed.

Ljubljana Urban Region

The pile-dwellings from Slovenia that are nominated are situated in municipality of Ig, which is one of 26 municipalities comprising the Ljubljana Urban Region. The Regional Development Agency of the Ljubljana Urban region (RDA LUR) is responsible for planning development programmes and supports economic, social and cultural activities in these municipalities.

The regional Spatial plan has not passed yet, but currently RDA LUR prepares *Expert Groundwork for the preparation of the regional Spatial plan*, which will be finished by the end of year 2009. The purpose of the project is to prepare a comprehensive analysis and its components, analysis of events according to each area in the region and defining different spatial planning scenarios and solutions in the form of spatial systems. From parts that concern pile dwellings and area around them the most important activities for Expert Groundwork are:

– analysis and assessments of the potential for the development of activities, which are based on the natural elements by taking into consideration all secured / protected areas
– to verify the proposed projects in the area of preserving the natural heritage from the standpoint of the optimal utilization of natural potential.

The goal is to ensure that project which will be planned in future Spatial plan as the result of Expert Groundwork can be hundred percent realizable.

The 2007–2013 Regional Development Programme of the Ljubljana Urban Region (RDP) is the fundamental programme document on the regional level. RDP defines the advantages of all municipalities in Ljubljana Urban Region, sets the objectives and development priorities of the Region and the regional development partnership, and suggests the measures and activities to be taken for their realization. Principal measures to achieve the goals in the Region are accessibility for the quality of life, preserved heritage, efficient high-quality spatial planning, efficient municipal utility services, equal opportunities – contribution to the region's competitiveness, culture – competitive advantage of the Region, e-administration, supportive entrepreneurial environment.

For the implementation of the Development Programme, the 2007–2009 Implementation plan has been adopted and amended twice. In 2009, the Regional Development Agency is preparing a new Implementation plan of the Regional Development Programme for the period 2010–2012. It includes a selection of project proposals, which contribute to the realization of goals at the regional level for the Regional Development Programme of the Ljubljana Urban Region for the period 2007–2013 and can be financed from different financial sources of the European Union.

Strategy of Spatial Development of the Municipality of Ig

The central part of Ljubljansko barje, which lies on the territory of the municipality of Ig is a big strategic challenge for the municipal spatial development. The strategy is to protect landscape and biotic characteristics of the wetland as well as to present its development and appearance with adequate offer for visitors and recreation. The municipality will cooperate in elaboration of regional spatial development plan of Ljubljana or Central Slovenian region. It will adjust their spatial plans on the regional level. The municipality will also cooperate with the Ministry of the environment and

spatial planning, harmonize and perform the municipal strategy of spatial development with the national spatial plan within its competence.

The Municipality of Ig has a rich cultural heritage, which is one of its strategic advantages. It is represented with many churches, antique and pre-antique archeological heritage, the Ig castle, well preserved village centres with a numerous ethnological, urban and rural heritage. In all spatial interventions, archeological heritage is located, protected and properly presented on the original location. Found artefacts may cause changes of official documents and projects. The cultural tradition will be included in the tourist offer and will be a component in renewal of the village centres. Green zones will be introduced to prevent further building expansion and urbanization of the wetland (hippodrome, prehistoric pile dwellings).

Expert groundwork concerning Ljubljansko barje

Important expert groundwork for pile dwellings includes: expert starting-point for protection of cultural heritage of Ljubljansko Barje Nature park (2007);
Expert Groundwork for protection of cultural heritage of the Ljubljansko Barje Nature park (2000), prepared by the Ljubljana Regional Office of the Institute for the Protection of Cultural Heritage of Slovenia;
Anthropologic evaluation of natural and cultural landscape and groundwork for development programmes of Ljubljansko Barje Nature park (2000), prepared by the Ljubljana City Municipality.

5.c Means of implementing protective measures

The means of implementing protective measures are listed site per site in the database ↘ cf. Volume II.

5.d Existing plans related to municipality and region in which the proposed property is located

The existing plans related to municipality are listed where relevant site by site in the data base. ↘ cf. Volume II.

5.e Property management plan

5.e.1 Introduction

A detailed management plan is attached to this nomination file as a separate document ↘ **Volume III**. The management plan is intended as a rolling document – steadily evolving and reflecting the current state of the work being undertaken jointly by the countries involved. An updated version of the plan will be re-submitted in February 2011.

Management arrangements for the World Heritage nomination *Prehistoric Pile Dwellings around the Alps* have been developed by the competent authorities of the six States Parties – Switzerland, Austria, France, Germany, Italy and Slovenia. They have been drawn up in accordance with Article 132 of the *Operational Guidelines for the Implementation of the World Heritage Convention*.

The nomination *Prehistoric Pile Dwellings around the Alps* is proposed jointly by the States Parties, but each State Party remains responsible for the practical preservation of the nominated sites within its territory. Some of the States Parties are federally organized and the protection of the sites proposed for inscription is mainly or partly of the competence of a regional entity. A comprehensive and effective management plan, in a purposeful and target oriented manner, is to consider these legal differences concerning the level of competencies, in order to establish coordination, collaboration and common aims on appropriate fields and with the right level of partners while leaving individual measures to the legally qualified entities.

The management for the *Prehistoric Pile Dwellings around the Alps* is therefore presented over all the three levels international – national – regional / local, and establishes additional structures and rules to ensure an effective, transversal coordination between the participating States Parties on the one hand and towards and between regional entities and other stakeholders on the other.

In a common *Management Commitment,* the countries involved, i.e. Switzerland, Austria, France, Germany, Italy and Slovenia, declare their joint intention to protect the nominated property according to the guidelines and objectives set out by the World Heritage Convention and, to found an *International Coordination Group* to this end. This group will be responsible for the international coordination of the work undertaken on this serial World Heritage property and will as well guarantee the coordination towards the national coordination groups and the persons in charge of the local sites. Its functioning is defined with detailed rules and accepted by the participating States Parties.

The national and regional / local management instruments and structures are designed according to the single State Party's political and legal structures and following this scheme, different action plans are proposed as master plans on the international, national and local level.

5.e.2 International Framework

Management Commitment between the States Parties concerning common management of the joint World Heritage serial transnational nomination Prehistoric Pile Dwellings around the Alps

The States Parties – Switzerland, Austria, France, Germany (Bavaria and Baden-Württemberg), Italy and Slovenia – submit jointly the serial transnational nomination of the *Prehistoric Pile Dwellings around the Alps* for inclusion in the World Heritage List.

The project involves a sample choice of remains of prehistoric dwellings on lake shores and marshlands in the six countries around the Alps. Almost 1000 sites are located around the Alps in Switzerland, Austria, France, Germany, Italy and Slovenia. Of these, 156 sites have been selected for nomination in accordance with precise criteria concerning the value, authenticity and integrity of the serial. Placed under the management of Switzerland – which has led the way in research into lakeside dwellings – the nomination is presented as a transnational serial inscription.

The term 'pile-dwelling site' designates archaeological finds on lake shores, river banks or marshlands, which have benefited from excellent conservation conditions. Most are remains of dwellings dating back to the period between 5000 and 500 BC – the beginning of rural civilization. As regards research, these sites can be considered as an exceptional archaeological and scientific source in the area around the Alps.

The remains of dwellings in wetlands provide evidence of major eras of world history. Dendrochronology makes it possible to date the remains of wood to the nearest year and gives a clear picture of how one age succeeded another. It therefore establishes an accurate chronological framework for central Europe. The serial nomination helps us to understand the complex processes which, over a period of 4500 years, led to the formation of rural societies in central Europe. They testimony of the development of metallurgy over thousands of years, from copper to bronze to iron. The vast amount of knowledge we gathered from the pile dwellings of Neolithic times and the Bronze Age is extraordinary. There are hardly any comparable archaeological sites that give better results as regards accurate dating, conservation of materials and natural sciences research. Vast quantities of well preserved archaeobotanical and archaeozoological remains can be found under the ground-water level. In a way, they are like major archives accessible to various fields of natural science such as biology, climatology, sedimentology and pedology. They help us enhance our knowledge of mankind's relationship to nature down the ages.

In 2004, the property was included in the World Heritage Tentative List for Switzerland by the Swiss government. From the very beginning, the declared aim was to create a transnational serial nomination – and gain full integrity – of these exceptional archaeological phenomena. Intense collaboration was initiated between the Swiss, Austrian, French, German, Italian and Slovenian authorities, with the goal of preparing a joint nomination. 2009 saw completion of the nomination file.

In accordance with the common procedures and guidelines based on the World Heritage Convention, each country is responsible for taking care of the conservation and other management of the property within its territory. With their World Heritage candidature, the different national and regional governments in the participating countries express their commitment to the protection and preservation of the selected pile-dwelling sites and to the application of the defined archaeological standards. Section five of the nomination file describes the status and procedures of the national legislations, preservation and management. All these individual activities are conducted and controlled by each country itself. The basic responsibility for the protection, all kinds of management and actions of individual properties must remain with the individual State Party; it must be carried out by each in accordance with its legislative and management systems.

However, there is a need for additional management collaboration. For this reason – and in accordance with the *Operational Guidelines for the Implementation of the World Heritage List* – an International Coordination Group has been founded. The activities of this group and their implementation are decided and approved by all States Parties within this framework. The States Parties commission the International Coordination Group to further develop the management and action plan as an evolving management instrument. The commitment of the participating States Parties to coherent management of the property is expressed in this mandate. It guarantees best practices and management rules for common issues concerning the World Heritage status of the selected component parts.

On the international level, the six States Parties declare with this *Management Commitment* their common will to participate actively in the International Coordination Group, to observe its rules and to preserve the nominated transnational site in accordance with the obligations of the World Heritage Convention.

The participating States Parties

— *recognize* that the nomination of the *Prehistoric Pile Dwellings around the Alps* is submitted jointly by the States Parties of Switzerland, Austria, Germany, France, Italy and Slovenia,
— *look forward* to continuing their cooperation for the benefit and success of the nomination,
— *note* the *Operational Guidelines* for the implementation of the World Heritage Convention,
— *recognize* the importance of – and need for – joint management in order to guide practical actions in all participating countries,
— *note* that all expenditures resulting from the actions foreseen in the management plan are to be borne in accordance with the articles of the International Coordination Group; and that this agreement does not imply any mandatory financial contributions by the six States Parties,
— *recognize* however that further developments and joint projects are to be funded by voluntary contributions by the States Parties,
— *agree* to continue collaboration after the successful nomination, in order to protect and conserve this common heritage of outstanding universal value,
— *establish* the International Coordination Group and adopt its articles,
— *aim* for sustainable conservation of these archaeological phenomena; monitoring its outstanding universal value; and balancing gain of knowledge with integral protection (by applying adequate scientific archaeological measures and standards),
— *strive* to preserve the archaeological remains of the prehistoric pile dwellings and to enhance the knowledge gained as an element of collective memory and cultural identity,
— *aim* to reinforce awareness of cultural heritage issues in general and of the quality and extraordinary character of this transnational serial heritage site in particular.

International Coordination Group

In order to coordinate management of the transnational serial property on an operational level in accordance with the Management Commitment, an International Coordination Group is established. It is responsible for operational coordination of the site.

The rules and functioning of the international Coordination Group are approved and accepted by all the participating States Parties.

Objectives

The International Coordination Group is responsible for the international joint management of the serial transnational property. It ensures compliance with obligations under the World Heritage Convention relating to the property *Prehistoric Pile Dwellings around the Alps*. It also lends support to its members for the conservation and management of the properties concerned. The International Coordination Group coordinates cross-border management and the network of national, regional and local bodies concerned. Further, it contributes to the general presentation of the property to the public, in accordance with a common action plan.

Tasks and competencies

1. Coordination

The International Coordination Group ('Coordination Group') coordinates the management of the serial property. At international level – together with the States Parties permanent delegations to UNESCO and national authorities – it acts as the contact body for the World Heritage Centre and the World Heritage Committee for all questions relating to the serial nomination. It obtains and coordinates information from the administrations of States Parties on any public or private initiative relating to the components of the serial of which it is aware. Its actions and projects are determined in a regularly reviewed action plan.

2. Conservation of property

The Coordination Group keeps itself permanently informed as to the state of conservation of the archaeological sites of the property *Prehistoric Pile Dwellings around the Alps*. It serves as a platform for the presentation, discussion and evaluation of conservation problems, as well as for the methods of management and monitoring relating to the inscribed property. Also, it can issue general recommendations ('best practice'). In particular, it ensures that regular monitoring is carried out in accordance with high scientific standards.

3. Observations and suggestions made by the Coordination Group

At its meetings, the Coordination Group can discuss the state of conservation of any component part of the serial; as well as planned operations that could potentially damage properties in the serial and archaeological measures that may be applied. It may make observations and suggestions relating to the conservation of a property and its surroundings for the attention of the State Party in which the property is situated (after consulting that State Party).

4. Presentation and research

The Coordination Group promotes and supports the presentation of the inscribed properties. It encourages initiatives intended to contribute to the international recognition of the archaeological phenomenon of prehistoric pile dwellings. It also encourages scientific research in this field of archaeology and publishes an annual report on its activities.

5. Additions to the serial

At the request of a State Party to the World Heritage Convention, the Coordination Group will examine the possibility of expanding the serial inscription. It gives its opinion on any proposal to expand the transnational serial inscription and assists with any inscription procedure if the State Party so wishes.

Composition

6. Delegations

The members of the International Coordination Group are the States Parties' delegations. Each State Party has a single vote and only the delegations of the States Parties have the right to vote. The delegations are preferably composed of experts in the field of archaeology of lakeside pile dwellings, as well as representatives of the States Parties to the Convention (specializing in cultural World Heritage).

7. Presidency

The Coordination Group is chaired by a State Party. The Presidency changes each year; it is allocated according to the alphabetical order of the names of the States Parties in English, starting with Switzerland. The Presidency organizes the annual meetings, coordinates and promotes the actions of the Coordination Group, and publicly represents the World Heritage Site.

8. Secretariat

The Coordination Group, through the Swiss conference of cantonal archaeologists, has assigned the management of the Secretariat to the Swiss Archaeological Society (Archäologie Schweiz / Archéologie Suisse / Archeologia Svizzera). The Swiss Archaeological Society accepted this role in its board meeting of 25th November 2009.

The work of the Secretariat in the Swiss Archaeological Society will be accompanied by a Supervisory Commission including at least the cantonal archaeologists of each canton concerned, a representative of the competent federal authority, the Federal Office of Culture, as well as a member of the Board of the Society. In this capacity, the Swiss Archaeological Society, by the means of the Commission, takes part in all the meetings. The Supervisory Commission is responsible for the coordination of the transnational serial inscription; it assumes the function of the site coordinator for transnational issues of the nomination. The Secretariat's ordinary tasks consist in supporting the information flow among all Coordination Group members, preparing the documents for the annual meetings and administering the World Heritage Site's website. Tasks also include minuting and archiving the Coordination Group's discussions, decisions and actions; keeping the accounts of the Coordination Group; and assisting the Presidency in coordinating the action plan.

9. Other participants

Third parties may be invited by States Parties to meetings of the Coordination Group in particular representatives of the World Heritage Advisory Bodies, World Heritage Centre and other interested States Parties. They will be invited in particular for their special competences in the specific subjects to be dealt with at the meeting(s) in order to make a contribution on a consultative basis.

Procedures

10. Meetings

The Coordination Group meets for a general meeting once a year. An extraordinary meeting may be requested by any State Party at any time. The Presidency, in cooperation with the Secretariat, prepares and convenes the meetings and decides on the agenda after consulting other members.

11. Decisions

Coordination Group decision concerning its tasks, actions and working methods, are taken by a simple majority of States Parties present with a quorum of at least two thirds of all States Parties.

12. Consultation with members

Before publication of any document in the Coordination Group's name, members of the Coordination Group are consulted. The Presidency – in collaboration with the Secretariat – is the official spokesperson for the transnational nomination.

13. Action Plan

The Coordination Group implements and updates regularly the international action plan. Projects and actions can be proposed by any member and may concern only some of the participating States Parties. The members strive to allocate voluntary contributions to the Coordination Group's actions and projects. The Coordination Group considers the national and regional / local action plans that its members submit regularly, in order to enhance international synergies and coordination.

14. Monitoring / Evaluation

The Coordination Group supports States Parties in the establishment of the regulatory Periodic Monitoring Reports. Through its members it coordinates all matters of evaluation of the serial property relating to World Heritage issues.

15. Annual Report

The Presidency draws up the Annual Report of the Coordination Group. The report presents the activities of the Coordination Group as well as information on the

individual properties in the serial or on associated sites. It is based on national reports that the States Parties may submit in advance to the Presidency.

16. Languages

The working language of the Coordination Group is English or French.

17. Funding

Each year, the Coordination Group draws up the budget for its activities in accordance with the action plan it has decided on in its management plan and with the voluntary contributions provided by its members. The ordinary tasks of the Secretariat are funded by Switzerland. The costs of participating in Coordination Group meetings are paid by the State Party of the individual member concerned; if applicable, guests expenses are paid by the State Party issuing the invitation.

18. Commencement and dissolution

These Coordination Group regulations come into force on the date of the signing of the international framework. The Coordination Group will be automatically dissolved in the event of non-inscription or the exclusion of the serial property from the World Heritage List.

Signing the nomination file, the States Parties are committed to the obligations of the Management Commitment and to the rules of the International Coordination Group.

5.e.3 Property and Protection

In the Management Plan (vol.III), this chapter summarizes the values and attributes of the nomination, the properties proposed for inscription and their legal protection as most important aspects of each heritage management. The standards of the commonly cited international conventions apply, such as those outlined by the World Heritage Convention, the Convention for the Protection of the Archaeological Heritage (Valletta 1992), the Ramsar Convention on Wetlands (1997) and others, followed by national, regional and local legal and administrative systems.

5.e.4 Management

Common aims

The components selected for the serial transnational nomination *Prehistoric Pile Dwellings around the Alps* are well defined and legally protected and recognized archaeological sites. Following the rules established by the different national / regional legal frameworks, they are managed by competent authorities that decide on protection measures, enforce legal protection in administrative procedures, publish and collaborate in research, and try to raise awareness of the heritage value of the individual sites.

Nomination of the property for the World Heritage List shall enhance its protection and conservation and facilitate the exchange of experience and knowledge among

experts and other stakeholders. It shall raise awareness of the need to preserve the prehistoric pile-dwellings sites and support sustainable educational and promotional projects informing the public of the outstanding archaeological heritage. It will help to ensure that any possible use of the properties does not adversely impact its value, integrity or the authenticity.

Prehistoric pile-dwelling sites are a unique archaeological heritage. Through their cautious management (including nominated components of the serial and associated sites) a balance must be found between two criteria. Namely, between the gain of knowledge of the archaeological phenomenon through research, the exhibition of finds and other communication measures to raise awareness on the one hand; and the integral conservation without any intervention of invisible (and in some cases inaccessible) sites on the other.

This management plan of the property developed within the World Heritage nomination must therefore first ascertain whether local responsibilities of protection and conservation for each component are properly performed. Secondly, it must enhance and implement actions and measures (concerning the property) that contribute to the aims of World Heritage and are ecologically and culturally sustainable. And thirdly it must ensure horizontal and vertical coordination and exchange between all States Parties and their national, regional and local authorities and communities.

Common objectives

Common objectives must be adopted for different activity domains, serving to direct as principles and guidelines the international, national and regional / local actions amongst all partners in the participating States Parties. In order to gain maximal coherence with World Heritage, the five 'c's' based on UNESCO's strategy, according to the Budapest Declaration on World Heritage (WC-02/CONF.202/25,9) have been chosen to define the activity domains and as topics to formulate common management objectives. An additional 'c' for coordination has been prefixed.

Activity domain 1: Ensure the coordination
between all players involved in the nomination

1. All the involved authorities and players are coordinated. Information flow is working perfectly and is transparent.
2. International, national, regional and local experts involved in the World Heritage property and the conservation of prehistoric pile-dwelling sites build a high performance network.
3. Effective administration of the International Coordination Group contributes to excellent management of the property.
4. The International Coordination Group works efficiently in a spirit of open exchange, respect and friendship.

Activity domain 2: Strengthen the credibility *of the World Heritage List*

1. The property *Prehistoric Pile Dwellings around the Alps* is aiming at excellence regarding management, protection and conservation.
2. The obligations of the World Heritage Convention and the rules of the Operational Guidelines are fully respected.
3. All involved authorities are contributing actively to the good functioning of the World Heritage system.

Activity domain 3: Ensure the effective conservation *of the World Heritage property*

1. The outstanding universal value and the authenticity and integrity of the serial transnational nomination are maintained.
2. Archaeological excavations in the components of the inscribed serial are only to be undertaken when parts of the archaeological substance are in danger of being destroyed for unavoidable reasons. Archaeological excavations are also permitted if a better knowledge of the extent and composition of the suspected archaeological substance in the ground will serve to protect the site in the long-term. Excavations for teaching and research purposes should be undertaken only in exceptional, well-founded cases.
3. Any inevitable ground intervention may be extended in order to make the uncovered find scientifically comprehensible.
4. Documentation safeguards the historical information whose sources are destroyed by the investigation itself.
5. Results of archaeological investigations must be evaluated and published. In the interest of science, such publication is as significant as the excavation work and its documentation.

Activity domain 4: Promote the development of effective capacity-building *measures*

1. Knowledge and results concerning the conservation of pile-dwelling sites are shared.
2. Know-how is enhanced through permanent common discussion and joint efforts.
3. The network of experts connected to the World Heritage site is recognized as a centre of competence for prehistoric wetland archaeology.
4. Any professional research on the archaeological pile dwelling phenomena is – whenever possible – supported, namely giving access to data and information.

Activity domain 5: Increase public awareness, involvement and support through communication *and education*

1. The World Heritage status of the property is adequately marked and promoted on site.
2. The common communication strategy increases the broad understanding of the need of protection of the pile-dwelling sites and the outstanding universal value.
3. The *Prehistoric Pile Dwellings around the Alps* and its value are well known among national, regional and local decision makers.
4. The possibilities for visitors to experience and to use the property are sustainable.
5. Knowledge transfer of cultural heritage to education is functioning.

Activity domain 6: Involve the local communities

1. Inhabitants living close to the property are informed about World Heritage. They are aware of the outstanding universal value of the site and proud of having it in their communities.
2. Local responsible agents have access to international *Prehistoric Pile Dwellings around the Alps* network.
3. Local decision makers are involved in on-site actions.

Management Strategy

The strategy for implementing the management plan and the common objectives is to develop an appropriate system for a management relating to the different legal and administrative levels with its specific competences. This strategy therefore involves establishing a three – level master plan, covering international, national as well as regional / local actions and measures.

With this management strategy, each player fulfils its legal and administrative tasks and may benefit from – and participate in – the coordination network within the nomination as a whole. At each level, adequate measures and actions are developed and implemented. At international level, the work is focused on the development of common standards (for example, for sustainable visiting concepts), the exchange and divulgement of research and capacity building. At local level the concerns might be the technical details of a very specific intervention for protection. However, local managers – being informed about similar projects in another country – may benefit from the prehistoric pile-dwelling network for gathering experience and knowledge from other sites.

5.f Sources and levels of finance

General

The contracting states, with their administrative structures and authorities, are responsible for and agree to the procurement of funding for the protection and preservation measures for the individual sites.

A two-pronged approach has been chosen for the funding of the joint management: basic funding for the International Coordination Group of approximately 27,000 € will be provided by the Swiss cantons, while the individual projects included in the action plan will be financed by voluntary contributions from the states involved, and by sponsorship from organisations and private individuals **cf. Management plan, ↘ Volume III, ↘ Chapters 3.2–8.2**.

The costs of an archaeological underwater excavation are in general considerably higher than those of dry-land excavations. There are various reasons for this: archaeological examinations under water require a special infrastructure and a team consisting entirely of a highly specialised workforce. The work is additionally hampered by the equipment, water resistance, recovery methods and double record keeping – the under-water documentation must be revised on land. The good state of preservation of the organic finds including numerous constructional timbers leads to large assemblages of finds which in turn require substantial conservation, restoration and archiving efforts. Subsequent examinations such as archaeobotanical analyses and studies as well as dendrochronological analyses also have a bearing on the overall costs.

Switzerland

The role of the federal government

The federal government plays a subsidiary role in funding a project according to its own legislation (as regards national projects and a percentage of the sites of national and regional importance). Various types of assistance provided by the federal government are outlined in articles 13 to 17 of the Federal Nature and Heritage Protection law of 1 July 1966 (NHG, RS 451). The subventions allocated cover up to a maximum of 25% of the costs of conservation, and of the acquisition and maintenance of sites, according to their importance.

According to article 6b of the Federal Law on Financial Aid and Indemnities of 5 October 1990 (subvention law, SR 616.1), the federal government may also provide assistance in cases where cantons are unable to bear the costs.

The federal government must take charge (NHP, art. 3) of the necessary measures (protection measures, excavations) prompted by its own ventures. Large federal projects carried out over the past 50 years (construction of federal motorways and railways) gave rise to numerous rescue excavations of substantial size in wetland sites. The rescue excavations prompted by motorway construction on the northern shore of Lake Neuchâtel were thus funded by the Federal Roads Office (FEDRO) and the government of Canton Neuchâtel at a total cost of 2.5 million Swiss Francs between 2007 and 2009 ↘ **Fig. 5.8**.

The duties of the cantons

The financial burden of the tasks assigned to the cantons, depending on and according to their legislation (conservation, protection, promotion, utilisation, research) is borne by the cantons.

Communities and private individuals can be encouraged to partake in financing projects according to the legislation of the various cantons.

Canton Berne, for example, has since 1996 spent just over 6 million Swiss Francs (c. 4 million Euro) on rescue excavations and protection measures at various sites investigated on Lake Bienne. A further 5 million Francs have been earmarked for rescue excavations and erosion protection measures to be undertaken between 2010 and 2015. Research, publications and promotion have cost just over 1 million Swiss Francs. The annual budget of the archaeological department of the canton is set aside for this purpose.

Other cantons like for instance canton Nidwalden have no regular funding available for work in wetland settlements. These cantons act in selected cases using other resources such as the Swiss National Science Foundation (SNSF, www.snf.ch). Works of a high scientific standard can be published thanks to the support of the foundation by means of considerable grants towards publication costs. The work carried out at the site Stansstad–Kehrsiten (CH-NW-01), for instance, has been awarded 280,000 Swiss Francs, which covers approximately half of the overall costs of the project. 1.8 million Swiss Francs have been awarded by the SNSF for the scientific analyses carried out at the site of Arbon–Bleiche 3 (CH-TG-01). The foundation is currently funding projects in connection with Swiss wetland settlements at a total cost of c. 1,130,000 Swiss Francs.

↘ **Fig. 5.8** gives an overview of the expenditure on work carried out in connection with wetland settlements in Switzerland. The figure include all the work relating to the protection of the sites, rescue excavations, publication of the results, conservation of the finds and promotional work carried out on the wetland settlements. These tasks can take up a considerable portion of the total annual budget of a given archaeological department. The archaeological department of canton Thurgau, for instance, spends approximately a quarter of its annual budget on its wetland sites.

Canton	2007 (in Swiss Francs)	2008 (in Swiss Francs)	2009 (in Swiss Francs)	Notes
Aargau	0	0	0	The preservation of the sites is assessed every 5–10 years, with the next evaluation due in 2010 or 2011 (costs c. 10,000–20,000 Francs)
Berne	545,000	550,000	880,000	Excavations, analyses, post-excavation work and publications (also of earlier excavations)
Fribourg	40,000	70,000	90,000	
Geneva	50,000	100,000	450,000	
Lucerne	35,000	60,000	130,000	Incl. teaching excavation and educational trail
Neuchâtel	530,000	340,000	250,000	Excavation at Bevaix-Sud, post-excavation work, analyses, publication
Neuchâtel + FEDRO	910,000	720,000	870,000	Analyses of the results
Nidwalden	0	370,000	148,000	Non-recurring expenditure on the partial excavation of the lakeside settlement at Kehrsiten
Schaffhausen	0	0	10,000	No fixed costs in recent years
Schwyz	150,000	150,000	150,000	
Solothurn	25,000	40,000	60,000	Incl. analysis and publication of earlier excavations
St. Gall	125,000	0	45,000	
Thurgau	500,000	500,000	600,000	

Canton	2007 (in Swiss Francs)	2008 (in Swiss Francs)	2009 (in Swiss Francs)	Notes
Vaud	513,000	520,000	440,000	
Zug	165,000	430,000	870,000	
Zurich	698,000	697,000	1,020,000	Incl. Publications, public relations, Interreg IV
Total	**4,286,000**	**4,547,000**	**5,223,000**	

Fig. 5.8 Overview of the expenditure of the cantonal archaeological departments and heritage services in Switzerland for pile dwellings (1 Swiss Franc equals roughly 0.65 €).

Austria

General measures for the protection and maintenance of ground monuments are defrayed from the budget of the Bundesdenkmalamt. For individual projects, there are mixed funding schemes from project funds and funding by the Austrian Federal Ministry for Education, Arts and Culture (BMUKK), as well as funding by the provinces and municipalities. The candidature *Prehistoric Pile Dwellings around the Alps* for UNESCO World Heritage is promoted by the BMUKK.

For extensive research projects and basic research, there are funding options on national level through the Austrian Science Fund (FWF). The purpose of the FWF is to support the ongoing development of Austrian science and basic research at a high international level.

Documentation and inventorisation works of underwater archaeological find spots are executed by the universities, supported by NGOs or non-universal organisations. The principal of those institutions is the Austrian Association for Wetland and Underwater Archaeology Triton (Österreichische Gesellschaft für Feuchtboden- und Unterwasserarchäologie Triton), which is financed through membership fees and project funds, and is active across the federal territory.

Carinthia

Explorations carried out by the Vienna Institute for Archaeological Science (VIAS) from the University of Vienna at Lake Keutschacher See (AT-KT-01) are managed by a scientist and a technical assistant. Supported by funding by the municipality of Keutschach, the annual cost is about 9,500 €. Individual projects, like salvage, conservation and exhibition of several log boats (e.g. from Lakes Klopein and Längsee) were carried out by employees or contractors of the Carinthian State Museum (Landesmuseum Kärnten).

In 2005, the international project 'From Underwater to Public Attention' ↘ cf. text box, Chapter 5.i was carried out under participation of Slovenia, Germany and Austria as a Culture 2000 European Commission project, and co-funded by the municipality of Keutschach.

Upper Austria

The Upper Austrian State Government (Landesregierung Oberösterreich) and the State Museum of Upper Austria support and fund research projects on pile dwellings.

The inventory of pile dwellings at the lakes of the Salzkammergut region during the years 2003 and 2004 was funded by the tourist board Mondseelandgemeinden within the framework of a Leader+ project (Leader+ was an initiative financed by EU structural funds and was designed to help rural actors consider the long-term potential of their local region). The Mondseelandgemeinden also support the Museum Mondseeland with the first Austrian Pfahlbaumuseum in Mondsee with annual sponsorship.

	2007 (in €)	2008 (in €)	2009 (in €)	Notes
Bundesdenkmalamt	6,500	6,500	7,000	Personnel costs only
BMUKK	0	1,500	10,800	Nomination Palafittes
VIAS	7,000	7,000	7,000	Mainly personnel costs
Municipality of Keutschach	2,500	2,500	2,500	Mainly material expenses
Carinthia State Museum	30,000	30,000	10,000	Log boat project
Upper Austrian State Government	25,000	21,300	37,000	Various project funding
Mondseelandgemeinden	31,900	31,900	31,900	Including the budget of the local museum association
Triton	3,000	2,500	1,500	Research cooperation projects in collaboration with the University of Vienna and private research companies.
Total	**105,900**	**103,200**	**106,800**	

Fig. 5.9 Overview of the expenditure on wetland archaeology by the State Conservation Offices and other institutions in Austria.

France

Most of the financing for actual archaeological research comes from the State (ministries responsible for culture, research, higher education), either in the form of operational budgets for prospecting and excavations or the salaries of specialists and researchers. Generally speaking, they are civil servants (Département des recherches archéologiques sous-marines et subaquatiques (DRASSM) (Department of underwater and submarine archaeological research), Centre national de la recherche scientifique (CNRS) (National centre for scientific research) or the devolved archaeological services of the Ministry of Culture and Communication (DRAC and MCC)). Other types of financing come from the territorial collectivities, either for field activities or, on a more regular basis, for the funding of premises for the reception of archaeological collections or bases where studies can be carried out. The majority of activities are the result of co-financing by the State and the territorial collectivities. ↘ Fig. 5.10 gives an overview of expenditure on pile-dwelling sites in France from 2006–2008.

	2006 (in €)	2007 (in €)	2008 (in €)	Notes
Scientific and administrative personnel				
Scientific personnel (CNRS, DRASSM)	170,900	178,800	186,700	[accumulated time assessed as two annual fulltime jobs]
Administrative personnel (DRAC)	24,100	25,300	26,500	[accumulated time assessed as one annual half-time job]
Operational budget of DRASSM for lacustrine archaeology (excluding payroll)	7,570	5,960	16,000	2009: 13,500 €
Studies and scientific work				
Jura lakes, Clairvaux excavations, site VII (DRAC Franche-Comté, Région Franche-Comté and Département du Jura)	33,000	33,000	32,500	
Jura lakes, operation of the Frasnois (Jura) (CNRS) archaeology centre	11,000	11,000	11,000	
Regular prospecting and excavations in the Savoyan lakes (DRAC Rhône-Alpes)	8,690	4,500	2,300	
Regular prospecting and excavations in the Savoyan lakes (Département de Savoie)	10,150	8,400	1,000	
Regular prospecting and excavations in the Savoyan lakes (Département de Haute-Savoie)	2,000	0	3,980	
Conservation of collections				
Handling of collections from the Savoie lakes (MCC)	0	3,050	8,000	2009: 7,000 €
Handling of collections from the Jura lakes (MCC, municipality of Lons-le-Saunier)	13,700	13,700	13,700	Annual average
Action to highlight the sites (French Jura lakes)				↘ Chapter 5.i

	2006 (in €)	2007 (in €)	2008 (in €)	Notes
DRAC Franche-Comté	4,000	3,000	3,500	
Région Franche-Comté	3,500	3,000	0	
Département du Jura	2,000	0	0	
Total	**290,610**	**289,740**	**305,180**	

Fig. 5.10 Overview of the expenditure on wetland archaeology by the State Conservation Offices and other institutions in France.

Scientific personnel

The staff participating in archaeological research on Alpine lake sites are essentially state employees. For the three principal researchers in charge of operations (CNRS and DRASSM) the time spent over the last ten years represents an average of two fulltime equivalents. Teams have been organised around them and include research students (universities of Lyon, Besançon and Paris) and individuals involved in the excavations and in post-excavation studies who have devoted their thesis to a particular topic.

Personnel resources also cover the time spent by members of various laboratories and other bodies on specialised studies relating to lacustrine operations: dendrochronoloy, radiocarbon dating, paleo-environment, processing of organic remains, etc.

The staff involved in the management and protection of lacustrine sites comes from the devolved archaeological services of the ministry in charge of culture (DRACs in Franche-Comté and Rhône-Alpes).

Studies and scientific work

After nearly twenty successive excavation campaigns on the Neolithic sites of Lake Chalain, research recently resumed on Site VII of Lake Clairvaux for a three-year period (2006–2008). Under a contractual arrangement, the Clairvaux excavations are financed by the State (DRAC Franche-Comté), the Région Franche-Comté and the Département du Jura (98,500 €, ↘ Fig.5.10).

The Frasnois archaeology centre is a building (owned by the commune of Frasnois) that has been made available to the University of Besançon Franche-Comté. In 2002, a technical platform was set up to handle archaeological materials of organic origin and carry out archaeological experiments (State investment: 163,500 €).

Inventorying the potential of the Alpine lakes between 1995 and 2002 (DRASSM) led to seven field campaigns, each of three months, carried out by a permanent team of three persons. The Ministry of Culture and Communication (sub-division of archaeology) granted a subsidy of 307,380 € for this operation, which was supplemented by subsidies from the territorial collectivities concerned, including the Departments of Savoie (12,200 €) and Haute-Savoie (22,800 €), and by partial funding from DRASSM's annual operational budget, giving a global sum of 342,390 €.

Regular prospecting took place between 2006 and 2008 in order to complete the 'archaeological map' of Lake Le Bourget (Savoie) and Lake Geneva (Haute-Savoie). The average budget for each campaign was 4,800 € (3,000 € of which came from the Ministry of Culture and Communication, supplemented, where necessary, by funds from the Departments of Savoie and Haute-Savoie).

Lastly, test drillings for assessment purposes and excavations have been taking place every year since 1999 in Lake Le Bourget (DRASSM). A final campaign is planned for 2009. The average budget for each campaign was 9,200 € (6,160 € from the Ministry of Culture and Communication and 3,040 € from the Department of Savoie).

Conservation of the collections

The reception and handling of the collections from excavations and prospecting in Lake Clairvaux and Lake Chalain will be very considerably improved from 2010 on, when the Centre d'étude et de conservation René Rémond (René Rémond Study and Conservation Centre) in Lons-le-Saunier comes on stream. The 3 million € investment over the financial years 2005–2010 is divided between the State, the Ministry of Culture and Communication) (35%), the Région Franche-Comté (17%), the Department of the Jura (16%) and the municipality of Lons-le-Saunier (32%). The future centre is not solely reserved for the Chalain and Clairvaux archaeological collections although they will occupy a sizeable volume of its space (approximately 43 m3).

At the same time, with a view to the housing of the Clairvaux and Chalain collections in this new facility, the Musée d'archéologie du Jura (Jura Museum of Archaeology) will undertake a large-scale inventory and restoration programme: cost of storage and packing (2005–2009): 13,585 € (municipality of Lons-le-Saunier); cost of restorations (1996–2009): 208,148 € (State, Ministry of Culture and Communication 50%, municipality of Lons-le-Saunier 50%).

Germany

Baden-Württemberg

The Federal State of Baden-Württemberg carries out its monument protection duties as follows: The State finances the Cultural Heritage Department Baden-Württemberg (Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart) and the Heritage Departments of the Regional Councils of Freiburg, Karlsruhe and Tübingen (Regierungspräsidien Freiburg, Karlsruhe, Tübingen). The State also finances the lower culturel heritage protection administrations at the local level (Untere Denkmalschutzbehörden). According to the Baden-Württemberg Cultural Heritage Protection Act (baden-württembergisches Denkmalschutzgesetz, bwDSchG), article 1, the State and, to an appropriate extent the municipalities, must contribute to the costs of restoration, preservation, stabilisation and excavation of archaeological monuments. In some cases the owner or the originator of damage can be obliged to contribute to the costs. Non-governmental foundations may also provide financing for research, publication and the preservation of historical monuments.

As a division of the department for the protection of archaeological sites and monuments (Abt. 8, Ref. 85) within the State Cultural Heritage Department Baden-Württemberg, the wetland archaeology branch (Fachgebiet Feuchtbodenarchäologie) is responsible for wetland and underwater archaeology. At Hemmenhofen on the shore of Lake of Constance the staff is housed in a workplace with laboratories, in which three researchers (two archaeologists and a dendrochronologist), one excavation technician, one scientific diver, one draughtsperson and three technical assistants look after the Baden-Württemberg pile dwellings and associated sites. The number of employees and the budget for personnel costs can be increased to finance temporary projects. Three temporary projects are at present co financed by EU-Interreg IV and the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG).

Bavaria

The federal states of Germany are responsible for the monument protection and preservation within their boundaries. Hence, the Free State of Bavaria finances the State Conservation Office (Bayerisches Landesamt für Denkmalpflege) as well as the Lower Monument Protection Authorities (Untere Denkmalschutzbehörden, ↘ cf. Chapter 5.j). According to the Bavarian Law for the Protection and Preservation of Monuments (Bayerisches Denkmalschutzgesetz, BayDSchG), article 22, para. 1 and 2, both the state and the local governments (municipalities, districts) have to participate to an appropriate extent in the costs for restoration, preservation, stabilization and excavation of archaeological monuments. Furthermore, they have to share the burden of compensation expenses (BayDSchG, article 21, para. 1). Non-governmental foundations may also provide financing for the preservation of historical monuments.
As a division of the Department for the Registration of and the Research on Monuments (Abteilung Z, Denkmalerfassung und -forschung) within the State Conservation Office, the Subdepartment for the Documentation of Settlements and Cultural Landscapes (Referat Z II, Siedlungs- und Kulturlandschaftsdokumentation) is taking care of wetland and underwater archaeology ↘ cf. Chapter 8.b. One research associate and one site technician minister the Bavarian pile dwellings and associated sites. Those employees cost 136,000 € per year, including overhead and workplace expenses. The budget for personnel costs can be increased in case of related temporary projects. In addition to this, varying annual financial resources for miscellaneous expenditures may also be obtained.

Compared with 10,000 € for the years 2007, 2008 (16,000 €), 2009 (40,000 €) saw a remarkable budget increase. In 2008, parts of the publication 'Pile Dwellings' – released by the organisation 'Palafittes' – were funded. In 2009, work on the UNESCO World Heritage candidacy *Prehistoric Pile Dwellings around the Alps* and the publication *Unterwasser- und Feuchtbodenarchäologie in Bayern. 25 Jahre Bayerische Gesellschaft für Unterwasserarchäologie* ↘ cf. Chapter 5.i resulted in higher expenditures. As stated in ↘ Chapter 5.j, all practical underwater excavation and documentation work are carried out by the Bavarian Society for Underwater Archaeology (Bayerische Gesellschaft für Unterwasserarchäologie e. V., BGfU e. V.). Due to a small budget, the society cannot be supported financially by the Bavarian State Conservation Office. The BGfU e. V. spent a total of 2525 € in 2007 and 1578 € in 2008 on various underwater archaeological operations. Most of them took place at pile-dwelling sites. Costs are low, since the society works on a voluntary basis.

State	2007 (in €)	2008 (in €)	2009 (in €)	Notes
Baden-Württemberg	698,000	684,000	599,000	
Baden-Württemberg + Interreg IV	0	65,000	130,000	Project Erosion and Heritage Management
Baden-Württemberg + DFG	86,000	61,000	213,000	Analyses and publication
Bavaria	146,000	152,000	176,000	
Total	**930,000**	**962,000**	**1,118,000**	

Fig. 5.11 Overview of the expenditure on wetland archaeology by the State Conservation Offices in Germany (Baden-Württemberg and Bavaria).

Italy

Most of the funding for archaeological research on Italian pile-dwellings comes from the State (through the Ministry of Cultural Heritage & Activities), the regions and the municipalities. Funding includes both the ordinary and extraordinary management of the assets as well as the cost of staff.

With regard to the Superintendencies for Archaeological Heritage (peripheral offices of the Ministry), there exists an annual plan of activities. It is part of a three-year programme approved by the Ministry and placed under the State budget in accordance with the purposes prescribed by the law for the protection (Legislative Decree 24 January 2004, n.42). This plan – also approved by the Ministry – is articulated in various projects relating to specific areas of intervention on the archaeological heritage, and the activities associated with its development and disclosure.

For the pile dwellings in particular, projects were realized relating to:
- excavations and archaeological investigations (including the relief palaeoenvironmental analysis, radiocarbon, dendrochronology, etc.)
- restoration of archaeological finds
- documentation and cataloguing of archaeological finds
- knowledge enhancement (organization of exhibitions and conferences, educational tours in the museums and on the territories, etc.).

The municipalities where pile dwellings are located, carry out – through the local museums – co-financing projects with the Region in question. Authorization for this is required from the Superintendence for Archaeological Heritage. The projects relate to excavations and archaeological investigation, restoration of finds, creation of information panels, organization of exhibitions, conferences and educational activities, and publication of results.

The five regions involved in the Italian project are Piedmont, Lombardy, Veneto, Trentino South Tyrol / Antonomous Province of Trento and Friuli Venezia Giulia. Each region has programming tools aimed at funding the enhancement of regional archaeological heritage. Lombardy, for example, annually provides funding to promote projects to improve the region's archaeological heritage (L.R. 6 August 1984, n. 39 and L.R. 19 December 1991, n. 39). The funding also covers the cataloguing of finds through the SIRBeC (Regional Information System for Cultural Heritage) which since 1998 has been aligned with national cataloguing standards developed by the Central Institute for Cataloguing & Documentation of the Ministry. Funding further promotes educational and cultural projects of regional interest (L.R. 26 February 1993, n. 9).

Region	2007 (in €)	2008 (in €)	2009 (in €)	Notes
Piedmont	148,000	148,000	148,000	
Lombardy	326,900	322,900	510,600	The total amounts have been rounded off
Veneto	95,000	45,000	91,000	Research and investigations carried out with both public and private funding
Trentino South Tyrol / Autonomous Province of Trento	317,300	356,700	849,300	Funding provided by Autonomous Province of Trento for protection and preservation of the sites (rescue excavations and analysis). The total amounts have been rounded off
Friuli Venezia Giulia	81,600	82,200	93,000	Mainly fixed costs for the management of museums
Total	**968,800**	**954,800**	**1,681,900**	

Fig. 5.12 Overview of the expenditure on wetland archaeology by the State Conservation Offices and other institutions in Italy.

Slovenia

The activities related to the protection and development of cultural heritage in the area are funded with existing legislation related to cultural heritage and legislation related to the local, municipal and state budgets. The systemic funding is occasionaly supplemented with funds obtained through public calls for national, cross-border and international cooperation and also on the basis of public-private partnership.

The Natural Park Ljubljansko barje is financed through the Ministry of Environment and Space and the Municipality of Ljubljana, while the Ministry of Culture entirely funds the work of the specialist staff (curators, technical staff and the director of the public institution) of the Institute for the Protection of Cultural Heritage of Slovenia and museums. Each year these institutions propose additional funding to the Ministry of Culture for activities related to the conservation and renovation of cultural heritage sites. The Natural Park Ljubljansko barje is financed through the Ministry of Environment and Space and the Municipality of Ljubljana.

Possible sources of funding for management of the area:

- funds from the Municipality of Ig – used for funding public programmes;
- funds from the national budget dispensed by the Ministry of Culture and Ministry of Environment and Space – used for funding activities related to the protection of national cultural monuments;
- funds from the national budget dispensed by various ministries – obtained for various programmes as part of public competitions.
- funds obtained through money-making ventures;
- funds obtained through the lease or licensing of tourism activities and other services to contractors, etc.
- development projects in the framework of the European Union's budget framework for 2007–2013, which include activities of protecting and developing cultural heritage, tourism, etc.;
- programmes of enhancing regional development potentials, integrating and developing natural and cultural potentials;
- cross-border operational programmes (cross-border cooperation with Italy, Croatia; the Adriatic Initiative);
- regional operational programmes (the Alps, Southeast Europe, Central Europe, the Mediterranean);
- select Community programmes:
- 7th Framework Programme;
- Life+;
- European Neighbourhood and Partnership Instruments;
- donations.

Our assessment for the first five years of operations of the managing organization envisages the organization being funded for the most part with public funds (from the local and national budget and through public calls). The foreseen ration is 70:30 in favour of public funds. However, in the ensuring period, the share of own funds is expected to increase on the basis of measures related to the establishing efficient business management in the area. The management costs are assessed at around 250,000 € per year. In funding projects, the value of the projects will be higher to include the costs of drafting the investment plan, oversight, etc.

	2007 (in €)	2008 (in €)	2009 (in €)	Notes
Slovenia	357,000	123,000	280,000	–
Total	**357,000**	**123,000**	**280,000**	**–**

Fig. 5.13 Overview of the expenditure on wetland archaeology by the State Conservation Offices in Slovenia.


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5.g Sources of expertise and training in conservation and management techniques

General

The technical expertise essential to the professional conservation and development of pile-dwelling sites is assured for all disciplines in all participating States Parties: the recovery and conservation of organic materials from wetland settlements requires particular care. Underwater excavations can only be carried out with the aid of special infrastructure and by trained specialists. Therefore it is important to promote education and training in this area. One of the important issues in this context is health and safety. Therefore, work on wetland settlements is carried out exclusively by qualified members of staff in all the countries involved.

Legal and logistical government services and sponsoring bodies assist these specialists in their work. Further education and training services are provided by a number of public and private institutions. They offer qualified study and further training opportunities at all levels and for all specialised fields. High-quality academic research is ensured by universities and by universities for applied sciences in all States Parties.

Switzerland

Training and further education of the personnel responsible for the pile-dwelling sites

Most of the specialists involved in the authorities and institutions working in the field of archaeology and its neighbouring disciplines have a relevant university or college degree. In Switzerland, this concerns the Universities of Zurich (www.unizh.ch), Basle (www.unibas.ch), Berne (www.unibe.ch), Fribourg (www.unifri.ch), Neuchâtel (www.unine.ch), Lausanne (www.unil.ch), and Geneva (www.unige.ch). All Swiss Universities and Federal Institutes offer graduate and post-graduate courses (bachelors, masters, doctorates, post-doctorate and lecturing qualifications, post-graduate courses) in the scientific fields concerning heritage preservation in general and archaeology in particular: all the universities mentioned provide courses in prehistory and the natural sciences necessary for the study of wetland sites. The cantonal and local museums in possession of artefacts from wetland sites also provide appropriate training.

Numerous Universities of Applied Sciences (the Eastern Switzerland, North West Switzerland, Zurich and Berne Universities of Applied Sciences, the hautes écoles spécialisées de Suisse occidentale in western Switzerland, the Italian-speaking Scuola professionale della Svizzera italiana, www.bbt.admin.ch/fachhoch/e/index.htm) also offer post-graduate and further education courses in most fields relating to heritage preservation, promotion and outreach as well as museology.

Continuous education is also ensured by professionals participating in specialised conferences on conservation, site management and other more specific subjects in relation to scientific research.

Most archaeological services employ specialised workers, who may have undergone training or obtained an apprenticeship in related fields (mason, architectural draftsman, carpenter, etc). These workers enhance their skills in archaeology during the duration of their employment mainly through their daily work but also thanks to advanced vocational training. This may even lead to the possibility of obtaining a professional diploma allowing working as a field technician after a three-year course.

Knowledge base of the authorities involved

The responsibility in terms of the management of archaeological heritage generally lies with the heads of the departments (canton archaeologists and similar positions). These persons have a university education in the area of (regional) archaeology. In certain rare cases this role is filled by archivists or heritage conservation officers.

The educational background of the members of staff of the archaeological services is generally similar:

– Archaeologists, possibly art historians or specialists in the history of architecture, restorers, conservators, and excavators trained in the field.
– There are five underwater archaeology teams in Switzerland (Berne, Fribourg, Neuchâtel, Thurgau, and Zurich City). The other cantons generally also outsource their underwater work to these existing teams. The archaeologists that work under water all have the appropriate diving certificates and regularly participate in further training and safety courses.
– Field technicians complete a three-year course under the auspices of the Swiss conference of cantonal archaeologists KSKA and the Swiss association of field technicians and personnel (VATG).
– The majority of the four dendrochronological laboratories that process the timbers from the Swiss wetland settlements (Berne, Moudon, Neuchâtel, Zurich City, cf. list of addresses in the ↘ **Chapter 8.c.4**) are attached to a cantonal archaeology department. The Laboratoire Romand de Dendrochronologie (Moudon) is the only private enterprise. In principle there is no specific course for dendrochronologists but the staff members of the dendrochronological laboratories usually have an academic background or have had years of experience in archaeology and have participated in specialised training.

The federal government (Federal Office of Culture) may appoint experts to act as consultants if a site is deemed to be of national or regional importance. At cantonal level, the expertise is managed by the Swiss conference of cantonal archaeologists.

The Archaeology Society of Switzerland acts as an umbrella association for Swiss archaeology, assembling professional archaeologists as well as interested laymen: it publishes an annual review, which also regularly contains articles outlining the research results of wetland archaeology. The quality of these contributions is evaluated by a Scientific Committee.

Swiss researchers and archaeologists working on wetland sites in all the cantons concerned cooperate closely with each other and also with their colleagues abroad, for example at regular reunions of the Working Group for Swiss Prehistoric Research.

The Society for Swiss Underwater Archaeology aims to sustain projects of archaeological services in Switzerland and abroad where these services are lacking in the necessary infrastructure, and supports the authorities and agencies concerned in their quest for effective protection measures for the sites and artefacts under water. The Society also offers regular training courses for scuba divers in order to raise awareness of the importance of underwater cultural heritage.

Other experts worth mentioning, particularly in terms of underwater archaeology, are working groups of international institutions such as the Underwater Cultural Heritage Working Group of the Europae Archaeologiae Consilium (EAC) or the International Committee on the Underwater Cultural Heritage (ICUCH) of ICOMOS, of which some of the cantons concerned are active members. Unfortunately, these organisations mainly deal with marine underwater sites and not freshwater sites.

Austria

There are archaeological courses at four Austrian universities: the University of Graz (www.kfunigraz.ac.at), the University of Innsbruck (www.uibk.ac.at), the University of Salzburg (www.uni-salzburg.at) and the University of Vienna (www.univie.ac.at). Furthermore, the two Arts universities in Vienna offer courses on conservation and restoration: the Academy of Fine Arts Vienna (www.akbild.ac.at) and the University of Applied Arts Vienna (www.dieangewandte.at).

At the universities of Vienna, Innsbruck and Salzburg, there are periodic courses on the subject of prehistoric pile dwellings around the Alps and on underwater archaeology in general. The working group on underwater archaeology of the Austrian Society of Prehistory and Protohistory (Österreichische Gesellschaft für Ur- und Frühgeschichte – ÖGUF) regularly organises specialised events with international speakers at the University of Vienna, offering insights into recent research in the field of wetland and underwater archaeology. Thus, contact with international research and especially with colleagues in archaeology from neighbouring countries is assured.

The Austrian Association for Wetland and Underwater Archaeology Triton is a non-profit science association aiming to continue research on pile dwellings in Austria in the spirit of the Federal Historic Preservation Agency, and to document the corpus of archaeological finds in Austrian waters with the aid of volunteer divers. As a further education offer to students of archaeological courses, Triton offers underwater archaeology workshops (amongst others after the scheme of the Nautical Archaeology Society / UK) and diving courses specially attuned to conservation and preservation issues.

France

The Neolithic period and Protohistory of North Alpine Europe are taught in a number of French universities. In view of the scientific importance of the pile dwellings and the marsh environments that have been subject to human action in the circum-Alpine region both in terms of material culture and the environment, these sites and issues carry considerable weight in the courses taught and in doctoral research. In the context of studies on current global climate change, these sites constitute major paleoenvironmental points of reference in view of the very high level of definition of the chronological sequences, the documentary quality of the naturalistic samples and the cultural evidence. There is therefore a need to include two disciplines in training and research curricula: cultural archaeology as a matter of course, but also the Holocene paleoenvironment in relation to these highly topical questions of climate evolution. Some universities combine these two aspects of their courses with research topics on pile dwellings. The Universities of Bourgogne (ARTeHIS 5594, Dijon, www.u-bourgogne.fr; www.artehis-cnrs.fr) and Franche-Comté (Chrono-environnement 6249, Besançon; chrono-environnement.univ-fcomte.fr) comprise the nearest university network. These two universities are linked by the 'Bourgogne-Franche-Comté Universités' research and higher education network and have scientific partnership agreements with the universities of Neuchâtel, Lausanne and Geneva in Switzerland. The Paris universities (Paris 1 and Paris 10) naturally also cover both of the issues in question, mainly in the Mixed Research Unit 7041 ARSCAN, which, however, concentrates more on the cultural dimension than the paleoenvironment. The Neolithic period and the Proto-history of middle Europe in relation to the pile dwellings are also taught in other university centres, although with greater cultural emphasis, as in the case of the universities of Strasbourg, Lyon 2 and Lille. Overall, these seven universities between them hold some twenty research and teaching posts in the various research units and around fifteen CNRS posts for researchers and engineers.

In addition to the 'academic' training provided by the universities, archaeologists are trained in scientific diving in the context of the authorised research operations, in particular those carried out by members of the Department of Underwater and Submarine Archaeological Research (DRASSM). In addition, the permanent training service of the National Centre for Scientific Research (CRNS) has since 2006 been organising an annual course leading to advanced scientific diver accreditation. These courses are intended for researchers, research teaching staff, engineers, technicians and students who need to use diving in the context of their professional activities.

The training of specialists for the preservation and restoration of artefacts is one of the courses taught in the Institut national de patrimoine (INP) (National heritage institute) under the aegis of the Ministry of Culture and Communication (www.inp.fr). During the five years of studies the future specialists follow a very full curriculum which includes the rules for preventive conservation, the deontology of restoration, the sciences applicable to heritage materials, etc.

Of the bodies and companies which operate in the field of organic material conservation, the most important is the regional conservation laboratory for the safeguarding of the cultural heritage and works of art (ARC-Nucléart). This private / public cultural association located in Grenoble is mainly concerned with the conservation of archaeological or ethnological collections consisting of wet and dry organic materials (waterlogged wood, waterlogged leather, basketry, ropes, dry leather and skins, antlers, dry wood, wood / metal composites). It takes students studying conservation-restoration (nucléart@cea.fr and www.arc-nucleart.fr).

Germany

Most of the specialists working in the field of archaeology and its neighbouring disciplines within German authorities and institutions have a relevant university or college degree. In Bavaria, appropriate degrees can be obtained at the universities of Bamberg (Otto-Friedrich Universität, www.uni-bamberg.de), Erlangen-Nürnberg (Friedrich-Alexander-Universität, www.uni-erlangen.de), Munich (Ludwig-Maximilians-Universität, www.uni-muenchen.de), Regensburg (www.uni-regensburg.de) and Würzburg (Julius-Maximilians-Universität, www.uni-wuerzburg.de). In Baden-Württemberg the universities of Freiburg i.Br. (Albert-Ludwigs-Universität Freiburg, www.uni-freiburg.de), Tübingen (Eberhard Karls Universität Tübingen, www.uni-tuebingen.de) and Heidelberg (Ruprecht-Karls-Universität Heidelberg, www.uni-heidelberg.de) teach topics which relate to prehistoric pile dwellings and wetland archaeology. The universities of Kiel (Christian-Albrechts-Universität zu Kiel, www.uni-kiel.de), Cologne (Universität zu Köln, www.uni-koeln.de) and Hannover (Leibniz Universität Hannover, www.uni-hannover.de) also deal with wetland archaeology in their curricula. The universities offer graduate and post-graduate courses (bachelors, masters, post-graduate courses, doctorates, post-doctorate and lecturing qualifications,) in the fields of archaeology and heritage conservation. They also offer courses in prehistoric archaeology and the related scientific disciplines necessary for research on wetland sites. In museum laboratories – especially in the Bavarian State Archaeological Collection in Munich (Archäologische Staatssammlung München), the German National Museum in Nürnberg (Germanisches Nationalmuseum), the Württemberg State Museum (Landesmuseum Württemberg), the Roman-Germanic Central Museum in Mainz (Römisch-Germanischen Zentralmuseum) as well as in the laboratories of the State Conservation Offices in Baden-Württemberg and Bavaria (Landesämter für Denkmalpflege) – conservators are taught the skills needed to cope with waterlogged wood and other finds from wetland sites.

Site technicians (Grabungstechniker) in Germany are trained and examined according to a well established course, monitored by the Association of State

Archaeologists (Verband der Landesarchäologen) and the Roman-Germanic Commission (Römisch-Germanischen Kommission). During the three year course which can be taken at the cultural heritage authorities in Bavaria and Baden-Württemberg, the trainees also receive intensive instruction in wetland archaeology.
A training course on archaeological diving has been established by the Association of State Archaeologists in cooperation with the Roman-Germanic Commission. The course accords to the vocational scientific diving regulations required by German governmental health and safety institutions. Applicants must have passed the basic vocational diving certification as 'Qualified Research Diver' (Geprüfter Forschungstaucher), the German equivalent to the European Scientific Diver / Advanced European Scientific Diver. The archaeological diving course conveys basic skills in handling cultural heritage and conducting archaeological excavations and documentations under water. It requires a minimum of eight weeks attendance to gather practical experience. The certification as 'Archaeological Research Diver' (Archäologischer Forschungstaucher) is completed by a theoretical and practical examination.
Specialized conferences, organized by universities, universities of applied sciences, by the Association of State Archaeologists, museums associations, various archaeological societies and archaeo-scientific research associations offer opportunities for the exchange of scientific information on conservation and site management

Knowledge base of the authorities involved

In Bavaria and Baden-Württemberg the State Conservation Offices manage the archaeologic cultural heritage of each federal state. The managers responsible for this task are all university educated archaeologists specialized in European prehistory. The technical personnel possess special qualifications and long lasting experience in handling material from lakes and bogs.

The State Conservation Office in Baden-Württemberg maintains a specialized unit in Hemmenhofen on Lake Constance, where archaeologists and natural scientists work together in close cooperation. Within the research framework of the unit post-graduate students and post-doctoral researchers are offered the opportunity to further their scientific qualifications by acquiring knowledge of wetland archaeology and the neighbouring scientific disciplines. Undergraduate and graduate students may also seek employment with the State Conservation Office on short term contracts to gain experience in dealing with waterlogged sites and finds.

Underwater archaeology in Baden-Württemberg is carried out in cooperation with three diving teams headed by professional university-educated archaeological divers (private enterprises: UWARC, Terramare, Teraqua). These teams work on behalf of the State Conservation Office. The divers work according to scientific diving guidelines. Their employees regularly visit vocational training courses. The diving projects offer trainees the opportunity to gain practical experience towards the qualification as an 'Archaeological Research Diver'. (Detailed information concerning the structure and staffing levels of the Bavarian wetland and underwater archaeology can be found in ↘ **Chapter 5.j and 8.b**).

The dendrochronology laboratory of the State Conservation Office in Baden-Württemberg is affiliated to the unit in Hemmenhofen. The majority of the wood examined there comes from wetland sites on Lake Constance and in Upper Swabia. Within the laboratory's research framework young academics can acquire dendrochronological skills there. All wood recovered in Bavaria is stored and examined by a wood-work technician (Holztechniker) in the dendrochronology laboratory in Thierhaupten, a branch office of the Bavarian State Conservation Office.
The State Conservation Office in Baden-Württemberg and in Bavaria, the Society for Prehistory and Early History in Württemberg und Hohenzollern (Gesellschaft für

Vor- und Frühgeschichte in Württemberg und Hohenzollern e.V.), the Society for Archaeology in Bavaria (Gesellschaft für Archäologie in Bayern e. V.) and the Society for the Promotion of Archaeology in Baden (*Förderkreis Archäologie Baden e.V.*) issue several series of monographs and periodicals. In these volumes detailed research reports and articles on wetland archaeology are published regularly.

National and International Cooperation

The specialists on wetland archaeology of the State Conservation Offices in Bavaria and Baden-Württemberg maintain close scientific contacts to national and foreign universities and to the cultural heritage authorities of the neighbouring Swiss cantons as well as to other institutions concerned with prealpine pile dwellings and under water archaeology in general. In the Federal Republic of Germany the Commission for Underwater Archaeology in the Association of State Archaeologists (Kommission für Unterwasserarchäologie im Verband der Landesarchäologen, KUWA) plays a special role in the management of submerged cultural heritage. It acts as an umbrella group and liaises with international organisations for underwater archaeology such as the Underwater Cultural Heritage Working Group of the Europae Archaeologiae Consilium (EAC) and the International Committee on Underwater Cultural Heritage (ICUCH) of ICOMOS. The working group on underwater archaeology (*Arbeitskreis Unterwasserarchäologie,* AKUWA) affiliated to the commission meets yearly. The commission publishes an annual review on current underwater archaeology in Germany and its neighboring countries (*Nachrichtenblatt Arbeitskreis Unterwasserarchäologie*, NAU).

Italy

Training and further education of the personnel responsible for the pile-dwelling sites

Most of the specialists involved in the authorities and institutions working in the field of archaeology and its neighbouring disciplines have a relevant university. In Italy, this concerns the Universities of Milano Statale (www.unimi.it), Milano Bicocca (www.unimib.it), Milano-Università Cattolica del Sacro Cuore (www.unicatt.it/milano), Brescia (www.unibs.it), Verona (www.univr.it), Padova (www.unipd.it), Venezia Ca' Foscari (www.unive.it), Trieste (www.univ.trieste.it), Udine (www.uniud.it) and Trento (www.archeolab.lett.unitn.it). All Italian universities offer graduate and post-graduate courses (bachelors, post-graduate courses, masters, doctorates, post-doctorates and lecturing qualifications) in the scientific fields concerning heritage preservation in general and archaeology in particular: all the universities mentioned provide courses in prehistory and the natural sciences necessary for the study of wetland sites (geology, pedology, palaeozoology, palaeobotany…). Moreover, Milano, Padova and Trieste provide a post-graduate specialization in archaeology. IULM University (Milano)(www.iulm.it) also offers post-graduate and further education courses in most fields relating to heritage preservation, promotion and outreach as well as museology. In principle there is no specific course for dendrochronologists but the staff members of the dendrochronological laboratories usually have an academic background and had years of experience in archaeology and have participated in specialised training

The local museums in possession of artefacts from wetland sites also provide appropriate training (e. g. Como, Varese, Gavardo and Legnago).

There are scientific research centers (CNR-IDPA in Dalmine and Dendrodata s.a.s. in Verona) offering scientific support to University and Museums as well as stages for university students.

Continuous education is also ensured by professionals participating in specialised conferences on conservation, site management and other more specific subjects in relation to scientific research.

Knowledge base of the authorities involved

The responsibility in terms of the management of archaeological heritage generally lies with the heads of the departments (Soprintendenze per i Beni Archeologici and similar positions). The Ministry of Cultural Heritage and Activities operates, in each Region, through the local Soprintendenza per i Beni Archeologici (SBA). The local SBA can directly operate or collaborate with museums when digging in specific area (e. g. Lake Garda).

The educational background of the members of staff of the archaeological services is generally similar:

– Archaeologists, restorers, conservators, and excavators trained in the field.
– Archaeologist also must have reached the post-graduate specialization degree or the Ph.D. in Archaeology
– There is one underwater archaeology teams in Northern Italy (N.A.U.S.I.C.A.A. in Venezia). The Soprintendenze generally outsource their underwater work to this existing team, or to private enterprises. The archaeologists that work under water all have the appropriate diving certificates and regularly participate in further training and safety courses.
– Field technicians have usually completed the three-year degree in archaeology.
– Most of the laboratories that process most of the palaeocological remains and timbers from the Italian wetland settlements are private.

Slovenia

In Slovenia archaeological excavations can be conducted only by archaeologists with a university degree and five years of experience in field archaeology. University degrees are obtained at the Faculty of Arts of the University of Ljubljana (www.ff.uni-lj.si), which carry out both undergraduate and postgraduate studies. Faculty of Arts, with its Department of Archaeology, is the only higher education institution in Slovenia offering the study of archaeology. The university study programme at undergraduate level gives students a wide range of knowledge of European archaeology from prehistoric periods to modern historical times and develops skills for expert work in discovering archaeological remains, their research and evaluation. Nowadays, besides studies of archaeological cultural contexts, great attention is also paid to palaeoenvironmental studies, landscape and settlement archaeology as well as archaeological theory and methodology.

At the Faculty of Humanities of the University of Primorska (www.upr.si) the undergraduate study offers a programme of European and Mediterranean Heritage, which provides knowledge of heritage in the broad sense of the term and basic rules governing heritage protection as well as its importance in modern life. Graduates are awarded Bachelors of Heritage degree and can continue postgraduate studies in a programme called Archaeological Heritage of the Mediterranean. The programme of study follows the priorities of the European Community in protecting of cultural and natural heritage, and increasing significance of heritage.

At the University of Nova Gorica (www.ung.si) Intercultural Studies, Comparative Studies of Ideas and Cultures postgraduate programme, provided by the Scientific Research Centre of the Slovenian Academy of Sciences and Arts, includes an archaeological module ‘Millenium between Adriatic and the Danubian’

are, where prehistoric pile dwellings in the southeastern Alps are presented as a special study subject.

Archaeological research of pile dwellings at Ljubljansko barje is a team work approach of archaeologists from different institutions as well as specialists for paleobotany, palynology, dendrochronology, zooarchaeology and other sciences. Dendrochronological investigations of archaeological wood from Ljubljansko barje has been undertaken since 1995 by the Institute of Archaeology, Scientific Research Centre, Slovenian Academy of Sciences and Arts, and the Department of Wood Technology, Faculty of Biotechnology, University of Ljubljana. All the staff members of the latter have the academic background with specialization in dendrochronology. In their laboratory they also investigate basic physical and chemical properties of the archaeological wood to develop a proper treatment and optimal means of its conservation.

Field work can be carried out by archaeologists with a degree with a help of field technicians, students of archaeology (under mentorship of an archaeologist) and workers, who are trained in the field.

In Slovenia there is one underwater archaeology team which works within the Institute for the Protection of Cultural Heritage of Slovenia. Members of the team are archaeologists and technicians from different institutions who all have the appropriate diving certificates and have passed underwater reasearch training as well as safety courses. The team carries out all preliminary archaeological investigation under water including the riverbeds at Ljubljansko barje. It also participates in systematic research of pile dwellings, where the samples of wooden piles for dendrocronological investigations are collected from the underwater remains of the dwellings.


CHENS-SUR-LEMAN

5.h Visitor facilities and statistics

General

The sites are actually invisible as they are either located under water or covered by layers of sediment on dry land. This basically impedes the presentation of the cultural goods. Insight into the archaeological evidence in situ can only be gained by performing a test excavation or by diving. Numerous museums, private collections and archaeological parks, however, store finds and exhibit reconstructions of wetland settlements that – when presented in a contemporary manner – excellently convey the extraordinary value of prehistoric pile dwellings.

Great importance is also attributed to the promotion of the pile dwellings within the framework of this candidature. Numerous museums and information centres, often located in the immediate vicinity of important sites, today provide visitors with information about the archaeological significance of the pile dwellings. This chapter gives an overview of the already existing museums in all the countries involved. The list also includes museums that are not mainly devoted to pile dwellings ↘ Figs. 5.14–5.19. Such museums are also very important because they reach audiences that are not primarily interested in archaeology.

The framework of the candidature includes further offers, some of which have already been realised, in order to improve the promotion of the sites and to raise even more public awareness ↘ Chapter 5.i and Management plan ↘ Volume III.

As a rule, the museums are situated in easily accessible locations with a contemporary and comprehensive infrastructure (Internet-based information, tourist offices, public transport, food, accommodation, multilingual information etc.) comprising all the facilities required for national and international visitors. Most countries have equality laws that attempt to ensure unrestricted access to these public buildings and facilities.

Switzerland

Today, over 30 cantonal, municipal and private museums display artefacts from pile-dwelling sites ↘ Fig. 5.14. The history of some of them is inextricably linked with the development of pile-dwelling research. Numerous museums first came into being during the second half of the 19th century ↘ Fig. 5.15. The Musée Schwab in Bienne, which was opened on 16th September 1873 for example, holds collections of artefacts recovered from the Lakes of Bienne, Neuchâtel and Morat ↘ Fig. 5.16. After visiting the World Exhibition in Paris in 1889, the well-known shoe manufacturer Carl Franz Bally had pile dwellings built in the grounds of his factory in Schönenwerd (today Museum Bally-Prior, ↘ Fig. 5.17. The prehistoric collection of canton Thurgau in Frauenfeld dates back to 1924 and the Museum of Prehistory in Zug opened in 1930. All these museums have been modernised over the past 15 years ↘ Fig. 5.18.

A good example of current museological efforts is the Laténium, an archaeological park and museum in Hauterive, canton Neuchâtel, on the shore of Lake Neuchâtel. Its construction meant that significant financial input was made into the public presentation of pile-dwelling heritage, the storage and conservation of archaeological finds, and also into research and education in the field. The enterprise was awarded the Museum Prize by the Council of Europe in 2003 ↘ Fig. 5.19 – the Museum für Urgeschichte(n) in Zug had already received a 'Special Commendation' for its newly designed permanent exhibition in 1999 ↘ Fig. 5.20.

Besides up-to-date exhibits of pile-dwelling finds, a series of modern reconstructions on a scale of 1:1 also illustrate everyday life of the pile dwellers. One example is a Late Bronze Age house from Cortaillod-Est, which was reconstructed beside the La-

Fig. 5.15
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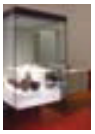

Fig. 5.16
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Fig. 5.17
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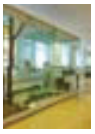

Fig. 5.18
↘ p. 425

Fig. 5.19
↘ p. 425

Fig. 5.20
↘ p. 426

ténium based on the latest scientific findings. Also worth mentioning is a reconstructed pile dwelling in Seengen on Lake Hallwil and the pile-dwelling village in Gletterens (Lake Neuchâtel, ↘ Fig. 5.21). Finally, a number of houses were opened to the public only recently, in September 2009, near the Wauwil Bog in Canton Lucerne ↘ Fig. 5.22.

In 1990 the Swiss National Museum staged an open-air exhibition on the shore of Lake Zurich ('Pfahlbauland') with life-sized reconstructions of pile dwellings, where the public could participate in a plethora of activities and thus catch a glimpse of prehistoric life. This event opened the doors to numerous educational experiments carried out by various museums in Switzerland and abroad. Many of the visitors to the Pfahlbauland in 1990 remember it well to this day.

2004, the 150th anniversary of the discovery of the pile dwellings, saw a great number of activities around the lake-dwelling phenomenon: exhibitions in the Swiss National Museum ↘ Fig. 5.23, in the cantonal Museums of Lausanne and Fribourg, in the Musée Schwab in Bienne, in the Archaeological Museum of canton Thurgau and in various museums in Germany (Archäologisches Landesmuseum Baden-Württemberg in Constance, the Pfahlbaumuseum Unteruhldingen and the Federseemuseum Bad Buchau). Conferences took place in Zurich (Wetland Economies and Societies) and in Rüschlikon near Zurich (International Congress of Underwater Archaeology – IKUWA).

While it is impossible to calculate the exact number of 'tourists' who have visited the sites and museums over the course of the past 100 years, the museums are still showing consistently high visitor statistics ↘ cf. Fig. 5.14, based on the particularly strong presence of young people attracted by an increasing number of activities offered by the institutions ↘ cf. Chapter 5.i.

Besides permanent exhibitions, special exhibitions also regularly present pile-dwelling themes. The special exhibition 'From the Alps to Lake Geneva. Images from prehistory' ('Des Alpes au Léman. Images de la préhistoire') was shown by various museums in western Switzerland between 2006 and 2008 and gave an impression of the day-to-day lives of the people that lived between the Rhône Valley and the shores of Lake Geneva from around 13000 BC to the beginning of the common era. An important component of this exhibition were artists' impressions showing details that would not have been known without the scientific information gained from pile-dwelling sites ↘ Fig. 5.24.

The Musée Schwab in Bienne, for instance, staged a special exhibition on the topic of 'The Wheel' in 2006, followed by the exhibition 'Röstigraben' in 2007 and 'Fish and Man' in 2009. The special exhibition 'Bones' in 2007/2008 in the Museum of Archaeology Thurgau also showed pile-dwelling finds. Cantons Thurgau and Zurich plan to show a special exhibition on textiles from lakeside settlements in 2010. In 2008/09, Laténium staged the special exhibition 'Lacustrine Imagination' ↘ Fig. 5.25.

Fig. 5.21
↘ p. 426

Fig. 5.22
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Fig. 5.23
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Fig. 5.24 Without the scientific insight gained from the pile dwellings, many of the details could not have been included in the images for the special exhibition 'Des Alpes au Léman. Images de la préhistoire' (From the Alps to Lake Geneva. Images of prehistory), which was shown in various museums in Western Switzerland between 2006 and 2008.

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Fig. 5.25 The exhibition 'L'imaginaire lacustre' (Lacustrine imagination) shown in the Laténium in 2008/09 was the most comprehensive synthesis compiled to date highlighting the artistic and scientific impact of the lakeshore discoveries.

Canton	Municipality	Museum	2006	2007	2008	Remarks
AG	Lenzburg	Museum Burghalde	4,500	4,500	4,500	Incl. Stone age workshop Max Zurbuchen. C. 50% schools.
BE	Bern	Bernisches Historisches Museum	11,000	10,430	11,160	Only permanent exhibition
BE	Biel	Musée Schwab	12,000	12,000	12,000	All collections (prehistory)
BE	La Neuveville	Musée d'histoire	1,629	661	777	All collections
BE	Lüscherz	Pfahlbaumuseum Sammlung Iseli	720	720	720	
FR	Estavayer-le-Lac	Le Musée de grenouilles	6,042	5,675	5,286	All collections
FR	Fribourg	Musée d'art et d'histoire	12,068	12,790	19,236	All collections
FR	Gletterens	Village Lacustre de Gletterens	11,000	11,000	11,000	
FR	Murten	Museum Murten	–	–	–	No numbers available
GE	Genève	Musée d'art et d'histoire	10,000	10,000	5,000	2008: Hall refurbishment
LU	Schötz	Wiggertalermuseum	508	370	534	
NE	Boudry	Musée de l'Areuse	1,026	802	1,011	

Canton	Municipality	Museum	2006	2007	2008	Remarks
NE	Hauterive	Parc et musée d'archéologie de Neuchatel (Laténium)	36,300	36,700	39,500	All collections
SG	Rapperswil-Jona	Stadtmuseum	1,500	2,000	1,500	All collections
SG	Rorschach	Museum im Kornhaus	2,200	2,200	2,200	Only open on request
SG	St. Gall	Historisches und Völkerkundemuseum	38,000	36,000	32,000	All collections
SH	Schaffhausen	Museum zu Allerheiligen	30,000	30,000	30,000	Total number of visitors, archaeology can not be specified
SO	Olten	Archälogisches Museum Kanton Solothurn	7,648	4,128	13,635	2008: special exhibition 'Steinzeitkunst' (Stone age art)
SZ	Vorderthal	Marchmuseum	–	550	650	All collections
TG	Arbon	Historisches Museum	3,000	3,000	3,500	
TG	Eschenz	Museum Eschenz	500	500	500	
TG	Frauenfeld	Museum für Archäologie Thurgau	16,166	13,562	15,853	Visitor numbers together with Naturmuseum Thurgau
TG	Pfyn	Pfyn-Trotte	500	500	500	Only open on request
TG	Steckborn	Museum Turmhof	600	600	600	
VD	Grandson	Musée du Château de Grandson	56,250	54,600	58,320	All collections
VD	Lausanne	Musée cantonal d'archéologie et d'histoire	20,000	20,000	20,000	All collections
VD	Yverdon	Musée d'Yverdon et Région	8,980	9,419	8,299	All collections
ZG	Zug	Museum für Ur- und Frühgeschichte(n)	10,132	11,364	11,111	All collections
ZH	Horgen	Ortsmuseum	1,900	2,700	2,500	All collections
ZH	Meilen	Ortsmuseum	1,445	2,384	1,321	All collections
ZH	Pfäffikon	Heimatmuseum	633	718	435	All collections
ZH	Wetzikon	Ortsmuseum	1,000	1,000	1,000	All collections
ZH	Zürich	Schweizerisches Landesmuseum	86,639	108,982	124,279	All collections
Total			**393,886**	**409,855**	**438,927**	

Fig. 5.14 Visitor numbers of the museums in Switzerland that exhibit artefacts from pile-dwelling settlements.

Austria

Currently, three large museums and three smaller museums of local history show finds from the pile dwelling era. These are the State Museum in Linz, the local museums in Schörfling and Vöcklabruck, and the Pile Dwellings Museum in Mondsee in Upper Austria ↘ Fig. 5.26; the State Museum in Klagenfurt, Carinthia, and the Museum of Natural History in Vienna. The State Museum of Bregenz shows also finds from the pile-dwelling sites but those are not from Austrian sites but from the Lake Constance area. In addition, the collection exhibit of the Institut für Ur- und Frühgeschichte (Department of Pre- and Protohistory) at the University of Vienna offers a public access exhibition of finds from the period of prehistoric pile-dwelling cultures (mainly the Mondsee group) from the collection Matthäus Much. In the town hall of Keutschach am See also, there are exhibition spaces with information on the finds and the history of the settlement of Keutschach.

The Museum of Natural History in Vienna ↘ Fig. 5.27 possesses a large collection of finds from pile dwellings from the lakes Attersee and Mondsee. This museum regularly shows special exhibitions with reference to Neolithic and Copper Age cultures in Austria.

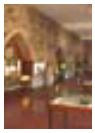

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Fig. 5.26 The Pile Dwelling Museum in Mondsee (Austria) exhibits in great detail the findings of the pile-dwelling sites of the Salzkammergut.

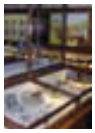

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Fig. 5.27 The Museum of Natural History in Vienna regularly shows special exhibitions with reference to Neolithic and Copper Age cultures in Austria and possesses a large collection of finds from pile dwellings from the Lakes Attersee and Mondsee.

In the past, special exhibitions on the Neolithic Age and pile-dwelling research have been shown at different venues. The last large special exhibitions took place in 2005 in Lower Austria (Asparn a. d. Zaya) and in 2006 in Carinthia (Klagenfurt). In 2005, the Museum for Pre- and Protohistory in Asparn a. d. Zaya took over the pile-dwelling farmers exhibition, which had been produced in 2004 on occasion of the 150th anniversary of pile-dwelling research in Switzerland. The special exhibition in 2006 in Klagenfurt was entitled 'History through Diving – on the Beginnings of Fishery and Shipping in the Alps ('Ertauchte Geschichte – zu den Anfängen von Fischerei und Schifffahrt im Alpenraum'), and also covered the pile dwellings of Lake Keutschacher See (AT-KT-01). Supplementing this special exhibition, the travelling exhibition 'From Underwater to Public Attention' ↘cf. Chapter 5.i was on show.

Federal state	Municipality	Museum	2006	2007	2008 (estimation)	Remarks
–	Wien	Naturhistorisches Museum	368,813	397,140	372,994	All collections
–	Wien	Sammlung des Institutes für Ur- und Frühgeschichte	30	30	30	Public Visiting Day; normally the collection is only frequented by scholars
–	Bregenz	Landesmuseum Bregenz	30,000	30,000	30,000	All collections
KT	Klagenfurt	Landesmuseum Kärnten	20,094	29,655	31,378	All collections
OÖ	Linz	Oberösterreichische Landes-museen – Schlossmuseum	51,926	88,897	55,400	All collections
OÖ	Mondsee	Pfahlbaumuseum Mondsee	6,032	4,630	4,593	
OÖ	Vöcklabruck	Heimathaus Vöcklabruck	2,000	2,000	2,000	
OÖ	Schörfling	Heimathaus Schörfling	161	202	112	
Total			**479,056**	**552,554**	**496,507**	

Fig. 5.15 Visitor numbers of the museums in Austria that exhibit artefacts from pile-dwelling settlements.

France

The Jura Museum of Archaeology in Lons-le-Saunier, the administrative centre of the Department of the Jura, has been awarded the title of 'Musée de France' by the Ministry of Culture and Communication. It groups the archaeological collections from the excavations of the pile-dwelling sites of Lakes Chalain and Clairvaux. In 2008, the museum's schools service prepared a teaching kit on the Neolithic period in the Jura lakes. This was supplemented by a booklet for the general public: 'Vivre au Néolithique 3000 ans avant notre ère: les villages néolithiques de Chalain et de Clairvaux' (Life in the Neolithic period 3000 years before our time: the Neolithic villages of Chalain and Clairvaux), which provides a sound introduction to discovering the museum's Neolithic collections.

The Centre de recherche archéologique de la vallée de l'Ain (CRAVA) (Archaeological research centre of the Ain valley) has created a permanent exhibition at Clairvaux, which has been open since 2005. On the basis of life-sized reconstructions (a village fresco, a reconstructed house), ↘ Fig.5.28, it proposes models and everyday objects resulting from the archaeological research carried out at Chalain and Clairvaux for more than thirty-five years. The Clairvaux Tourist Office proposes activities and guided tours. In 2009, the Clairvaux-les-Lacs village hall hosted the temporary exhibition '4000 BC. We have eaten the forest' ('4000 avant Jésus-Christ. Nous avons mangé la forêt'). Every year in September various activities are organised during the International Heritage Days.

The archaeological collections resulting from the Alpine lake excavations will finally be permanently installed in the museums of the Departments of Savoie and Haute-Savoie (the Musée savoisien in Chambéry and the Musée-Château in Annecy).

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Fig. 5.28 Life-sized model and mural of a lakeside village around 3000 BC. From the exhibition '4000 BC – We ate the forest' (4000 ans avant J.-C. – Nous avons mangé la forêt).

The Observatoire régional des lacs alpins (ORLA) (Regional observatory for the Alpine lakes), which is part of the Musée-Château d'Annecy, provides a 700 m² exhibition area, where a thematic approach places the emphasis on the importance of the lakes in the history of the Alpine regions. The layout of the collections is organised around five areas of scientific research: biology, ecology, ethnology, archaeology and limnology ↘ Fig.5.29. The Observatory contributes to the enhancement and protection of the natural Alpine environments. In 2006, to commemorate the 150th anniversary of the first discoveries of pile dwellings in the Savoie lakes, ORLA, in collaboration with the Département des recherches archéologiques sous-marines et subaquatiques (DRASSM) (Department of underwater and submarine archaeological research), organised an exhibition entitled 'Lake Secrets, 150 Years of Archaeology in the Alpine Lakes' ('Secrets de lacs, 150 ans d'archéologie dans les lacs alpins'). This exhibition was subsequently on display in the Musée savoisien, Chambéry, in 2006, and then at Yvoire, la Chataîgnière, on Lake Geneva, in 2007.

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Fig. 5.29 As part of the Musée-Château d'Annecy, the regional observatory of the Alpine lakes (ORLA) takes a thematic approach to highlighting the importance of the lakes in the history of the Alpine region.

Department	Municipality	Museum	2006	2007	2008	Remarks
39	Lons-le Saunier	Jura Museum of Archaeology	15,000	15,000	15,000	Annual estimate, adults and schoolchildren
39	Clairvaux-les-Lacs	Village hall	576	952	859	Open July-August
73	Chambéry	Musée savoisien	14,000	16,200	15,400	Overall visit, no discount for the Prehistory rooms
74	Annecy	Musée-Château d'Annecy	88,000	87,000	89,500	Entries to the temporary exhibitions are included in these overall figures
Total			**117,576**	**119,152**	**120,759**	

Fig. 5.16 Visitor numbers of the museums in France that exhibit artefacts from pile-dwelling settlements.

Germany

Outside Bavaria and Baden-Württemberg pile-dwelling finds are exhibited in two supra-regional major museums: In the Römisch-Germanische Zentralmuseum in Mainz (Federal State of Rheinland-Pfalz), as well as in the Museum für Vor- und Frühgeschichte in Berlin (Federal State Berlin). The latter is momentarily relocated to the Museum Island in Berlin, and the relevant section is at present closed to the public. Since both Federal States lack pile-dwelling settlements on their territory, all exhibits originate from locations in southern Germany. The Berlin documentation of prehistoric and anthropological exhibits from the year 1880 represents a milestone of museum activity, as it was the premiere of a nationwide exposition of prehistoric finds from all parts of the then 'German Reich'. Besides several objects from the lake shores in southwestern Germany, a small selection of the material of Sigmund von Schab's campaigns at Rose Island (DE-BY-03) in Lake Starnberg was shown in this museum ↘cf. Chapter 2.b.4.

Baden-Württemberg

Finds and research results from the wetland and lakeside settlements of the South West German pre-Alpine region are presented in many museums in Baden-Württemberg. Most of the museums are in the Lake Constance region. More are in Upper Swabia and other parts of the State.

The biggest attractions are the open air Pile Dwellings Museum in Unteruhldingen (Pfahlbaumuseum Unteruhldingen ↘ Fig. 5.30) and the Federsee Museum (Federseemuseum ↘ Fig. 5.31) in Bad Buchau. The Unteruhldingen Pile Dwellings Museum was founded in 1992. It not only presents tangible pile dwellings but also reconstructions of older and younger house types and domestic scenes. Since 1988 parts of four Stone

↘ p. 429

Fig. 5.30

↘ p. 429

Fig. 5.31

Age and Bronze Age villages consisting of 12 houses have been reconstructed in the open air section of the Federsee Museum. The Federsee Museum, with its open air section and important collection of archaeological objects, offers a good cross section of the results of modern archaeological research on the settlements of the Federsee bog as well as an opportunity to vividly experience prehistoric living conditions. The museum is complimented by the archaeological trail to the wetland settlement in the southern reed bed. Information panels and partial reconstructions of buildings and palisades give detailed information on the natural and landscape history of the Federsee. Both museums renew established concepts of experience-driven archaeology. They offer wide and varied demonstrations and visitor-participation events and open new possibilities for the public to experience archaeology personally. On average they attract 300,000 visitors per year ↘ Fig. 5.32.

The Rosgartenmuseum in Konstanz is the oldest pile-dwelling museum in Baden-Württemberg and is closely connected with the origins of pile-dwelling research. The Museum was opened in 1871 on the initiative of Ludwig Leiner. The rich pre- and protohistoric collection contains many pile-dwellings finds in cabinets in the original exhibition rooms from the 19th century ↘ Fig. 5.33. This 'museum in a museum' is a unique ensemble. Contrastingly modern is the Konstanz branch of the Baden-Württemberg State Archaeological Museum with its cross section of archaeology in the State and its presentation of the latest research results. Wetland archaeology is presented in two large exhibition rooms dedicated to the Late Neolithic pile-dwellings settlement Hornstaad-Hörnle 1A and the bog settlement Forschner. Both sites were explored and excavated within a German Research Council-funded research project on pre-Alpine settlement archaeology. The interdisciplinary project resulted in much new knowledge. These new insights are illustrated with the help of reconstructions and modern media.

The museum landscape on Lake Constance is completed by a number of smaller museums: the Municipal Museum in Überlingen, the Herman-Hesse-Höri-Museum in Gaienhofen, the Local History Museum in Allensbach and the Fischerhaus Museum in Wangen ↘ Fig. 5.34. Most of the finds exhibited in these museums originate from older local collections, though some are from newer excavations. They illustrate the wide and rich finds-spectrum of the pile-dwellings settlements. The Local History Museum in Allensbach and the Fischerhaus Museum in Wangen are run on a voluntary basis. Even so, despite voluntary staff and short opening hours, they attract up to 3,500 visitors per year with ambitious special exhibitions. A new museum which will probably open in 2011 is planned in Bodman-Ludwigshafen. The archaeological section will concentrate on the local situation and especially the underwater archaeology of the 1990s on the Middle Bronze Age settlements in Bodman Bay.

In Upper Swabia the potential of the wetland settlements is exhibited not only in the Federsee Museum but also in the Braith-Mali Museum Biberach and Ulm Museum. There is also a permanent exhibition supervised by Ulm Museum in the Foyer of the town hall in Blaustein. The Braith-Mali Museum has been extensively redesigned and now exhibits its original inventory in modern surroundings. The archaeological section was revised according to modern didactic concepts. The exhibits are now augmented and explained by realistic pictures and representations. The archaeological section in Ulm Museum is dedicated to the Stone Age village of Ehrenstein.

Outside of the South West German pre-Alpine region, finds from wetland settlements are exhibited in Stuttgart, Karlsruhe and Tübingen. Especially mention worthy is the witty presentation in the Württemberg State Museum conceived at the beginning of the 1990s. The Badensian State Museum in Karlsruhe exhibits pile-dwellings finds from its older collections and new excavations. The University of Tübingen shows finds from its collection in a newly designed exhibition in the Höhentübingen Castle Museum. The finds originate mainly from the university's own exploration of the Federsee bog during the 1920s and 1930s and thus also illustrate research history.

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Fig. 5.32 The Federseemuseum has been extended by an archaeological open-air park and an educational bog trail where visitors can find out more about the prehistoric settlement sites and their environment.

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Fig. 5.33 One of the special components of the Rosgartenmuseum in Constance (Baden-Württemberg) is its Historic Hall, which dates from the time of the museum's first opening (1871) and has a unique atmosphere.

↘ p. 430

Fig. 5.34 Most of the finds exhibited in Fischerhaus Museum in Wangen originate from older local collections. Despite voluntary staff and short opening hours, they attract up to 3,500 visitors per year with ambitious special exhibitions.

Bavaria

The biggest collections of pile-dwelling objects in the Free State of Bavaria can be found in the museums in Munich and Nürnberg. The State Archaeological Collection (*Archäologische Staatssammlung*) in Munich is responsible for the final storage of all state-owned finds in Bavaria. Therefore, most of the material from local pile-dwelling sites, especially from Rose Island (DE-BY-03), can be visited in the Bavarian capital. However, just a small variety is shown to the public, the majority is kept in the depot of the museum. The *Germanische Nationalmuseum* in Nürnberg is presenting objects from all over Germany. Many finds from the pile-dwelling sites in the south-western part of the country, for example at Lake Constance (Wangen, DE-BW-01), are exhibited in Nürnberg. Furthermore, objects from lake shore settlements in Switzerland, such as from Lake Biel (La Neuveville–Schafis), Lake Pfäffikon (Wetzikon–Robenhausen, CH-ZH-08) and Lake Neuchâtel are on display. A remarkable number of textiles from pile-dwelling sites is kept in the depot for conservatory reasons.

In 1993, a small open-air museum and an additional exhibition building was founded by the non-profit organisation *Prähistorische Siedlung Pestenacker e.V.* south of the prehistoric site at Pestenacker (DE-BY-01). On 1100 m², a house combining living quarters and stables, a wickerwork fence and a log-paved path of a Neolithic village from the Altheim culture are presented by means of experimental archaeology ↘ Fig. 5.35. The reconstructions are based on the results of the excavations at the site. A temporary exhibition on religious artefacts from every day Neolithic life was shown in Pestenacker in 2008. Numerous finds from the site at Pestenacker are exhibited in the *Südschwäbische Archäologiemuseum* in Mindelheim, a branch of the State Archaeological Collection. They are the focus of interest at the Museum's Neolithic section.

Until 2008, several pile-dwelling finds from the sites at Rose Island and Kempfenhausen (not nominated) were displayed at the Museum Starnberger See in Starnberg. Since the museum has been reorganised recently, most objects were given back to the State Archaeological Collection in Munich. On Rose Island itself, in the small basement of the so-called Gardener's House (Gärtnerhaus), a permanent exhibition of finds and explanations of the island's prehistory has been installed. Its supervision is solely vested in the Bavarian Administration of State-owned Palaces, Gardens and Lakes (Bayerische Verwaltung der staatlichen Schlösser, Gärten und Seen). The Gardener's House serves as museum shop and as ticket office for the neighbouring Royal Manor, also known as the 'Casino', and therefore welcomes a lot of visitors ↘ Fig. 5.36.

↘ p. 430

Fig. 5.35 The reconstruction of a house combining living quarters and stables and a wickerwork fence of a Neolithic village from the Altheim Culture are presented by means of experimental archaeology near the site of Pestenacker (DE-BY-01).

↘ p. 430

Fig. 5.36 In the small ground floor of the so-called Gardener's House (Gärtnerhaus) on Rose Island (Lake Starnberg, Bavaria), a permanent exhibition of finds and information about the island's prehistory (DE-BY-03) have been installed.

Federal state / Free state	Municipality	Museum	2006	2007	2008	Remarks
-	Berlin	Museum für Vor- und Frühgeschichte	29,097	29,102	30,488	
-	Mainz	Römisch Germanisches Zentralmuseum	-	104,314	102,724	No number available for 2006
BW	Allensbach	Local History Museum Allensbach	505	1066	537	Voluntarily run museum
BW	Bad Buchau	Federsee Museum	41,800	43 200	40 900	
BW	Biberach	Braith-Mali Museum	35,314	43 522	29 775	
BW	Bodman-Ludwigshafen	Local History Museum Bodman	-	-	-	The museum is housed in one room of the village administration.
BW	Freiburg i. Br.	Institute of Archaeological Sciences, University of Freiburg, Collection of the Department of Prehistory / Protohistory and Medieval Archaeology	-	-	-	Teaching collection.
BW	Gaienhofen	Hermann-Hesse-Höri-Museum	14,137	11,837	12,480	
BW	Karlsruhe	Badisches Landesmuseum	174,718	210,456	115,277	

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Federal state / Free state	Municipality	Museum	2006	2007	2008	Remarks
BW	Konstanz	State Archaeological Museum Baden-Württemberg	28,723	34,654	31,680	
BW	Konstanz	Rosgartenmuseum Konstanz	32,951	37,931	22,600	
BW	Sipplingen	Pile-dwellings collection of the Tourist Information Centre, Sipplingen	-	-	-	The Tourist Information Centre is visited by many visitors who also then visit the small pile-dwellings exhibition.
BW	Stuttgart	Württemberg State Museum	155,709	219,539	215,290	
BW	Tübingen	Hohentübingen Castle Museum	22,281	18,796	19,401	
BW	Überlingen	Municipal Museum Überlingen	-	7,500	7,900	
BW	Uhldingen-Mühlhofen	Pile-Dwellings Museum Unteruhldingen, Lake Constance	241,497	277,441	266,744	
BW	Ulm	Ulm Museum	40,752	45,561	51,844	
BW	Wangen am Untersee	Fischerhaus Museum, Wangen am Untersee	1,296	3,800	1,700	Voluntarily run museum.
BY	Feldafing	Gärtnerhaus auf der Roseninsel	15,633	17,129	13,356	The numbers of visitors relate to guided tours at the 'Casino'. Each year approx. 30,000 to 40,000 people visit the island.
BY	Mindelheim	Südschwäbisches Archäologie-museum	10,400	9,917	9,985	General entrance to the 'Mindelheimer Museen'.
BY	München	Archäologische Staatssammlung	90,417	12,135	26,451	
BY	Nürnberg	Germanisches Nationalmuseum	452,905	364,322	352,991	
BY	Weil	Prähistorische Siedlung Pestenacker	2,000	2,200	2,000	Estimated numbers, since no entrance fee is charged.
BY	Starnberg	Museum Starnberger See	1,933	2,448	-	No number for 2008, since most finds from pile dwellings were removed from the exhibition.
Total			**878,068**	**1,496,870**	**1,067,523**	

Fig. 5.17 Visitor numbers of the museums in Germany that exhibit artefacts from pile-dwelling settlements.

Italy

There are now 32 museums exhibiting objects from pile-dwelling sites in northern Italy ↘ Fig. 5.37. Some resulted from excavations in a single pile-dwelling (for example, Ledro, Desenzano del Garda, Gavardo, Isolino di Varese). Others were established from collections in the 19th century. The 'Museo Nazionale Preistorico Etnografico Luigi Pigorini' in Rome opened in 1876 and houses – among other outstanding exhibits – a fine collection of pile-dwelling finds from northern Italy.

Museums can be divided in two main groups – national or regional (usually situated in big cities) and local (located in small towns near archaeological sites). Museums in both groups often have Internet-based and multilingual information.

Several reconstructions of pile-dwelling sites can be visited. The 'Museo delle Palafitte del Lago di Ledro', (IT-TN-01), for example, houses the reconstruction (scale 1:1) of a lake dwelling by the lake ↘ Fig. 5.38 and, since 2006, of a pile-dwelling village (scale 1:1) by the river flowing in front of the museum. A wooden platform, overlooking a stream, supports the three huts; the excavations in Unteruhldingen and Fiavè (IT-TN-02) were the starting points for the reconstruction. From the pile dwelling of Isolino Virginia (IT-LM-09), a cast of a portion of the wood elevation, collapsed on the ground, was completed in 2006 and is displayed to the public along the shore at Isolino ↘ Fig. 5.39. Many of the objects found during excavations carried out since the 19th century in pile-dwelling sites in northern Italy have been restored. Besides a massive amount of pottery (fragments as well as complete vessels) and flint, some unique artefacts (representing in some cases, the museum's core collection) enables the reconstruction of everyday life in a pile dwelling. The plough from Lavagnone (IT-LM-01), made of a single piece of wood, is the outstanding exhibit of the Museum

↘ p. 431

Fig. 5.37 In Italy, 32 Museums exhibit finds from pile dwellings: Exhibition arrangement of the Palù di Livenza section in the Museo Archeologico del Friuli Occidentale of Torre di Pordenone.

↘ p. 432

Fig. 5.38 The 'Museo delle Palafitte del Lago di Ledro' (IT-TN-01) hosts the reconstructions of several pile-dwelling houses (scale 1:1).

↘ p. 433

Fig. 5.39 Isolino di Varese: the cast from a portion of the wood elevation, collapsed on the ground, is displayed to the public along the shore.

of Desenzano del Garda ↘ Fig. 5.40. In the Museum of Gavardo an entire room is dedicated to Lucone's finds – wooden sickles, linen textiles and a unique wooden pirogue. The Museum of Piadena shows the Baltic amber necklace from Lagazzi del Vho (IT-LM-06). In the Museum of Verona, finds from the pile-dwelling settlements of Lake Garda include 4000 bronze artefacts originating from the Peschiera sites.

Even if we can only roughly determine the number of visitors, there is no doubting the importance of the collections and the number of different activities offered by all the museums. Some activities are intended for the public, others directed specifically at researchers ↘ see Chapter 5.i. The decline in public visitors registered in 2008 (compared with the two previous years) can be attributed to the economic crisis. In Lombardy, in contrast – apart from the 'Museo dell'Area Archaeologica' in Sirmione and the 'Museo della città Santa Giulia di Brescia' (their visitors come mainly for the Roman remains and art collections – the trend is positive, if one considers the interest in pile dwellings ↘ cf. Fig. 5.18.

↘ p. 433

Fig. 5.40 Lavagnone (IT-LM-01): the wooden plough displayed at the Archaeological Museum 'G. Rambotti' in Desenzano.

Region	Municipality	Museum	2006	2007	2008	Remarks
-	Rome	Museo Nazionale Preistorico Etnografico 'Luigi Pigorini'	37,839	39,493	42,255	-
FV	Pordenone	Museo Archeologico del Friuli Occidentale-Castello di Torre	6,040	5,107	6,064	-
LM	Arsago Seprio	Civico Museo Archeologico di Arsago Seprio	1,340	1,417	1,539	Visitor figures based on educational activities and tickets
LM	Biandronno	Museo Preistorico Isolino Virginia	1,020	1,062	1,503	Visitor figures based on educational activities and tickets
LM	Brescia	Musei Civici d'Arte e Storia. Santa Giulia	551,356	357,295	303,316	Visitor figures based on educational activities and tickets
LM	Cavriana		6,208	6,728	5,902	Visitor figures based on registration for 'sistema museale'
LM	Como	Museo Archeologico dell'Alto Mantovano	13,904	15,921	20,656	
LM	Desenzano del Garda	Museo Civico Archeologico 'Paolo Giovio'	2,168	2,216	2,732	Visitor figures based on educational activities and tickets
LM	Gallarate	Museo Civico Archeologico 'G. Rambotti'	1,270	1,196	1,117	Visitor figures based on the museum visitor book
LM	Gavardo	Museo della Società di Studi Patri di Gallarate	2,200	2,500	2,700	Visitor figures based on educational activities and tickets
LM	Lecco	Museo Archeologico della Valle Sabbia	21,000	21,000	21,000	Visitor figures based on educational activities and tickets
LM	Manerba	Musei Civici – Museo Archeologico	-	-	-	Visitor figures based on educational activities. Free admission
LM	Mantova	Museo Civico Archeologico della Valtenesi	15,169	12,823	6,417	Open in April 2009
LM	Milano	Museo Archeologico Nazionale di Mantova	-	68,156	68,275	Museum closed for renovation during 2008
LM	Piadena	Civiche Raccolte Archeologiche di Milano	1,800	2,000	2,500	Data related only to the Egyptian-Prehistorical collections (not available for 2006)
LM	Sirmione	Civico Museo Archeologico Platina	233,419	231,596	211,100	Visitor figures based on educational activities and tickets
LM	Varese	Museo dell'Area Archeologica	3,500	4,387	4,941	Main collection related to the Roman villa
PM	Arona	Museo Civico Archeologico di Villa Mirabello	586	716	802	Visitor figures based on educational activities and tickets
PM	Biella	Civico Museo Archeologico di Arona	3,550	8,580	23,000	-
PM	Turin	Museo del Territorio Biellese	50,750	167,110	18,132	-
PM	Turin	Museo Nazionale di Antichità di Torino	-	-	-	Numbers based both on visitors to the museum and to temporary exhibitions
TN	Fiavé	Museo Storico Nazionale dell'Artiglieria	-	-	-	Now closed for renovation, to be re-opened in the coming years

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Region	Municipality	Museum	2006	2007	2008	Remarks
TN	Molina di Ledro	Museo Parco delle Palafitte di Fiavé	29,846	31,472	32,933	Museum exhibition in progress and still closed; free public access to the garden and archaeological area
TN	Riva del Garda	Museo delle Palafitte del Lago di Ledro	33,734	22,048	20,937	Museum dedicated only to the local pile-dwelling village
TN	Trento	Museo di Riva del Garda	207,201	213,899	165,009	-
TN	Trento	Castello del Buonconsiglio – Monumenti e Collezioni Provinciali	25,682	32,069	27,468	Visitor figures based on tickets, including free access
VN	Castelnovo Bariano	Museo Tridentino di Scienze Naturali	1,000	1,000	1,000	Archaeological display closed in 2009
VN	Cavaion Veronese	Museo Civico Archeologico di Castelnovo Bariano	313	384	358	Visitors' number based on guest book
VN	Este	Museo Civico Archeologico di Cavaion Veonese	21,192	21,999	19,281	Visitor figures based on guest book
VN	Legnago	Museo Nazionale Atestino	2,900	3,100	3,400	Visitor figures based on educational activities and tickets
VN	Verona	Centro Ambientale Archeologico Museo Civico di Legnago	36,977	37,838	34,772	Visitor figures based on educational activities and tickets
VN	Vicenza	Museo Civico di Storia Naturale di Verona	13,253	13,173	13,751	Visitor figures based on educational activities and tickets
Total		**Museo Naturalistico Archeologico**	**1,325,217**	**1,326,285**	**1,044,728**	**-**

Fig. 5.18 Visitors to museums with permanent exhibitions of pile-dwelling settlements from northern Italy.

Slovenia

Two museums – Narodni muzej Slovenije and Mestni muzej Ljubljana – store a large number of archaeological finds from pile-dwelling sites, the most attractive of those are on exhibit either permanently or temporarily. The exhibition titled 'The treasures of the National Museum of Slovenia' presents a selection of finds, such as vessels, metallurgical implements and metallurgical products ↘ Fig. 5.41. A temporary exhibition was on display from February to September 2009, with the title of 'Ljubljanica – A River and its Past'. The Ljubljanica is a river that runs along the whole Ljubljana marshland and is a veritable treasure trove of history with rich finds that shed light on life at the river banks from prehistory to the modern age. The exhibition displays a rich heritage with over one thousand finds, graphical images of the river, short films on the underwater world and archaeological research, as well as illustrated scenes from life in the different periods. The pile-dwelling period is represented by copper daggers, axes and awls, all products of a local metal-working tradition in the 3rd millennium BC.

After the City Museum of Ljubljana was renovated a few years ago, the permanent exhibition 'Faces of Ljubljana' was put on display, which also includes the archaeological finds from the pile-dwelling sites. The museum is planning an exhibition for 2010, which will include a more than 5000 year old wooden axle and the disc-wheel, which was recently found in the settlement of Stare Gmajne in the southwest part of the Ljubljansko barje.

↘ p. 433

Fig. 5.41 The exhibition 'The treasures of the National Museum of Slovenia' in the National Museum of Slovenia presents a selection of finds including vessels, metallurgical implements and metallurgical products.

Province	Municipality	Museum	2006	2007	2008	Remarks
–	Ljubljana	Narodni muzej Slovenije	23,812	22,385	28,347	Exhibition The treasures of the National Museum of Slovenia
–	Ljubljana	Mestni muzej Ljubljana	–	30,239	35,546	Total number of visitors of the permanent exhibition
Total			**23,812**	**52,624**	**63,893**	

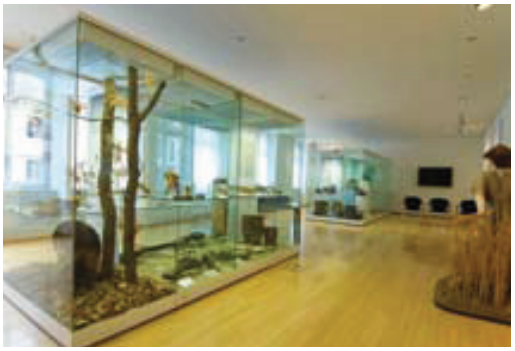
Fig. 5.19 Visitor numbers of the museums in Slovenia that exhibit artefacts from pile-dwelling settlements.

↖ **p. 413 Fig. 5.15** Collections from the early period of pile-dwelling research comprise an impressive variety of finds and are often incorporated in small museums of local history (collection of the local museum in Wetzikon, Canton Zurich).

↖ **p. 413 Fig. 5.16** The permanent exhibition in the Musée Schwab (Bienne, Canton Berne) was newly designed in 2003 and provides a window into the prehistory of the region. It invites its visitors on a journey through time to the important pile-dwelling sites in the Three Lakes Region (Lakes Neuchâtel, Morat and Bienne).

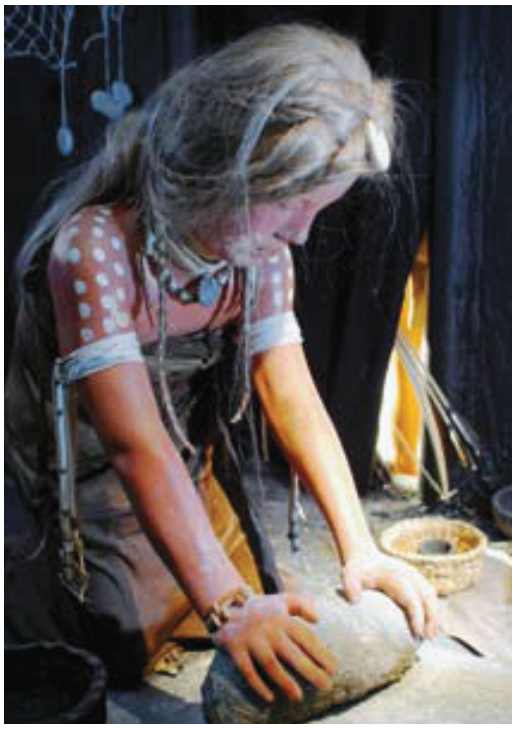
↖ **p. 413 Fig. 5.17** After its destruction by flooding in 2007, the 'pile-dwelling village' in the Bally Park in Schönenwerd (canton Solothurn) was rebuilt on a scale of 1:2 based on the original 19th century plans and photographs.

↖ **p. 413 Fig. 5.18** The Stone Age collection of the Museum of Archaeology in canton Thurgau was newly designed in 2009.



↖ **p. 413 Fig. 5.19** The 'Laténium' received the 'European Museum of the Year Award' from the European Museum Forum in 2003. It is a good example of a modern archaeological museum making an alliance between landscape, architecture, museology and pile dwellings.

↖ **p. 413 Fig. 5.20** The exhibition in the 'Museum für Urgeschichte(n)' in Zug includes a lifelike scene of everyday life mainly showing young people. This not only takes into account the high proportion of young people in the prehistoric period but also appeals more to the mostly young audience of today.



↖ **p. 414 Fig. 5.22** The pile-dwelling village in Wauwil (canton Lucerne) was opened in September 2009 and is one component of the archaeological educational trail leading around the former Lake Wauwil, which is today dried up.

↖ **p. 414 Fig. 5.21** Reconstructions of pile dwellings are convenient backdrops for all sorts of activities for schools to take part in (pile-dwelling village in Gletterens, canton Fribourg).

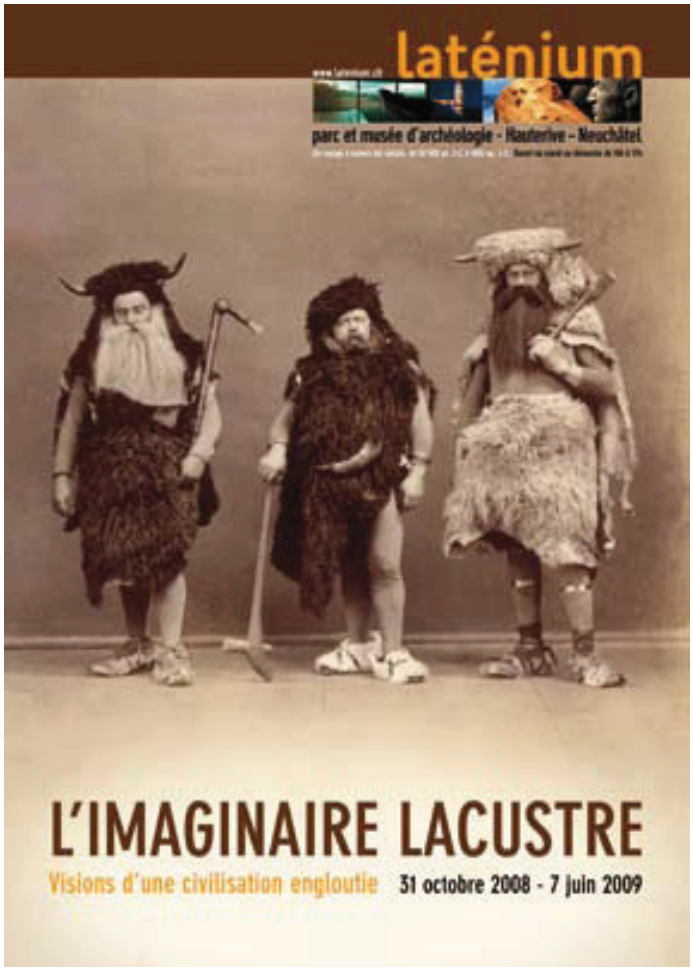
↖ **p. 414 Fig. 5.23** To celebrate the 150th anniversary of the proposal of the pile-dwelling theory by Ferdinand Keller, numerous events were organised in 2004, including a large special exhibition in the Swiss National Museum in Zurich.

↖ **p. 414 Fig. 5.24** Without the scientific insight gained from the pile dwellings, many of the details could not have been included in the images for the special exhibition 'Des Alpes au Léman. Images de la préhistoire' (From the Alps to Lake Geneva. Images of prehistory), which was shown in various museums in Western Switzerland between 2006 and 2008.

↖ **p. 415 Fig. 5.26** The Pile Dwelling Museum in Mondsee (Austria) exhibits in great detail the findings of the pile-dwelling sites of the Salzkammergut.

↖ **p. 415 Fig. 5.27.** The Museum of Natural History in Vienna regularly shows special exhibitions with reference to Neolithic and Copper Age cultures in Austria and possesses a large collection of finds from pile dwellings from the Lakes Attersee and Mondsee.

↖ **p. 414 Fig. 5.25** The exhibition 'L'imaginaire lacustre' (Lacustrine imagination) shown in the Laténium in 2008/09 was the most comprehensive synthesis compiled to date highlighting the artistic and scientific impact of the lakeshore discoveries.



↖ **p. 416 Fig. 5.28** Life-sized model and mural of a lakeside village around 3000 BC. From the exhibition '4000 BC – We ate the forest' (4000 ans avant J.-C. – Nous avons mangé la forêt).

↖ **p. 417 Fig. 5.29** As part of the Musée-Château d'Annecy, the regional observatory of the Alpine lakes (ORLA) takes a thematic approach to highlighting the importance of the lakes in the history of the Alpine region.

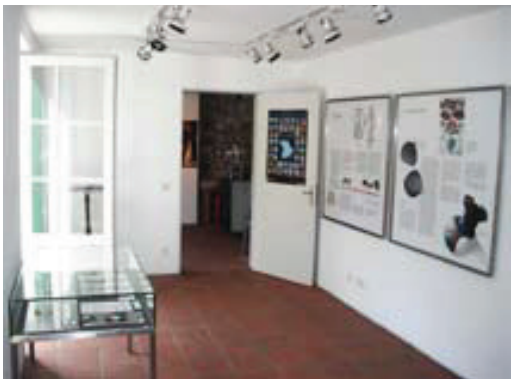
↖ **p. 417 Fig. 5.30** Pile dwellings attract large audiences: the open-air museum Unteruhldingen has existed since 1922 and in 2008 opened its doors to its ten millionth visitor!

↖ **p. 417 Fig. 5.31** The special exhibition 'Abgehoben' (Raised) in the Federsee-Museum compared modern pile dwellings in Cambodia and Indonesia with prehistoric pile dwellings in Central Europe and highlighted the potential links between social actions and architecture.

↖ **p. 418 Fig. 5.32** The Federseemuseum has been extended by an archaeological open-air park and an educational bog trail where visitors can find out more about the prehistoric settlement sites and their environment.

↖ **p. 419 Fig. 5.35** The reconstruction of a house combining living quarters and stables and a wickerwork fence of a Neolithic village from the Altheim Culture are presented by means of experimental archaeology near the site of Pestenacker (DE-BY-01).

↖ **p. 419 Fig. 5.36** In the small ground floor of the so-called Gardener's House (Gärtnerhaus) on Rose Island (Lake Starnberg, Bavaria), a permanent exhibition of finds and information about the island's prehistory (DE-BY-03) have been installed.

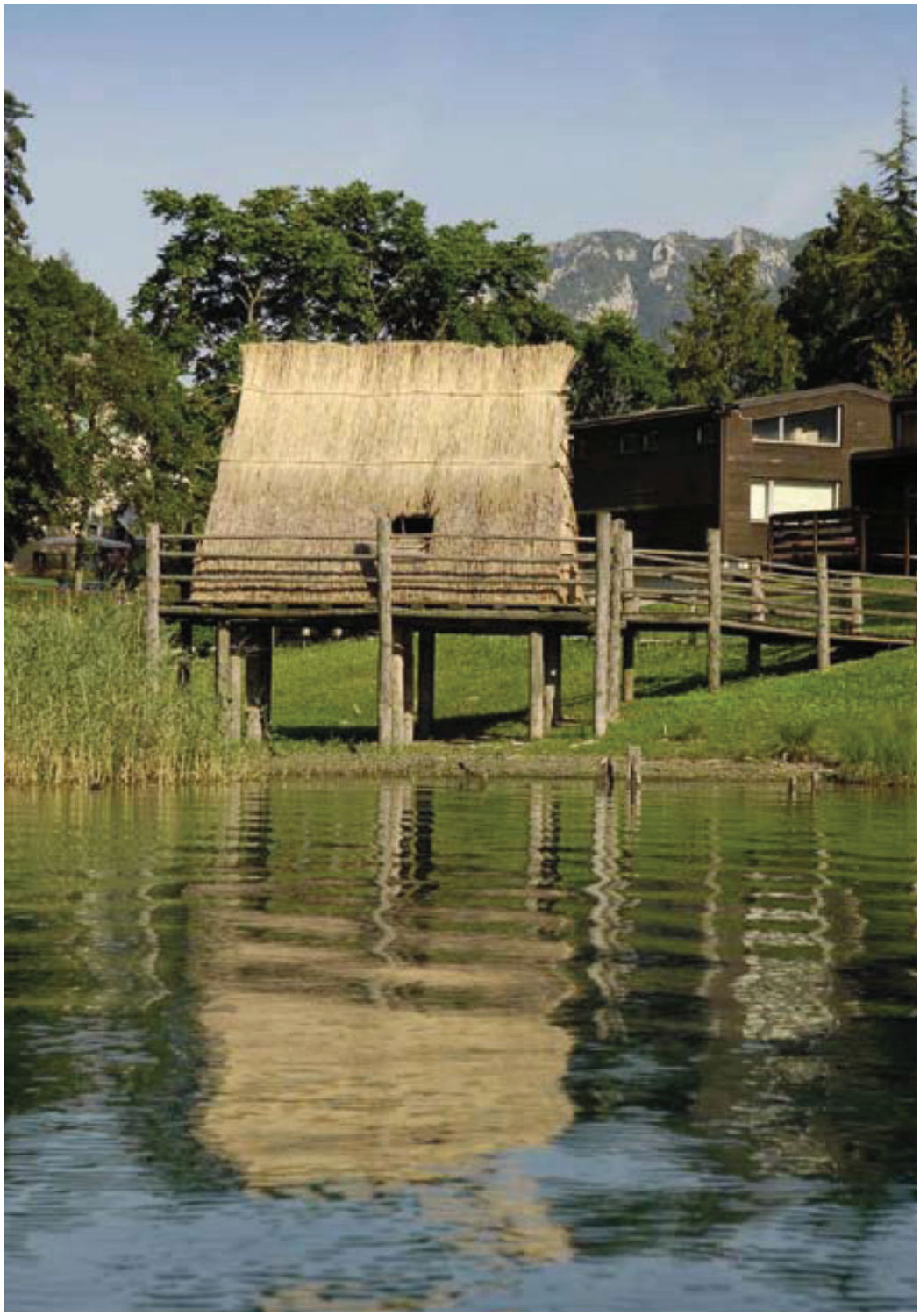


↖ **p. 418 Fig. 5.34** Most of the finds exhibited in Fischerhaus Museum in Wangen originate from older local collections. Despite voluntary staff and short opening hours, they attract up to 3,500 visitors per year with ambitious special exhibitions.

↖ **p. 418 Fig. 5.33** One of the special components of the Rosgartenmuseum in Constance (Baden-Württemberg) is its Historic Hall, which dates from the time of the museum's first opening (1871) and has a unique atmosphere.

↖ **p. 420 Fig. 5.37** In Italy, 32 museums exhibit finds from pile dwellings: Exhibition arrangement of the Palù di Livenza section in the Museo Archeologico del Friuli Occidentale of Torre di Pordenone.

↖ **p. 420 Fig. 5.38** The 'Museo delle Palafitte del Lago di Ledro' (IT-TN-01) hosts the reconstructions of several pile-dwelling houses (scale 1:1).



↖ **p. 420 Fig. 5.39** Isolino di Varese: the cast from a portion of the wood elevation, collapsed on the ground, is displayed to the public along the shore.

↖ **p. 421 Fig. 5.40** Lavagnone (IT-LM-01): the wooden plough displayed at the Archaeological Museum 'G. Rambotti' in Desenzano.

↖ **p. 422 Fig. 5.41** The exhibition 'The treasures of the National Museum of Slovenia' in the National Museum of Slovenia presents a selection of finds including vessels, metallurgical implements and metallurgical products.

5.i Policies and programmes related to the presentation and promotion of the property

General

Modern exhibition concepts, open-air reconstructions and also museum educational events for schools for instance make pile dwellings accessible to the wider public ↘ cf. Chapter 5.h. Museums also serve as venues for courses and events such as bow making workshops etc. that allow young and old to experience first-hand life during the period of the pile dwellers.

These locations and events are supplemented in places by educational trails and signage with information plaques about the sites. Since many sites are located in natural protected areas on the lakesides, it is usually possible to combine awareness rising for nature as well as culture.

Wide-ranging impact was also achieved by the living-science programmes 'Steinzeit – Das Experiment' (Stone Age – The Experiment) of the Southwestern German Broadcasting Service and 'Pfahlbauer von Pfyn' (Pile-Dwellers from Pfyn) of the Swiss Television Service ↘ see text box. The shows revolved around a number of families who lived for several weeks in Stone Age conditions in a reconstructed pile-dwelling village ↘ Fig. 5.42. These Stone Age simulations were supported and accompanied by scientific specialists. Such activities geared for a wider audience are based on scientific analyses of the finds and features unearthed in archaeological excavations.

The number of publications is significant – the bibliographical references in ↘ cf. Volume II only list a selection of the works published to date – and these always contain works on the natural sciences such as archaeobotany, palynology, archaeozoology, sedimentology, palaeoecology and others.

The World Heritage candidature has prompted various additional scientific and scientific-based popular activities in order to present pile dwellings at an international level cf. Management plan, Volume III. Tentative steps have already been initiated:

A comprehensive information brochure about 'Pile-dwellings' of more than 100 pages in two language versions (German / French / Italian and English / French / Slovenian) intended for the wider public was published in June 2009 ↘ Fig. 5.43.

The website of the Association Palafittes is gradually being expanded and developed as an Internet portal dealing with the topic of pile dwellings (www.palafittes.ch).

For the first time in over 70 years, a database containing all pile-dwelling sites has been compiled; it will be periodically updated and made electronically accessible to circles with a scientific interest in pile dwellings ↘ cf. Annex DVD.

↘ p. 466

Fig. 5.42 Living the Stone Age lifestyle for several weeks: living-science experiment on television, 'Pile dwellers from Pfyn'.

↘ p. 466

Fig. 5.43 In 2009, the Association Palafittes published a comprehensive popular science brochure. 100 pages and more than 300 images introduce the pile-dwelling phenomenon to the wider public.

Switzerland

The network of museums that exhibit finds from pile dwelling sites is extraordinarily dense and there is a wide range of opportunities to gain more information about the pile-dwelling period. Many educational programmes are on offer to schools at museums ↘ cf. text box and are frequently used. Rescue excavations are regularly used as an opportunity to inform the public about their cultural heritage and the overall experience has been that these generate enormous interest. The Open Day at the excavation in Pfyn–Breitenloo in 2004, for instance, was attended by over 1500 people.

There are also other occasions where pile dwellings can be presented to an interested public. Various events took place in the cantons of Aargau, Berne, Fribourg,

Pile dwellers: living-science on television

The programme 'Stone Age – The Experiment (Steinzeit – Das Experiment), of the Southwestern German Broadcasting Service (SWR) was recorded in the summer of 2006. A 'Stone Age' family spent eight weeks living on a set in Southern Germany. The time period chosen was 3300 BC – the time when 'Ötzi' was alive. The tools and buildings were reconstructed based on finds and features from lakeside settlements on Lake Constance. Information about the economy and nutritional aspects was gained from the interdisciplinary research results from the site Arbon–Bleiche 3 (CH-TG-01). The weather conditions in the summer months of 2006 were extreme – temperatures of around 8°C and weeks of heavy rain. Despite this, the participants on the show managed everyday pile-dwelling life very well. Particularly impressive was the successful crossing of the Alps by two of the pile dwellers dressed in 'Ötzi'-style clothes. The four main episodes were viewed by an average of 2.8 million people. Three children's films, an Alpine film, a book of the film and the excellent homepage www.swr.de/steinzeit were also created.

Based on the successful SWR concept, Swiss Television (SF) also produced a living-science programme in 2007 on the subject of pile dwellers (www.pfahlbauervonpfyn.tg.ch). Having conducted in-depth research, a hamlet in canton Thurgau in the immediate vicinity of the associated site Pfyn–Breitenloo (3708–3704 BC) was chosen as the location for the programme ↘ Fig. 5.42. Close collaboration between the Swiss Television Service and the Department of Archaeology of canton Thurgau ensured that archaeological concerns could be conveyed without any difficulty. Almost all the tools used in the programme including ceramic vessels, knives, textiles, axes, wooden implements etc. were recreated by experimental archaeologists true to the original shapes and materials based on original finds from the Pfyn period. The buildings were modelled on the house features recorded in Pfyn–Breitenloo.

↘ p. 466

Fig. 5.42 Living the Stone Age lifestyle for several weeks: living-science experiment on television, 'Pile dwellers from Pfyn'.

Swiss Television had already aired more than 20 programmes in advance showing all the preparatory work: pottery firing, axe production, the use of bows and arrows, rope making, construction of the village, and the fascination with the pile-dwelling phenomenon etc. The print media also regularly reported on the 'Pile Dwellers from Pfyn'. On average, 534,000 viewers watched the programme every night; the viewing rate was 50.1%! The interaction between archaeology, politics, the population and private industry was particularly successful. A lasting impact will also be achieved by the application of the programmes as part of the school curriculum.

Museums and schools: The Museum of Prehistory in Zug as an example

The Museum of Prehistory in Zug provides the opportunity for schools to experience an exciting visit to a place of learning outside of the school context. The museum educational programme includes educational materials on the exhibition and workshop spaces to experiment with and practice crafts. Thanks to its partnership with universities, canton archaeology departments and teacher training colleges, teaching materials and learning aids are constantly updated and developed. This has resulted in a museum educational programme that is not only geared towards the prehistoric eras but also follows the concept and guidelines of the national curriculum. Extensive information is available to teachers allowing them to design their own individual lessons with the focal points of their choice.

With the aid of search and task cards, the children discover the museum and exhibition. This allows them to familiarise themselves with the archaeological technical terms used and with the museum itself in a playful manner. Based on the archaeological finds, questions about everyday prehistoric life and cultural developments are the main focus.

Touching things is allowed: the display collection includes accurate replicas and original finds and provides access to the subject of prehistoric raw materials and crafts. This also includes touching and handling objects and materials, and discovering crafts techniques and developments that took place over the course of the millennia.

The museum workshop provides the opportunity to practice and test a range of crafts. The aim is to discover prehistoric crafts using authentic materials in a hands-on setting. The programme includes polishing bone pins to emulate original models, casting wheel pendants, spinning flax, perforating stones or grinding corn with querns. All these techniques are first introduced and demonstrated by the museum educational officer.

Hardly any of the other periods contain as many exciting aspects from the ‘man and environment’ curriculum as the pile-dwelling period, which is why this programme is most frequently availed of in the Museum of Prehistory in Zug. Almost 500 school children visit the museum every year and 60% are from other cantons. Every child in Zug visits the Museum of Prehistory at least once in the course of its education.

The Museum of Prehistory is currently in the planning stages of a considerable extension of its exhibition space and workshops. This will help to further develop the education and outreach programme and to enhance the events with craft demonstrations and hands-on workshops and make them more attractive and interesting. The aim is to make the attractions and special features of the museum and of prehistory in general even more entertaining and exciting for the visitors.

Neuchâtel, Solothurn, St. Gall, Thurgau, Zug and Zurich (for details see the paragraphs on the individual cantons) on the occasion of the European Heritage Days on 12/13 September 2009 with the theme 'Following the current' ↘ Fig. 5.44.

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Fig. 5.44 Events such as 'European Heritage Day', here on 13th September 2009 in Steckborn (canton Thurgau), are always used as opportunities to give people an understanding of their cultural heritage.

Aargau

The sites were presented to the wider public in the anniversary year of 2004 and also on the European Heritage Days on 12/13 September 2009. A reconstruction of a house from the period around 4000 BC can be visited in Seengen, situated directly on Lake Hallwil ↘ Fig. 5.45. A project to add other types of houses to the 'pile-dwelling house' in Seengen and an additional educational path is also being considered. The excavations carried out in Seengen–Riesi (CH-AG-02) will be scientifically analysed and published over the coming years.
Finds from the associated sites at Meisterschwanden–Erlenhölzli, of Meisterschwanden–Seerose and of Seengen–Riesi (CH-AG-02) are on display in the Museum Burghalde in Lenzburg. The Museum Burghalde also has a museum educational programme, dealing in particular with Late Stone Age crafts. This offer is yearly used by some 150 school-classes or more than 2500 children.

↘ p. 467

Fig. 5.45 School children help to renovate the reconstructed pile dwelling in Seengen (canton Aargau). Several houses are planned to be built in addition to this reconstruction.

Berne

Several studies are currently being undertaken and will be published as monographs. These projects are being supervised by staff members of the archaeological service, with some studies being carried out as thesis projects at the Universities of Berne and Basle.

The two-pronged approach of the archaeological service (to document vastly eroded sites and to protect intact sites) includes planned rescue excavations and protection measures in Sutz-Lattrigen–Rütte (CH-BE-06) between 2010 and 2016. In order to carry out this work, the service plans to re-build its diving base, beginning in 2010. This building also serves as an 'archaeological window'. On-site display cases provide visitors to the Von Rütte estate, schools and other interested parties with information about ongoing work in and around Lake Bienne and about the site itself. The Department of Education of canton Berne is planning in the coming years to launch the programme 'Education and Culture'. This programme will facilitate the access to archaeology for schools thanks to different projects like pedagogical visits to excavations and portable 'archaeological suitcases' enabling contact with past cultures for school classes of different levels.

The private archaeological collection in the so-called Fraubrunnenhaus in Twann is in urgent need of inventorying ↘ Fig. 5.46. There is an established relationship with the owner of the collection and work will commence as soon as funding has been secured.

A museum educational programme exists in the Museum Schwab in Bienne. The museum regularly offers activities especially geared towards children. It houses its own Stone Age workshop, and offers bow making courses and similar hands-on activities.

Public Open Days have regularly been held in the region of Lake Bienne for many years. These are often linked with the European Heritage Days (provided the theme chosen is suitable) or with other public events. On the occasion of the special exhibition '20 years of underwater archaeology in the lake of Biel' which was shown in the Museum Schwab in Biel, in the Castle Museum in Thun and in Langenthal, the archaeological service published a popular 60 page booklet in French and German. The museums in Berne and Bienne have been extensively renovated over the past number of years and the exhibition rooms have been newly designed. The Historical

↘ p. 467

Fig. 5.46 The private archaeological collection 'Irlet' in the Fraubrunnenhaus in Twann (canton Berne) still survives largely in the original state of the 1930s. There are plans to inventory this important collection.

Museum in Berne plans to stage a large exhibition on the topic 'Pile Dwellings around the Alps' in 2012/2014.

Fribourg

The results from several excavations carried out in the more or less distant past (Muntelier–Baie de Muntelier, CH-FR-06), Gletterens–Les Grèves (CH-FR-02)) will all be published in detail in the near future. A publication giving an overview of the occupation of the Fribourg lakeshore is also planned.

Over a period of several months each winter since 2007, the archaeological service of Fribourg (SAEF) has carried out underwater excavations in the areas of the Fribourg sites that are most threatened. The programme began with the excavation of the Late Bronze Age site of Muntelier–Baie de Muntelier (CH-FR-06) and the associated site at Murten–Pantschau. Other rescue excavations are already planned for the shores of Lakes Morat and Neuchâtel. Besides these excavations, systematic surveying projects which began twelve years ago are also being continued.

The Lakeside Village of Gletterens (www.pfahlbaudorf.ch) was built fifteen years ago and offers a series of presentations and activities centred around the everyday live of the lakeside populations in the Neolithic period. Thousands of people, mainly school children are every year made aware of the richness of the archaeological heritage in this region ↘ cf. Fig. 5.21. A project to expand this archaeological park, mainly by adding more Neolithic and Bronze Age pile-dwelling constructions, is currently being reviewed. Finally, Open Days held during the European Heritage Days, as well as excavations and temporary exhibitions, are regularly organised by the archaeological service of Fribourg (SAEF).

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Fig. 5.21 Reconstructions of pile dwellings are convenient backdrops for all sorts of activities for schools to take part in (pile-dwelling village in Gletterens, canton Fribourg).

Geneva

Several overviews are currently being compiled, mainly in relation to the archaeological survey projects launched since 1982 on the submerged shore of Lake Geneva.

An archaeological rescue excavation programme started in September 2009 at the Late Bronze Age lakeside settlement of Genève–Plonjon which is threatened by both natural erosion and a possible project to extend the current port facilities to incorporate a new public lido.

The discoveries made and archaeological studies carried out over the past number of years on the waterfront in Geneva are periodically presented on boat trips to the waterfront, where the geological and environmental history of the basin of Lake Geneva and also the development of the prehistoric population from the time when the glacier retreated to the end of the Bronze Age are explained to the public.

The Museum of Art and History in Geneva shows a selection of the archaeological finds recovered on the shores of Lake Geneva since the mid 19th century. Its permanent exhibition has been revised and was re-launched in the summer of 2009.

Lucerne

In September 2009, a new Stone Age educational trail was opened in the Wauwil Bog with three reconstructed pile-dwelling buildings at its centre (www.pfahlbausiedlung.ch; ↘ cf. Fig. 5.22.

The excavations carried out by the University of Berne and the cantonal Archaeology of Lucerne at the Late Bronze Age settlement in Sursee–Halbinsel (CH-LU-06) currently are being processed as part of a master's thesis. Also currently being

↘ p. 426

Fig. 5.22 The pile-dwelling village in Wauwil (canton Lucerne) was opened in September 2009 and is one component of the archaeological educational trail leading around the former Lake Wauwil, which is today dried up.

analysed are the ceramic finds from the Neolithic settlement Egolzwil 3 (CH-LU-01) as part of a project carried out at the University of Berne, funded by the National Science Foundation. The wooden artefacts of the settlement have been studied as part of a master's thesis. The flint finds from the Neolithic site Egolzwil 2 are currently being processed as part of a PhD thesis at the Universities of Basle and Cologne. A monographic publication giving an overview of the lakeside settlements in canton Lucerne is currently in preparation.

Neuchâtel

The publication of a series of monographs dealing with the excavations carried out at the lacustrine sites of Hauterive-Champréveyres and Saint-Blaise are ongoing. 18 such monographs have to date been published and have joined those dealing with the sites in Auvernier (CH-NE-06; CH-NE-07). The post-excavation work on the material from the village of Bevaix–Sud has commenced and that on the finds from La Tène (Marin)–Les Piécettes (CH-NE-08) is to start in the near future.

A large section of the permanent exhibition in the Laténium, Archaeological Park and Museum of Neuchâtel, is devoted to the finds and features discovered in the lakeside sites, with a special emphasis on finds made of organic materials (wood, textiles, bone tools and antler artefacts). The special exhibition in 2008–2009 had the title 'Lacustrine Imagination'. The park contains a full-scale reconstruction of a Late Bronze Age house and a Middle Neolithic field of piles.

On special occasions (Heritage Days, special Museum days, cultural events etc.) the 'dépôt visitable' (open collection) is open to the public and thousands of objects are presented on glass-fronted shelves ↘ Fig. 5.47.

↘ p. 468

Fig. 5.47 Thousands of objects are presented on glass-fronted shelves in the 'dépôt visitable' (open collection) of the Laténium (canton of Neuchâtel) and are open to the public on special occasions.

The inventorying of the old collections is still ongoing. The emphasis is currently being placed on the excavations carried out and finds recovered from lacustrine sites in the past in order to date these more precisely by chronotypological means. Cultural educational programmes play an ever-growing role: in 2008, 249 workshops and 466 guided tours were organized by the Museum.

Nidwalden

The latest results of the 2008 excavation in Stansstad–Kehrsiten (CH-NW-01) are currently in the process of being published. It will be possible for the first time to shed light on Neolithic land usage, animal husbandry and hunting in an Alpine landscape. Upon completion of the work on the site, the Nidwalden Museum in Stans plans to stage an exhibition.

Schaffhausen

A new comprehensive scientific analysis of the site Thayngen–Weier (CH-SH-01) and its finds is planned for the future. The site is to be incorporated into a planned Stone Age trail in the Fulach Valley between Thayngen and Schaffhausen, where it will be made more easily accessible to visiting tourists and schools. On-site information panels and perhaps a reconstruction will draw people's attention to the Stone Age settlement and provide information about it. The plans also include the production of an excursion guide book.

The settlement Thayngen–Weier (CH-SH-01) already has an established place in the permanent archaeological exhibition in the 'Museum zu Allerheiligen' in Schaffhausen ↘ Fig. 5.48. The museum also houses a 'Weier type' building reconstructed

Long-awaited work gets underway – Thanks to the UNESCO project

A general overview of the archaeology of Neuchâtel remained problematic for a long time. The works by Paul Vouga, published between 1920 and 1934, were centred around the identification of phases of the Neolithic lakeside settlements. The inventory published in the 'Pfahlbauten, 12. Bericht in 1930' contained inconsistencies regarding the numbering of the sites, and mapping was less than satisfactory in certain areas such as Saint-Aubin-Sauges, Hauterive and Saint-Blaise and the bay of Marin-Epagnier; these were the famous Siegfried maps of the Swiss Topographic Atlas at a scale of 1:25,000. The publication of the results from the vast excavations carried out on the route of the A5 motorway was spread over innumerable scientific journals and also a number of important monographs devoted to particular sites. This situation made it difficult to find a general approach to the region, particularly for non French speakers: one knew that a lot of work had been put in but it proved equally difficult to filter out the main results.
The UNESCO project relating to the lakeside settlements and particularly the compilation of a joint database was the catalyst needed to mount a general study on the subject of lakeside occupation around Lake Neuchâtel. In this context, the discoveries in 1986 and 2004 of archives relating to the topographic situation of the Neuchâtel lakeside settlements, which covered the period between 1905 and 1930 turned out to be invaluable and helped us understand some of the inconsistencies in the 1930 inventory. The fact that various archaeological services began analysing their records at the same time also helped to uncover or rediscover maps dating from the second half of the 19th century regarding canton Neuchâtel. This cartographic work was not limited to the pinpointing of sites, but it also endeavoured to reassemble old excavation plans. It was possible for the first time, for instance, to pinpoint the investigations carried out by Paul Vouga between 1921 and 1932 at the settlement of Saint-Aubin-Sauges–Port-Conty (CH-NE-01) within the framework of his chronotypological analysis of the Neolithic lakeside occupation and to incorporate his excavation plan. It was also possible to identify the presence of a central religious site which made the site highly important from a scientific and cultural point of view. With the experience gained over the past number of decades in the analysis of pile fields, old excavation plans, for instance from Auvernier–Les Ténevières and La Tène (Thielle-Wavre)–Pont de Thielle-69 could also be deciphered. The results obtained from the work carried out over the past six years will be published in late 2009 in volume 45 of the series 'Archéologie neuchâteloise' which will consist of more than 200 pages. Finally, it must be stated that several attempts at mounting such a project had been made since 1880!

at a scale of 1:1. The finds from the excavations occupy a rather large area of the exhibition. The new exhibition of the museum (planned opening in 2011) will devote even more space to the site, with among other things a model of the entire settlement.

↘ p. 469

Fig. 5.48 From 2011, the new permanent exhibition in the Museum zu Allerheiligen in Schaffhausen will devote even more space to the pile-dwelling site at Thayngen-Weier (CH-SH-01).

Schwyz

The results of the excavations in Freienbach–Hurden Rosshorn (CH-SZ-01) have been presented in several publications. Due to the fact that all sites in the region of the dam between Lakes Zurich and Obersee are threatened by erosion, research campaigns are ongoing (documentation of pile fields, ↘ Fig. 5.49). Some of the finds are already on display at the 'Marchmuseum' (Rempen / Vorderthal), which also shows visitors the methods employed by the underwater archaeologists. Once the restoration of the historical buildings on the Island of Ufenau has been completed, it is planned to install an information centre (Arnstein building) for underwater archaeological research there.

↘ p. 469

Fig. 5.49 Due to the fact that the sites in the region of the dam between Lakes Zurich and Obersee are threatened by erosion, archaeological monitoring and research campaigns are still ongoing (shown here the associated site Freienbach–Hurden Seefeld, canton Schwyz).

Solothurn

Regular Open Days on Lakes Burgäschi and Inkwil are organized in close cooperation with the communities ↘ Fig. 5.50. The site Bolken / Inkwil–Inkwilersee Insel (CH-SO-02) was presented to the public in 2007, Seeberg–Burgäschi-Süd in 2008. Another event incorporating experimental archaeology took place on Lake Inkwil on 12 September 2009 as part of the European Heritage Days. At the same time the Archaeological Museum in Olten organised various guided tours and events around the pile-dwellers topic and the 'Pile-dwelling village' in the Bally Park in Schönenwerd was presented to the public. After being destroyed by the floods of 2007, this reconstruction on a scale of 1:2 was rebuilt based on the original 19th century plans and photographs ↘ cf. Fig. 5.17.

↘ p. 468

Fig. 5.50 Regular Open Days on Lakes Burgäschi and Inkwil are organized in close cooperation between the archaeological Service of Solothurn and the communities.

The old finds from Lake Burgäschi are on display in the Cantonal Archaeological Museum in Olten. They are an essential part of the archaeological collections of the canton. For the past three years, the museum has also regularly organised events with museum educational activities, particularly in relation to Late Stone Age crafts. The bid for a new cantonal museum also includes redesigning and modernising the archaeological exhibition in Olten.

For the past 20 years, the archaeological department of canton Solothurn has provided schools from the canton and further afield with a Stone Age educational suitcase for teaching purposes. The suitcase contains original material, some of which was recovered at pile-dwelling sites, and it has become so well known and successful that a second suitcase had to be assembled a few years ago to meet the ever-increasing demand.

The flint finds and features of the site Äschi SO–Burgäschisee Ost (CH-SO-01) were newly published because the 1947 publication was deemed to be outdated from a scientific point of view. The publication of the pottery finds follows in 2010.

↘ p. 424

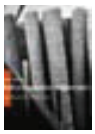
Fig. 5.17 After its destruction by flooding in 2007, the 'pile-dwelling village' in the Bally Park in Schönenwerd (canton Solothurn) was rebuilt on a scale of 1:2 based on the original 19th century plans and photographs.

St. Gall

The finds from Lakes Zurich and Obersee were inventoried as part of a master's thesis (2001). A preliminary study of the Early Bronze Age site Rapperswil-Jona–Technikum (CH-SG-02) will be published 2010. A final report on the planned protection measures (covering) of the settlement area is also to be published.

The prehistoric past of Rapperswil-Jona is explained with texts and images along the new wooden footbridge across the strait between Rapperswil and Hurden and at individual stations of the Kulturbaukasten Rapperswil-Jona (www.kulturbaukasten.ch,). These '36 roofless museums' consist of attractive glass displays providing detailed information about 3500 years of cultural history of the new municipal area created by the merging of the Rapperswil and Jona communities ↘ Fig. 5.51. The pile dwellings are an important element in this.

On the occasion of the pile-dwelling anniversary in 2004, two pavilions were erected on the Seedamm showing a possible prehistorical local setting and its relationship to the actual settlement development. The approximate 13,000 visitors to this event clearly showed how popular the topic is throughout the region. The Rapperswil Town Museum presented the results of the analysis of the settlement Rapperswil-Jona–Technikum (CH-SG-02) as part of the 'European Heritage Days' on 12/13th September 2009. The Rapperswil Town Museum is currently being restructured and less space is available at present for the 'pile dwellings'. On the other hand, it is intended to redesign the exhibition in the Historical Museum in St. Gall and to explore the entire prehistory and early history of the canton. Special attention would be paid to the pile dwellings and underwater archaeology.



↘ p. 468

Fig. 5.51 The pile dwellings are an important element in the 'Kulturbaukasten – 36 roofless museums' providing detailed information about 3500 years of cultural history of the new municipal area created by the merging of the Rapperswil and Jona communities.

Thurgau

The finds and features of most of the sites such as Arbon–Bleiche 3 (CH-TG-01), Eschenz–Insel Werd (CH-TG-03), Gachnang-Niederwil–Egelsee (CH-TG-04), Hüttwilen–Nussbaumersee (CH-TG-05) and the associated site Pfyn–Breitenloo have been comprehensively published in the series 'Archäologie im Thurgau' as well in other publications. New finds are published on an ongoing basis. Natural scientific studies in collaboration with the Universities of Basle (Switzerland) and Innsbruck (Austria) also continue. Both specialist publications and materials for enthusiasts are available.

The Museum of Archaeology in canton Thurgau exhibits a selection of finds from numerous pile-dwelling sites. The Stone Age collection of the museum was newly designed in 2009 ↘ cf. Fig. 5.18. A special exhibition on textiles from pile-dwelling settlements is planned for 2010 in the canton Thurgau.

The large museum educational programme includes suitcases with original material from lakeside settlements and other documents for the teaching of prehistory in schools. Courses for teachers, university students and site technician exam candidates are held regularly.

Other local museums exhibit finds from the sites in their areas (Historical Museum Arbon, Village History Museum in Eschenz, Museum Turmhof in Steckborn and Museum Pfyn-Trotte). Another exhibition of finds is housed in the school building in Hüttwilen. Archaeological educational trails exist in Eschenz–Insel Werd (CH-TG-03) and in the Seebach Valley (Hüttwilen–Nussbaumersee, CH-TG-05). An information panel in Pfyn draws attention to the associated site Pfyn–Breitenloo.

Thanks to the television series 'Pile Dwellers from Pfyn' ↘ text box; ↘ cf. Fig. 5.42 there is a lot of film footage and numerous props for museum educational activities to enhance the programmes on offer at the Museum of Archaeology in canton Thurgau.

↘ p. 425

Fig. 5.18 The Stone Age collection of the Museum of Archaeology in canton Thurgau was newly designed in 2009.

↘ p. 466

Fig. 5.42 Living the Stone Age lifestyle for several weeks: living-science experiment on television, 'Pile dwellers from Pfyn'.

Vaud

The excavations carried out at Corcelles-près-Concise–Stations de Concise (CH-VD-05) have provided essential information about the prehistoric occupation of the northern shore of Lake Neuchâtel, and the results are being compiled for publication in a series of monographs over the next few years. Apart from potential rescue excavations, the research policy with regard to the lakeside settlements is limited to sampling the remains that cannot be preserved on site and making localised observations at sites that are poorly preserved. At the same time surveying of the lakesides is ongoing, as is the study of the areas of land suitable for protection measures with regard to lacustrine sites not yet documented.

Temporary exhibitions are periodically staged by the Cantonal Museum of Archaeology and History in Lausanne ↘ cf. Fig. 5.24, where the sites are presented and where specific topics are dealt with regarding the lakeside settlements on the Vaud shores of Lakes Neuchâtel, Morat and Geneva.

↘ p. 427

Fig. 5.24 Without the scientific insight gained from the pile dwellings, many of the details could not have been included in the images for the special exhibition 'Des Alpes au Léman. Images de la préhistoire' (From the Alps to Lake Geneva. Images of prehistory), which was shown in various museums in Western Switzerland between 2006 and 2008.

Zug

A construction project has made it necessary to carry out a large excavation from the summer of 2009 to 2010 at the associated site Cham–Bachgraben. The European Heritage Days 2009 were organised as a joint event by the Archaeology Department of canton Zug and the Zug Association for Pre- and Protohistory in the form of a grand Open Day at the excavation site. The 150-year anniversary of the discovery of pile dwellings in Zug was celebrated at the same time.

Many sites have been comprehensively published like for example Cham–St. Andreas, Strandbad (CH-ZG-01), Hünenberg–Dersbach Süd (CH-ZG-02) or Zug–Sumpf (CH-ZG-06). Post-excavation work at Zug–Vorstadt, Rössliwiese and Risch–Oberrisch, Aabach Station Risch IV (CH-ZG-03) is currently ongoing. A number of other sites are scheduled for analysis over the coming years ↘ cf. Volume III.

It is thanks to numerous investigations mounted in the first half of the 20th century and modern excavations carried out in lakeside settlements that the Museum of Prehistory in Zug can present a sensational collection of pile-dwelling finds. The museum also offers an extensive museum educational programme which attracts a large number of schools every year. ↘ cf. text box, ↘ Fig. 5.52.

↘ p. 469

Fig. 5.52 Museum educational activities for schools are an inherent part of practically every museum (shown here the Museum für Urgeschichte(n) Zug).

Zurich

The Swiss National Museum houses a comprehensive collection of pile-dwelling finds from the early stages of pile-dwelling research. Numerous objects are stored in the collection centre in Affoltern am Albis which was opened in 2007 (www.landesmuseen.ch/d/sammlung/sammlungszentrum/index.php). The centre also houses the studios of the conservators and restorers, the laboratory for conservation research, the offices of the artefact administrators and the photographic studio. Regular guided tours inform the wider public about the varied and important work carried out by the conservation and restoration teams.

Besides this Swiss National Museum, which exhibits a number of artefacts from pile dwellings, various local museums such as those in Horgen, Greifensee Castle, Wetzikon and from 2011 in Pfäffikon again also deal with the subject of pile dwellings in an exciting manner. A more intensive collaboration with the Silberweide Nature Park on the northern end of Lake Greifensee has recently commenced (display windows, guided tours along the lake). The pavilions of the Nature Park are

frequented by large numbers of visitors during the summer months.

The European Heritage Days in canton Zurich is periodically used as an opportunity to familiarise the public with underwater archaeology and the prehistoric lakeside settlements (e.g: in 2007: Dübendorf-Stettbach, Wood in the pile-dwelling period; in 2008: Meilen-Strandbad Schellen, A day to be enjoyed, settlements on the lakeshores). There are also numerous other events that are used for education and outreach. During Euro '08, the VIP float in the fan zone was installed in a monument-friendly manner above the site Zürich–Grosse Stadt-Kleiner Hafner (CH-ZH-10). Information panels about the cultural heritage located below the surface of the water were mounted on the footbridge between the float and dry land ↘ Fig. 5.53. As part of the 'Nahreisen' events organised by Green Zurich City (www.nahreisen.ch) live underwater feeds of a dive on the site Zürich–Kleine Stadt-Bauschanze were projected onto a screen.

↘ p. 470

Fig. 5.53 There are many occasions where the public can be given information about the cultural heritage of the pile dwellings: during Euro '08 information plaques were installed at the entrance to a VIP float within the fan zone, just above the site Zürich–Grosse Stadt Kleiner Hafner (CH-ZH-10).

Archaeological suitcases which deal with all periods and contain original finds and educational material can be borrowed by Zurich teachers for a week at a time from the Archaeology Department of the canton. The Late Stone Age suitcase is the most popular by far. The headquarters of the Archaeology Department of canton Zurich also houses a study collection opened in spring 2009 with examples of finds from all periods present in the canton in chronological order. The assemblages from the Late Stone and Bronze Ages mainly came from pile-dwelling sites and represent all material categories (pottery, stone, flint, wood, bone, antler and textile fibres).

Numerous sites have been comprehensively published over the past number of decades. Concerted efforts are currently being made to publish the remaining number of excavations and old finds assemblages that have not yet been analysed. These projects include the largest excavation ever mounted on Lake Pfäffikon (Pfäffikon–Burg), the publication of the important site Wetzikon–Robenhausen (CH-ZH-08) which was partially investigated by Jakob Messikommer in the 19th century, and a new evaluation of the extraordinary Early Bronze Age settlement phases at Zürich–Grosse Stadt-Mozartstrasse. In addition, various detailed studies are also carried out on different material categories. Worth mentioning in this context is a comprehensive study and publication of all the Neolithic fragments of textiles and netting recovered from the pile-dwelling sites as well as an analysis of the flint objects (provenancing, study of production centres and trade routes, localisation of the quarries in the Lägern range in canton Zurich) as part of a large interdisciplinary project partially funded by the Swiss National Science Foundation.

Austria

Within the framework of the pile-dwellings project of the Austrian Academy of Science, the old finds from Austrian pile dwellings are reviewed and published. At the University of Vienna, several bachelor theses and research projects examine finds of the Department of Pre- and Protohistory (Institut für Ur- und Frühgeschichte) and other aspects of prehistoric pile dwellings in Austria. The department's collection is a particularly intact ensemble of finds of the Mondsee stations (amongst them AT-OÖ-05), and offers a good starting point for research. The results of research are integrated into the collection exhibit and presented to the public biannually at open house days.

In the Salzkammergut region as well as in Keutschach am See (Carinthia), there are concrete plans for building pile-dwelling museums, with feasibility and plan studies in place (cf. Management plan, Volume III). The pile dwellings (AT-KT-01) are already integrated into the nature trail at Lake Keutschach.

In 2005, a Culture 2000 project designed a travelling exhibition entitled 'From Underwater to Public Attention', which was on show at a number of locations in Austria, Slovenia and Germany during the years 2005 and 2006, and offered insights into research on pile dwellings and underwater archaeology ↘ cf. text box. Within the project framework, an

From Underwater to Public Attention – Research and new technology concepts for visualisation of underwater archaeological heritage

Underwater cultural heritage sites are endangered and rarely adequately explored and even more rarely presented to the public because of technological and financial challenges of appropriate surveys. Paradoxically, these monuments are very attractive to the public.
The purpose of the project was to join forces and knowledge of professionals from five participating countries (Austria, Germany, Slovenia, Italy and Croatia), to exchange experiences and practical knowledge and to make a step forward in rousing the public interest in underwater cultural heritage and problems as well as in new possibilities related to underwater research with a strong focus on presentation and visualisation.
As a case study, the project dealt with two underwater archaeological sites: the prehistoric pile-dwelling remains in Lake Keutschach (AT-KT-01), and the remains of a Roman port complex in Fizine, near Potorož, Slovenia. The two archaeological sites belong to different eras (prehistory vs. antiquity) and architectures (wood remains of a pile dwelling vs. stone remains of a port structure) and are also influenced by different surroundings from which they emerge. Namely, the treatment of archaeological remains from lake and seawaters is in some regards rather different. This specific selection was not made by chance, but because – for the above-mentioned characteristics – these two sites together open a wider spectrum of questions.
The touring exhibition showed the different fields of activity of the underwater archaeologists very well. It told of sunken ships and harbour structures in the Mediterranean and lost Stone Age villages in the lakes around the Alps as well. In a transportable container, prepared especially for the exhibition, the visitors could retrace how life was happening 6000 years ago. This is made possible with a special 3D-animation of the Neolithic pile-dwelling village in Lake Keutschach. By a comparison of original and reconstructed finds with modern objects the bounds of the archaeological research have been questioned.
In the course of the project 'From Underwater to Public Attention', financed by the EU and the community Keutschach am See, teams from the universities of Vienna, Hannover, and the University of Primorska, Koper, worked together in an international study group at the concepts and contents of a 'Museum – Pile-dwelling village Keutschach am See'. This museum should, for the first time in Austria, present the life and the culture of the pile dwellers, and the adventure underwater archaeology by means of new technologies and an open-air area. The well-defined outlines of the museum were presented and discussed with the visitors in public meetings and within the travelling exhibition.

animated computer reconstruction of a pile dwelling was also produced ↘ Fig. 5.54, which was on show at the exhibition and which will be available as an interactive DVD.

In the Salzkammergut and the area of the Keutschacher See – as well as in other federal states – underwater archaeology promotions were held on the subject. These communication events regularly are popular successes reaching out to a high number of people. Special focuses are direct communication through hands-on concepts, combination with demonstrations of experimental archaeology, and cooperation with schools. Generally, science communication for children and young people has a high priority. For example the workshops on pile-dwelling research and underwater archaeology at Vienna Children's University (www.kinderuni.at) count amongst the favourite courses of this event ↘ Fig. 5.55.

Scientific examinations at the pile dwellings are attended throughout by public lectures, with information material produced for them (e.g. information folders), in order to keep the public informed on ongoing research, and its aims and background while the work is being done. Recent results are presented within the framework of regional promotion days.

↘ p. 470

Fig. 5.54 This computer-animated reconstruction of a pile dwelling was one of the components of the travelling exhibition 'From Underwater to Public Attention', shown in 2005 and 2006 at numerous locations in Austria, Slovenia and Germany.

↘ p. 470

Fig. 5.55 The workshops on pile-dwelling research and underwater archaeology are among the most popular courses at the Children's University in Vienna (www.kinderuni.at).

France

With the arrival of the recent legislation on preventive archaeology (2001 and 2003, ↘ Chapter 5.b), practices in France have evolved rapidly. The development of preventive archaeology, however, only marginally concerns the lake sites. The main reason for this discrepancy vis-à-vis dry land archaeology is that numbers of archaeological divers and specialised operators are still too small. These difficulties have been noted by the Ministry of Culture and Communication and the Institut de recherche en archéologie preventive (INRAP) (National institute for research in preventive archaeology). At the request of the office of its Inspector General, the direction de l'Architecture et du Patrimoine (Department of architecture and heritage) (sub-division of archaeology) has commissioned the Département des recherches archéologiques sous-marines et subaquatiques (DRASSM) (Department of underwater and submarine archaeological research) to prepare an assessment of the situation of archaeology in France's inland waters and draw up a development plan for the next ten years (priority topics, priority sectors, methodology, specialist training, incentives for approved operators, etc.).

For the next few years, in addition to a detailed definition of the extent of archaeological authority, the comprehension in terms of architecture of pile-dwelling structures in the process of erosion and the acquisition of chronological and environmental systems of reference which continue to be immediate goals, underwater research will be directed at obtaining samples for analysing the relations between man, the climate and the environment, and probably, as a matter of priority, at an evaluation of the process of deterioration of the lake-bed heritage and the programmed implementation of conservation measures.

Franche-Comté

The excavations of the pile-dwelling sites of Lake Chalain as from 1986 were accompanied by numerous activities, including the reconstitution of two Neolithic houses on piles in 1988–1989, in keeping with the concept of experimental archaeology ↘ cf. text box. A closely supervised circuit for visitors functioned during the excavation campaigns. Once field operations at Chalain came to an end in the late 1990s visits were suspended since they had been organised by the excavation team. Today the reconstitutions reveal the process of destruction of the houses once abandoned.

Following the implementation of the protective measures ↘ Chapters 4.b and 5.b,

a new phase is beginning in the management of the Chalain archaeological zone in which the value of the site will be enhanced and better use made of the scientific and educational potential of the Chalain-Clairvaux collections in the Jura Museum of Archaeology in Lons-le Saunier.

In 2006, a feasibility study of the project for developing the Chalain protected archaeological zone in order to present it to the public was entrusted to the Centre de recherche archéologique de la vallée de l'Ain (CRAVA) (Archaeological research centre of the Ain valley) at the request of the Conseil Général du Jura (Jura general council). The project comprises:

– the reconstitution of a village of five houses and a hamlet of three Neolithic houses on piles using traditional techniques based on the plans and studies of the excavations. These reconstitutions will be built in areas where there are no archaeological remains and enable the houses to be displayed *in situ* and during construction and utilisation.
– a route for visiting the site in the form of a 1500 m circuit with commentaries will enable visitors to discover the special features of the marshland environment and vegetation, as well as the environment in which the earliest farmers settled and evolved for 5000 years.

At the same time, the Jura Museum of Archaeology is undergoing a programme of transformation with a move to more spacious premises where 400 m2 will be reserved for the Chalain-Clairvaux pile-dwelling sites; this will at last enable the collections from these sites to be displayed in a manner in keeping with their importance. Since 2007, the cleaning and storage of the Chalain-Clairvaux collections have been carried out according to the recommendations of the Arc-Nucléart laboratory in Grenoble: review of the old collection (prior to the 1958–61 inventory), inventory and ordering of the recent collections. Since 2007 too, as part of the programme for the digitisation of heritage collections coordinated by the Ministry of Culture and Communication, the museum has been digitising the collections from the early Chalain and Clairvaux excavations. The aim is to study or re-analyse these collections and facilitate their digital consultation so as to comply with the obligations of conservation, to contribute to scientific thinking and to play a role in enriching the culture of the public at large.

An excavation programme (2006–2008) was carried out at Clairvaux with the resumption of the study of site VII, level F, belonging to the oldest phase of the Burgundy Middle Neolithic sequence. There are plans for monographs summing up the scientific results of the Chalain and Clairvaux research.

In another domain, a film on pottery and ceramic techniques from the Burgundy Middle Neolithic at Clairvaux (4th millennium BC) will be released. 'Les hommes des lacs, vivre à Chalain et à Clairvaux il y a plus de 5000 ans' (The lake men, life at Chalain and Clairvaux more than 5000 years ago) (www.chalain.culture.gouv.fr) ↘ Fig. 5.56 was published in 2001 in the electronic collection 'Grands sites archéologiques de la France' (Major archaeological sites in France). More than 4000 documents have been devoted to the succession of villages that arose on the shores of the two lakes between 3900 and 850 BC.

The archaeological research on the pile-welling sites of Clairvaux and Chalain has been the subject of numerous scientific publications of a very high standard. It must also be recognised that the teams involved in the research have always made a point of attracting the public at large. These efforts to enhance the value of the work on the sites have been widely recognised, as the prizes they have collected testify: best regional film prize at the International Archaeological Film Festival of Besançon, 2007 (for 'A travois for the gods, Lake Chalain, 31st century BC' ('Un travois pour les dieux. Lac de Chalain, 31e siècle av. J.-C.' produced by CRAVA/CERIMES, 2007, 46 minutes), or the prize of the Nancy Research Film Festival for the same film in the 'informed public' category.

↘ p. 471

Fig. 5.56 In 2001 a website was launched with 400 documents providing comprehensive information about the pile dwellings on Lakes Chalain and Clairvaux (www.chalain.culture.gouv.fr).

Chalain (Jura): experimental construction of two Neolithic pile dwellings

From Neolithic times, farmers to the Northwest of the Alps selected wet environments for their villages, sheltering humans and their harvested crops on sites that were naturally protected by water on one side and by a palisade and marshland on the other. This choice meant an adaptation of the architecture to wet ground liable to flooding with no resistance to treading or trampling. Raising houses on piles to avoid increases in water levels is a technique familiar from present day ethnographic examples. Many prehistorians, however, considered – although without evidence – that this was an unlikely solution for Neolithic times, since heavy constructions of this nature would have sunk into the ground under their own weight.

In 1988, researchers from the Archaeological research centre of the Ain valley (CRAVA) attempted the construction of two life-size experimental dwellings, basing themselves on the best-preserved remains from Chalain (posts, collapsed floors, wall wattling, etc.) and on the logic that is known to be used in present-day wooden constructions in Benin and New Guinea. The two houses were built on the same type of soft wet ground as in Neolithic times. The same types of wood were selected, although there was uncertainty as to the roofing materials used. The main posts were driven 2 or 3 metres deep into the liquid chalk (floating pile technique), making use of the properties of the sediment which liquefied with the vibration and set once the posts were left in place.

↘ p. 471

Fig. 5.57 Experimental archaeology: life-sized reconstruction of two houses from the Neolithic village of Chalain on the modern lakeshore.

↘ p. 471

Fig. 5.58 Part of the experiment: several years have passed since the construction of the houses, which now stand in a small forest and one of them has sunk precariously into the water-logged ground.

The experiment was conclusive. In two months in the case of the first house and one month with the help of six people for the second, these pile dwellings – each of which used nearly 5 to 7 tonnes of vegetable material – had been set up on the shores of Lake Chalain ↘ Fig. 5.57). They were inhabited on a regular basis for several months each year with the fire kept going to keep away wood-boring insects. The first house showed signs of weakness after nine years and collapsed on its side; the second lighter construction, lasted for twelve years, i.e. average life expectancy evaluated on the basis of dendrochronological dating ↘ Fig. 5.58. Today, the ruins of these two houses provide a unique opportunity of continuing the experiment when the experimental archaeological site is excavated a few years from now.

19 x Stone Age: The exhibition to the SWR-television documentary ‘Stone Age – the Experiment. Living Stone Age 5000 years ago’

In order to use the media event to advantage and tempt at least some of the viewers of ‘Steinzeit – Das Experiment. Leben wie vor 5000 Jahren’ ↘ text box, Chapter 5.i, General into the museums and encourage their interest in real research into the Stone Age, the Baden-Württemberg State Cultural Heritage Department presented an exhibition to accompany the television programme ↘ Fig. 5.59. As the exhibition accompanying the nationwide broadcast was to be shown almost concurrently in 19 museums, it could not ‘wander’ as a complete unit from museum to museum in the classical manner. The exhibition, designed for a floor area of between 50 and 120 m2, was therefore modular. A general introduction conceived at the Hemmenhofen branch of the State Cultural Heritage Department was made up of 26 information panels which could be distributed in digital form on a DVD and printed out by the individual museums taking part. The panels consist of an introduction, a section where the broadcast themes are reiterated and a part in which the archaeological background, scientific facts and the results of the latest excavation and research in Germany are explained.

↘ p. 473

Fig. 5.59 In order to use the media event of the emission ‘Steinzeit – Das Experiment. Leben wie vor 5000 Jahren’ and encourage interest of the viewers in real research into the Stone Age, an exhibition to accompany the television programme was organized.

Small but typically representative pile-dwelling objects were provided for the exhibition by the State Cultural Heritage Department. A regional component in the exhibition meant that each participating museum had the opportunity to exhibit objects from its own area. The clothes worn by the characters in the documentary and the documentary itself, shown on monitors around the museums, rounded off the exhibition. The mixture of finds from pile dwellings, film props, and regional Stone Age finds and themes gave each of the 19 exhibitions its own individual character.

Especially in those museums where rich and varied public-participation events took place the exhibition was a great success. All together it was visited by 450,000–500,000 members of the public. Generally the visitors corresponded to the television production’s target audience. The exhibition was seen above all by families with children and a higher than average proportion of school classes and can therefore surely be seen as an investment in the future.

Rhône-Alpes

A major review of the Neolithic artefacts of Haute-Savoie is currently in progress as part of the publications programme of the departmental collections; records of artefacts from the pile-dwelling sites and communal records are in the process of preparation.

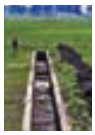
As regards underwater archaeology, in view of the number and size of the Alpine lakes, priority has been given to drawing up an archaeological map of the lakes. Annual prospecting and assessment campaigns have been conducted by DRASSM since 1995. In the last few years (2006–2009) efforts have been concentrated on Lake Geneva and Lake Le Bourget. In the case of the latter, the major Late Bronze Age sites have commanded particular attention. In 2009 a final test drilling campaign on the Châtillon site is planned. The aim of this research is to verify the state of preservation of the construction remains and occupation levels and to clarify the chronology of the sites. A publication is in preparation: 'Chindrieux, Châtillon (Savoie, lac du Bourget): une série céramique lacustre Bronze final 3b bien calée en datation absolue' (Chindrieux, Châtillon (Savoie, Lake Le Bourget): a lacustrine ceramic series from the Late Bronze 3b period well established in absolute dating).

Germany

Baden-Württemberg

Reports from a number of research and rescue excavations will appear in scientific publications in the next years. Other reports on the research carried out within the priority programme of the German Research Council 'Settlement Archaeology in the Pre-Alpine Region' (Siedlungsarchäologie im Alpenvorland) continue to be published in the similarly named publication series. In preparation are reports on the analysis of jewellery from the Late Neolithic lakeside settlement Hornstaad-Hörnle IA (DE-BW-03), the analysis of the pottery from Hornstaad-Hörnle I-VI and the analysis of the features, contexts and dendrochronology of the Early and Middle Bronze Age 'Settlement Forschner' (DE-BW-15) in the Federsee bog. The results of extensive phosphate, archaeobotanical and entomological analysis will appear in Volume 9 of the 'Hemmenhofener Skripte' series.

Current and planned archaeological exploration, including soil sampling, take account of the enormous potential the lakeside settlements offer for answering questions on ecological and palaeoclimatic development. Scientific analyses therefore play a considerable role in the present research projects in Sipplingen–Osthafen (DE-BW-09) and Degersee. Also, in the coming years core drilling and trial trenching are planned to take stock of the archaeological and water table situation in the Olzreuter Ried ↘ Fig. 5.60.



↘ p. 472

Fig. 5.60 In the coming years core drilling and trial trenching are planned to take stock of the archaeological and water table situation in the Olzreuter Ried (Baden-Württemberg).

Primarily the Federseemuseum, but also the Pile Dwelling Museum in Unteruhldingen ↘ Fig. 5.61 and the State Archaeological Museum, Konstanz branch offer a wide range of museum-educational events: initiatives for school classes, various courses and workshops for children and adults, demonstrations of prehistoric crafts, guided tours, the opportunity to live and stay overnight in a stone age village, special theme days and theatre performances ↘ text box.

↘ p. 472

Fig. 5.61 'Uhldi' the Stone Age Man shows children how people used to make fire – one of many big and small events staged by the Pfahlbaumuseum in Unteruhldingen (Baden-Württemberg).

New public relations projects to introduce wetland archaeology to the public from various points of view are planned. On-site information is highly authentic and effective. With the rewetting of the northern Federsee reedbed a number of platforms carrying information panels on the natural landscape and the pile-dwelling sites are planned. The town of Bad Schussenried also plans to erect information panels on the pile dwellings within its municipal limits. An observation platform

carrying information panels on the pile dwellings in the bay of Sipplingen for the new bicycle track is in project.

The museum landscape will expand. A new museum is planned in the village of Bodman-Ludwigshafen. The emphasis there will be on the pile dwellings in Bodman Bay. If the World Cultural heritage application is successful a pile-dwellings information centre will be added to the Konstanz branch of the State Archaeological Museum. A new permanent exhibition there with important original finds from South West Germany is also under discussion.

Excavations are regularly presented to the public. Guided tours on ongoing excavations take place every year on 'Open Monument Day' (Tags des offenen Denkmals), as have open days in the laboratories of the State Cultural Heritage Department in Hemmenhofen. During summer, monthly guided tours are offered to excavations and rescue digs in Upper Swabia in cooperation with the Federseemuseum.

Bavaria

The reconstruction of the settlement from the Altheim period in the open-air museum at Pestenacker, community Weil (DE-BY-01), is going to be expanded gradually. The development association plans several new buildings with the opportunity to present life in Neolithic times at the museum. Over the recent years, events concerned with museum pedagogy have been taking place regularly at Pestenacker. In 2007, numerous youths were made familiar with pile dwellings and related topics. At the weekends, 22 school classes attended the 'Stone Age Live' (Steinzeit live) programme amidst the open-air reconstructions. The night before the European Heritage Day on 13th September 2009 initiated the 'Night of the Pottery' (Keramik-Nacht, ↘ Fig. 5.62). This activity helps the visitors to get a grasp on prehistoric pottery.

↘ p. 473

Fig. 5.62 The 'Pottery Night' held on the night before the European Heritage Day in 2009 gives visitors an impression of prehistoric pottery (Pestenacker, Bavaria).

Each year during Spring time, the Bavarian Society for Underwater Archaeology (Bayerische Gesellschaft für Unterwasserarchäologie, BGfU e. V.) offers a two-day diving course at Rose Island in Lake Starnberg (DE-BY-03, ↘ Fig. 5.63). The course addresses scuba divers with no prior archaeological knowledge in order to sensitise them for monuments under water and especially for article 8, para. 1 of the BayDSchG ↘ cf. Chapter 5.b. The diving course is a cooperation between the BGfU e. V., the Commission for Underwater Archaeology in the Association of State Archaeologists (Kommission für Unterwasserarchäologie im Verband der Landesarchäologen) and the Association of German Scuba Divers (Verband Deutscher Sporttaucher, VDST). With help of the course, a special brevet called 'Monument Appropriate Diving' (VDST-Sonderbrevet Denkmalgerechtes Tauchen) can be obtained by the participants.

↘ p. 473

Fig. 5.63 Teaching unit during the 'Monument Appropriate Diving' course in front of Rose Island (DE-BY-03), performed by the Bavarian Society for Underwaterarchaeology.

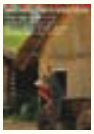
Systematic excavations are not scheduled at the nominated properties. At Rose Island, surface documentations in the shallow waters at the north-eastern shore are to be continued medium term by the BGfU e. V. This work will cause no soil intrusion though.

Several archaeological and related natural scientific research projects respectively dissertations concerning the associated site Ergolding–Fischergasse, Pestenacker–Unfriedshausen (DE-BY-01, DE-BY-02) and Rose Island (DE-BY-03) are currently being worked on. On the occasion of the 25th anniversary of the Bavarian Society for Underwater Archaeology, a substantial work on local underwater and wetland archaeology was published by the State Conservation Office in 2009.

At present, the material from Pestenacker and Unfriedshausen is being recorded systematically in order to hand it over to the Bavarian State Archaeological Collection (Archäologische Staatssammlung) in Munich ↘ Chapter 5.h. However, discussions on the property of some of the finds are still underway.

‘Federseelen’ – ‘Science meets Art’ – Archaeotheatre in the Federsee Museum Bad Buchau

‘Science meets Art’ might be an appropriate slogan for this event, a second co-production of the Federsee Museum in Bad Buchau and the Ulm Theatre in 2009. ‘FederSeelen’* is the second drama performed in close cooperation between archaeology and dramatic art ↘ Fig. 5.64. It is the common goal of the scientists and actors to make the past more accessible for the museum visitors.



↘ p. 472

Fig. 5.64 Open-air theatre in the pile-dwelling village: In 2009, the discovery of two children’s skulls at the ‘Wasserburg Buchau’ site was turned into an exciting play to accompany the special exhibition ‘Murder in the bog(?)’ shown at the Federseemuseum (Baden-Württemberg).

The points of origin for the play are two child’s skulls bearing traces of violent death found in excavations in 1928. A 3000 year old murder? The play ‘FederSeelen’ tells a fictive story that might have taken place in the Late Bronze Age between 1100 and 800 BC. Sena arrives in the ‘Lake Fortress Buchau’ (‘Wasserburg Buchau’) by way of exchange. As a stranger she must find her place in society in the Late Bronze Age settlement. Various spheres of life are dealt with: family, trade and mobility, bronze casting or spirituality. In a parallel plot the story of the archaeological discoveries in the 1920s is told. The actors, aided by to lay child actors, must switch many times between epochs and roles. The story line was developed in close cooperation between archaeologists and a dramatic advisor with reference to this year’s special exhibition titled ‘Murder in the Moor(?)’ (‘Mord im Moor(?)).

The performances were well received. Entry to the play was included in the admittance fee to the museum and it was watched on Sunday afternoons by up to 300 visitors. Because of the play’s popularity extra performances had to be scheduled.

* ‘FederSeelen’ is a play on words. In the German language the word for lake ‘See’ and the word for soul ‘Seele’ are similar. The children who suffered a violent death in or around the Federsee lake therefore being the ‘souls from the Federsee lake’ or the ‘FederSeelen’.

Experimental excavations at the Museum

↘ p. 475

Fig. 5.65 In the Varese lake area, excavations have been transferred to the Museum', to be available to school classes, and has turned into a learning laboratory.

The remarkable success of school class visits to the archaeological excavations in the Varese lake area and the fact that these visits cannot take place during the campaign season, finally conducted us to offer students visiting the Museum the chance of finding out how a scientific excavation takes place ↘ Fig. 5.65. Starting in 1999 excavations have been 'transferred to the Museum', to be available to school classes, and has turned into a learning laboratory. Before the visit begins, students are assigned different roles, and act according to the indications of docents who take on the role of the 'director of excavations'.
The 'excavation area' comprises four large caissons, each of them standing for one of the squares into which excavation areas are divided. The caissons are half a meter deep, and each side measures one meter, so as to provide one square meter's excavation area. They are filled with different levels, within which different structures are hidden. These are to be documented, surveyed, excavated and finally interpreted by the students. One of the caisson's sides is made of transparent plexiglass: this allows visitors to see the stratigraphic layers and to understand what is meant by an excavation section. 'Archaeologists' draw out a plan and a section of the excavation area either using full scale or other scales. Photos are taken, files concerning the various layers are compiled and an excavation log is kept updated. Once the dig is over and the students are back in their classroom, they will have the chance to discuss the documentation they have produced with their teacher, browsing through photos files, plans, sections, and the excavation log, and then to evaluate the results.

Italy

Interest in pile dwellings has been increasing over recent years. Complete publications of results from excavations have been produced (for example, Fiavé (IT-TN-02), Lavagnone area B (IT-TN-02). Experimental reconstructions as well as archaeological areas (for example, Ledro (IT-TN-01) and Isolino Virginia, IT-LM-09) have been realized and opened up to the public. Scientific surveys and digs have been carried out or are still in progress (for example, Lucone di Polpenazze IT-LM-05). All these activities have been made possible due to cooperation between the local Superintendence for Archaeological Heritage and the local and territorial authorities and museums.

Friuli Venezia Giulia

Scheduled over the next few years is the final and complete publication of the results of the excavation campaigns at the prehistoric site of Palù (IT-FV-01) – as well as an additional overall brochure – by the Superintendence for Archaeological Heritage of Friuli Venezia Giulia, in collaboration with the Archaeological Museum of Friuli Occidentale-Castello di Torre. Due for completion between 2010 and 2012 are the drawings, photographic documentation and inventory of all the archaeological artefacts found at the prehistoric site of Palù from the early 1980s.

The Palù wetland area is affected by a detailed plan approved in 2001, named 'Nature and Archaeological Unitary Project of the Palù di Livenza', which includes part of the territories of the municipalities of Caneva and Polcenigo.

The municipalities of Caneva and Polcenigo (together with the Archaeological Museum of Friuli Occidentale-Castello di Torre) are planning the creation of an archaeological-nature walking trail and an underwater trail, including a visitor centre in the Palù swamp area and in the Livenza riverbed. Also projected is reconstruction of some pile-dwelling houses as didactic examples.

Within the requalification of the area ↘ **Chapter 4.b**, archaeological excavations are scheduled in order to continue scientific research into the prehistoric site aimed at enhancing our knowledge. These excavations will concern only a small area, so as to better understand the occupation dynamics of the site.

Lombardy

New excavations are planned (2010) at Lucone (IT-LM-05) and Isolino Virginia (IT-LM-09) to further enhance our knowledge of occupation dynamics, everyday life, chronological evolution of the sites, as well as ecological, geological and climatic concerns. A survey in the pile-dwelling site of Cattaragna is planned (2011) within a project shared by the Museums of Gavardo and Desenzano. All these activities will be carried out in accordance with the local Superintendence for Archaeological Heritage. These campaigns will focus on small areas (near Lucone di Polpenazze only the so-called area D will be investigated). Some local museums are cataloguing the finds from old and recent digs using the database of the Regional Information System for Cultural Heritage in accordance with the standards laid down by the ICCD Ministry for Cultural Heritage & Activities (for example, Desenzano, Gavardo, Piadena). The Regional Information System for Cultural Heritage is the cataloguing system used by Lombardy to record the cultural heritage stored in museums and other cultural institutions.

Since 1998 the system has been aligned to national cataloguing standards developed by the Central Institute for Cataloguing & Documentation, which is responsible for promoting and implementing the General Catalogue of Cultural Heritage. The

system therefore contributes – along with the Superintendence for Archaeological Heritage and the information systems of other Italian regions – to the implementation of the national catalogue (State numbers). All the new finds from ongoing digs can be inserted into the database on an ongoing basis. These projects will be repeated each year until all the most significant finds have been catalogued.

A special congress was held in 2008 at the Archaeological Museum of Villa Mirabello-Varese under the title '50 anni di ricerca e 7000 anni di storia all'Isolino Viriginia e al Pizzo di Bodio nell'ambito del territorio della Lombardia occidentale.' The congress dealt with 50 years of research and 7000 years of history relating to sites in eastern Lombardy. The results will be published soon (2010) in the archaeological review SIBRIUM.

Publication of the finds from all four Sirmione pile dwellings (Lugana Vecchia (IT-LM-04), Maraschina (IT-LM-13), San Francesco and Porto Galeazzi), catalogued in 1999–2000 – is projected by the Superintendence for Archaeological Heritage of Lombardy. Following publication of the monography concerning all archaeological studies and scientific investigations so far conducted on the submerged pile dwellings of Lago di Monate (IT-LM-12) in 2004, the corresponding chapter in the volume 'History of Varese' – edited by the University of Insubria – is currently in progress.

In 2011 the Museum of Gavardo will publish a monograph on old and new excavations in Lucone di Polpenazze (IT-LM-05); and the Museum of Desenzano will publish a monograph on Renato Perini's excavations on the site of Lavagnone. Both museums will compile in 2010 the first report of a four-year project regarding development of the pile-dwellings system in the area of Garda Lake (the Brescia district side). This project is supported by the Lombardy regional authorities and the Superintendence for Archaeological Heritage of Lombardy. The aim is to promote wider knowledge of these historical developments in the territory. Visitors – besides touring the museum – will also be able to see the places where the finds come from and appreciate the historic importantce of these areas.

Four new rooms will be dedicated to the pile-dwelling settlements of pre-Alpine lakes in the Archaeological Museum of Villa Mirabello Varese (end of 2009). The Isolino room will include another cast of the portion of the wood elevation, collapsed on the ground ↘ **Chapter 5.h**. Construction on a larger museum is in progress in Piadena. The Museum of Desenzano will start extension work in 2010, and in 2011 the exhibition will be enlarged and enhanced with the introduction of a permanent didactic section and of a room dedicated to the territory's pile dwellings. In the Museum of Gavardo, a new laboratory for storage and study of the materials (reconstruction, drawing, etc.) will be realized.

All six municipality museums and the Sirmione Museum offer a wide range of activities and attractions (for both students and adults) concerning pile dwellings. These include laboratories, simulated excavations, experimental archaeology or tours of excavations. The Museums of Desenzano and Gavardo are creating a special laboratory ('Le palafitte di area gardesana') focusing on archaeological and palaeo-ecological aspects, linked with a visit to the site of Lucone.

Study of the Neolithic and Bronze Ages is part of Italy's school history programme, and the pile dwellings are of course integrated into this subject.

In October 2008 (based on the 2006 palaeobotanic analysis result), a 'neolithic dinner' was organized by the Prehistoric Museum of Isolino Virginia. It followed closely on the last excavations ↘ **Fig. 5.66**, for example at the site of Isolino Virginia (IT-LM-09).

The Museums of Gavardo and Desenzano are planning an international congress on pile dwellings in Europe for 2010. This congress will represent a unique opportunity to share knowledge of pile dwellings. Another museum, the 'Museo Archeologico dell'Alto Mantovano' in Cavriana, is preparing an international congress about 'Brotlaibidole' (characteristic objects of pile-dwelling sites of the Bronze Age, ↘ **Fig. 5.67**). A website – www.tavoletteenigmatiche.it – exists in Italian and German.

↘ **p. 474**

Fig. 5.66 In October 2008 the Pre-Historic Museum of Isolino Virginia invited to a dinner after the public visit of the excavation. The menu was inspired by the Neolithic diet from about 7000 years ago and based on palaeobotanic analysis result.

↘ **p. 474**

Fig. 5.67 The 'Museo Archeologico dell'Alto Mantovano' in Cavriana, is preparing an international congress about 'Brotlaibidole', characteristic objects of pile-dwelling sites of the Bronze Age.

Piedmont

Within the development of the Viverone archaeological area (IT-PM-01), the Museum of Antiquities in Turin intends to resume underwater research. The 'Museo del Territorio Biellese' has started publication of monographs concerning the museum's collections. The Musem of Antiquities in Turin – supported by the local Superintendence for Archaeological Heritage – publishes each year the 'Quaderni della Soprintendenza Archeologica del Piemonte'. The Museum is to open a museum close to the Viverone archaeological area. The Museums of Biella, Torino and Arona offer a wide range of activities and attractions for students concerning pile dwellings, including laboratories, simulated excavations, experimental archaeology, etc. The Archaeological Museum of Arona – in cooperation with the 'arco dei Lagoni di Mercurago' (IT-PM-02) and the 'Museo del Territorio Biellese' – is launching a multimedia education project.

Trentino South Tyrol / Autonomous Province of Trentino

Studies on archaeological finds, archaeobotanical, dendrochronological and radiometric analysis are ongoing at the Ledro pile-dwelling site (IT-TN-01); as well as paleoclimatic studies (CNRS; Sopr.Arch.Trento; Museo Ledro; Magny et al. 2009). In Fiavé (IT-TN-02) a project concerning wooden finds' conservation was launched in 2009, in cooperation with CNR IVALSA. Dendrochronological and radiometric analysis are expected for all the usable samples. In addition, study of the archaeological finds from Fiavé-area 4 (Marzatico, 1996 excavations) is ongoing. The Museum of Ledro is due to undergo requalification, after which the exhibition will be renewed.

The 'Museo Parco delle Palafitte di Fiavé' is planning reconstruction of four pile-dwelling houses and of the foundation grid of Fiavé 6 phase within an archaeological park. The park will host an information centre, a special area for experimental archaeology and learning activities. The Museum of Ledro offers a wide range of activities for students concerning pile dwellings – laboratories, simulated excavations, experimental archaeology, etc. as well as a impressive summer programme. In Fiavè, the archaeological area has been hosting (since 1999) family, school and adult activities, as well as scientific meetings for university students, post-graduates and archaeologists in general.

Veneto

The local Superintendence for Archaeological Heritage is to resume excavation of the pile-dwelling site of Tombola di Cerea (IT-VN-06), while the Museum of Vicenza will resume its excavation of the pile dwelling of Fondo Tomellero. The Museum of Verona plans to publish the complete inventory of bronze objects found in the 19th century in the Gulf of Peschiera, together with the results of the archaeometric analysis carried out on bronze and pottery.

The Museums of Cavaion and Legnago are cataloguing finds from old and recent digs (Cà Nova, Dossetto di Nogara (IT-VN-03) and Tombola di Cerea (IT-VN-06)), while the Museum of Cavaion is also enlarging the exhibition rooms. The national Museums of Este and Legnago offer extensive laboratory facilities for students. The Museum of Legnago will renew all didactic support (due 2010).

Slovenia

In Slovenia, pupils already learn about the pile-dwelling period in elementary school. The Slovene writer Janez Jalen has instilled Ljubljansko Barje into the minds of Slovene scholars through a history novel about pile dwellers 'Bobri' (Beavers) ↘ Fig. 5.68. A few cultural events are organized in the spirit of the novel. For the past couple of years visitors can participate in so called 'The Pile-dwelling Day at Ig', organized by the Cultural Association Fran Govekar, where the whole day is dedicated to the prehistorical residents of the Ljubljansko barje. The visitors learn how our ancestors lived, try their skills in making clay pots and jewellery, in preparing dishes (bread and meat), in archery and canoeing. The experts in archaeology share their knowledge and experience with people, and amateur theatre performs scenes from Janez Jalen's novel.

The City Museum of Ljubljana organizes educational workshops for children of all ages. For instance, a recent workshop entitled 'The Woman from Ljubljansko barje' is about making clay pots. Children listen to stories about a normal day-to-day life from the time-period while being shown the original artifacts from the Ljubljansko barje. Afterwards, they learn about pottery and metalworking and are then given the opportunity to create some products of their own.

Scientific research at Ljubljansko barje has been going on for years, lately as part of the project 'Multidisciplinary investigations of the pile dwellings in the Ljubljansko barje'. Some excavations are planned for the 2009 to collect samples of wooden piles for dendrochronological research as well as to obtain new archaeological data. New discoveries have been simultaneously published in scientific papers. In 2009, a monographic series 'The pile-dwelling settlement Stare gmajne and its era – The Ljubljansko barje in the 2nd half of the 4th millennium BC' will be issued.

The excavations always attract people from the surroundings who want to learn more about the history of the place, therefore it is an excellent opportunity to spread the knowledge of pile-dwellings. Pupils from elementary schools are regular visitors at all excavations at Ljubljansko barje and are guided around the site by the archaeological team at the field.

For the time being the Institute of Archaeology, Scientific Research Centre, Slovenian Academy of Sciences and Arts, and the Municipality of Ig are preparing documentation for an open-air reconstruction of a pile-dwelling settlement in the Ljubljansko barje region.

↘ p. 475

Fig. 5.68 The Slovene writer Janez Jalen introduced Ljubljansko Barje to Slovene pupils in his very popular history novel 'Bobri' (Beavers) about pile dwellers. A number of cultural events are staged around this novel.

5.i Policies and programmes related to the presentation and promotion of the property

5.j Staffing levels

Switzerland

The care of archaeology and wetland settlements is always in the hands of professionals ↘ Chapter 5.g. The responsibility falls to the cantons, which assure the highest quality at all levels, from the administration to education, from excavations to laboratories. The federal government ensures that the cantons have competent authorities at their disposal: it may support the cantons by making experts available or by commissioning reports on specific topics from the Federal Commission for Historic Monuments. As is shown in the itemisation of costs in ↘ Chapter 5.f, ↘ Fig. 5.8, the cantons usually have sufficient staffing resources.

The cantons are committed to employing only professionals with academic references or members of recognised institutions for the undertaking of specific research in the field of wetland studies (scuba diving, archaeobiology, pollen analyses, sedimentology, dendrochronology etc.).

The cantons are committed to supporting the next generation of researchers by employing students either as interns or in other roles if they wish to specialise in certain fields. They also support training programmes for site technicians, thereby ensuring a continued development of excavation techniques on dry land. The same applies to the training of scuba divers.

Austria

In Austria, authorization for the study of archaeological find spots has to be obtained from the Federal Historic Preservation Agency (Bundesdenkmalamt), and is only issued to individuals with pertinent academic studies. An exemption from this obligatory authorization by the Bundesdenkmalamt exists only for research by the Bundesdenkmalamt itself and studies directly commissioned by the Federal Ministry for Education, Arts and Culture or a head of a provincial government. This ensures high quality of work and also assures regular reporting. Authorizations can be subject to limitations, conditions and special rules (concerning surface and depth, method of execution, notification requirements, controls etc.). There is no legal claim to an issue of digging authorization on the basis of the provisions of the Historic Preservation Law (DMSG §11).

The leading archaeologists active in wetland archaeology regularly attend congresses in Austria and abroad – for example the annual international meeting of the working group underwater archaeology, and all have additional training in methods and techniques of underwater archaeology. Cooperation projects with European colleagues offer them a global view on super-regional archaeological issues. Dating and conservation of wood samples is provided by several institutions at Austrian universities: the working group on dendrochronology at the Department of Geography at the University of Innsbruck (www.uibk.ac.at/geographie/forschung/dendro), the Department Dendrochronology of the Vienna Institute for Archaeological Science at the University of Vienna (www.univie.ac.at/idea/dendrochronologie.html) and the Institute of Wood Science and Technology at the University of Natural Resources and Applied Life Sciences in Vienna (www.map.boku.ac.at/holzforschung.html).

France

The management and conservation of archaeological sites in general and of underwater deposits in particular are under the areas of competence of professionals in the civil service (Ministry of Culture and Communication). In France these areas are centralised and their organisation is standarised throughout the national territory; in the regions, the curators and engineers of the devolved services of this ministry (heritage services of the regional departments of cultural affairs) are in charge of the inventory and protection of sites and of the scientific and technical control of operations. In view of the specific nature of wetlands and aquatic environments the Ministry of Culture and Communication has a specialised service with national jurisdiction, the Département des recherches archéologiques sous-marines et subaquatiques (DRASSM) (Department of underwater and submarine archaeological research), made up of State employees who are high-level scientists competent to work in hyperbaric environments and who assist the regional services in all matters pertaining to this sphere. They direct the research themselves, provide impetus for programmes, develop methods and are involved in supervising archaeologist divers and in circulating information.

Other public research bodies, like the Centre national de la recherche scientifique (CNRS) (National Centre for Scientific Research) and the Institut de recherche en archéologie preventive (INRAP) (National institute for research in preventive archaeology), may employ specialists who are authorised by the regional department of cultural affairs with territorial jurisdiction to carry out excavations and prospecting operations in wetlands and lake environments. At the present time, no territorial collectivity, non-governmental organisation or private operator employs specialists in underwater archaeology. The new French legislation does, however, open up this possibility ↘ **Chapter 5.b**.

Lastly, the specialised disciplines used in the study of underwater deposits – dendrochronology, palynology, sedimentology, etc. – are developed in the universities and research laboratories which take in and train young researchers. Where archaeological research on pile dwellings is concerned, the University of Franche-Comté (Besançon) is the most involved, in particular in respect of the topics dealt with by the chrono-environment Laboratory: society, material culture, human impacts on vegetation, systems of reference and paleoenvironment.

Germany

Baden-Württemberg

In Germany the individual states are responsible for the care and preservation of ancient monuments. On the 1st January 2005 an administrative reform came into effect in Baden- Württemberg. Since then there has been no central state cultural heritage protection department. Instead, heritage protection (as well as all state administration structures in Baden-Württemberg) has been subdivided into a three tier system: a topmost level in the Ministry of Economics (Wirtschaftsministerium), a mid level incorperated into the four regional councils (Regierungspräsidien) and a lower culturel heritage protection administration at local level (untere Baurechtsbehörde).

Statewide scientific support, administrative coordination and guidance are the tasks of the State Cultural Heritage Department (Landesamtes für Denkmalpflege), as a department of the Stuttgart Regional Council (Regierungspräsidium Stuttgart). The branch for wetland archaeology is affiliated to the State Cultural Heritage Department (Abt. 8, Referat 85).

The wetland archaeology branch within the Stuttgart Regional Council is a highly specialised unit for underwater archaeology. It is based in Gaienhofen-Hemmenhofen and organises surveys, rescue excavations and research as well as procedures for

the protection of wetland settlement sites in Upper Swabia and on Lake Constance. The team consists of two permanently employed archaeologists, an excavation technician, an archaeological research diver as well as other technical staff. The cultural heritage department's dendrochronology laboratory is also based in Hemmenhofen. The laboratory predominantly analyses wood from the wetland settlements.

The unit in Gaienhofen-Hemmenhofen also organises interdisciplinary research and protection and management projects. At present eleven further archaeologists, scientists and technical staff are employed using financial resources from the German Research Foundation (Deutsche Forschungsgemeinschaft) and the EU (Interreg IV, Alpine Rhine-Lake Constance-Upper Rhine). Prospection and excavations are carried out only by the wetlands archaeology branch itself or on its behalf. Excavations are done with the help of archaeology students on short term contracts as well as three diving firms specialising in underwater archaeology and excavation in winter.

Bavaria

In all cases, the Free State of Bavaria is only employing professionally trained staff with academic references ↘ Chapter 5.g or members of recognised organisations for the undertaking of specific research concerning wetland archaeology. All kind of archaeological labour underwater has to be outsourced by the State Conservation Office (Bayerisches Landesamt für Denkmalpflege) due to the lack of an institutionalised underwater archaeology in the Free State of Bavaria. Usually, all underwater activities are commissioned to the Bavarian Society for Underwater Archaeology (Bayerische Gesellschaft für Unterwasserarchäologie e. V.), a non-governmental organisation. The members of the Society for Underwater Archaeology work as volunteers. Some of them are professional archaeologists and / or scientific divers, which secure the quality of the conducted work. Research excavations in wetland sites will be carried out by the staff of the Bavarian State Conservation Office. Rescue excavations are generally performed by private archaeological excavation companies who work according to standards (Grabungsrichtlinien) framed by the State Conservation Office.

Italy

The legal ownership and competence on protection, conservation and improvement of pile-dwelling sites belong to the State that exercises them through the Ministero per i Beni e le Attività Culturali (MiBAC). S.T.A.S. (Sezione Tecnica per l'Archeologia Subacquea) and N.A.U.S.I.C.A.A. (Nucleo Archeologia Umida Subacquea Italia Centro Alto Adriatico) are central branches of the Ministero with specific technical competences in underwater archaeology (also in inland waters). I.S.C.R. (Istituto Superiore per la Conservazione e il Restauro) gives to MiBAC a scientific and technical support when very complex actions occur for restoring and preservation.

Nevertheless most of the protection and conservation activities are exercised by the Ministero's periferic branches (Soprintendenze per i Beni Archeologici – SBA). SBA has professional archaeologists, with a post-university degree, and qualified restorers for all the above mentioned concernings, expecially in case of emergency digs.

The role of experts to act as consultants (Society of professional archaeologists or private Agency) has been growing in the last years. They operate under the SBA's control, both during excavations and laboratory analysis (sedimentologic, archaeobotanical and dendrochronological analysis). Since 2004 dendrochronology must be carried out in accordance with the rules of UNI 111141.2004 standard (www.uni.com/uni/controller/en).

Universities, museums and research agencies can carry out planned archaeological research, under MiBAC concession. In these cases, besides the administrative and technical ordinances and the scientific responsibility of the licensee himself, no specific operative standard exists. Usually a trained archaeologist leads a dig team (sometimes with university students and volunteers) and follows the relevants main steps.

Slovenia

Institutions, which carry out research, excavations and monitoring of pile-dwelling sites at the Ljubljansko barje are the Institute for the Protection of Cultural Heritage of Slovenia, the Institute of Archaeology, Scientific Research Centre at the Slovenian Academy of Sciences and Arts and the Department of Archaeology, Faculty of Arts of the University of Ljubljana (www.uni-lj.si/en). All the institutions employ archaeologists with at least university degree and site technicians with years of working experience. The leaders of projects are highly educated and skilled specialists, mostly with a doctor's degree. Archaeologists with specialization in the neighbouring scientific disciplines (for example in palaeobotany) and specialists of other sciences (biology, geology) taking part in the multidisciplinary research are employed at the laboratory of palaeobotany and in the archaezoology working group of the Institute of Archaeology, Scientific Research Centre at the Slovenian Academy of Sciences. Dendrochronological research is carried out in cooperation with the Department of Wood Technology, Faculty of Biotechnology (University of Ljubljana) which employs scientists with university academic degree of wood science. The Institute for the Protection of Cultural Heritage of Slovenia, a national state institution, performs conservation, protection, preservation and monitoring of pile-dwelling sites. In order to perform all the duties the Institute employs archaeologists with a university academic degree or a doctor's degree who have all passed the state examination to be conservator of cultural heritage. All institutions mentioned offer young graduates mentorships within a frame of postgraduate or post-doctorate study. They can also gain experiences in the field of protection of cultural heritage to become professional conservators.

↖ **p. 435 Fig. 5.43** In 2009, the Association Palafittes published a comprehensive popular science brochure. 100 pages and more than 300 images introduce the pile-dwelling phenomenon to the wider public.

↖ **p. 435 Fig. 5.42** Living the Stone Age lifestyle for several weeks: living-science experiment on television, 'Pile dwellers from Pfyn'.

↖ **p. 438 Fig. 5.44** Events such as 'European Heritage Day', here on 13th September 2009 in Steckborn (canton Thurgau), are always used as opportunities to give people an understanding of their cultural heritage.

↖ **p. 438 Fig. 5.45** School children help to renovate the reconstructed pile dwelling in Seengen (canton Aargau). Several houses are planned to be built in addition to this reconstruction.

↖ **p. 438 Fig. 5.46** The private archaeological collection 'Irlet' in the Fraubrunnenhaus in Twann (canton Berne) still survives largely in the original state of the 1930s. There are plans to inventory this important collection.

↖ **p. 442 Fig. 5.50** Regular Open Days on Lakes Burgäschi and Inkwil are organized in close cooperation between the archaeological Service of Solothurn and the communities.

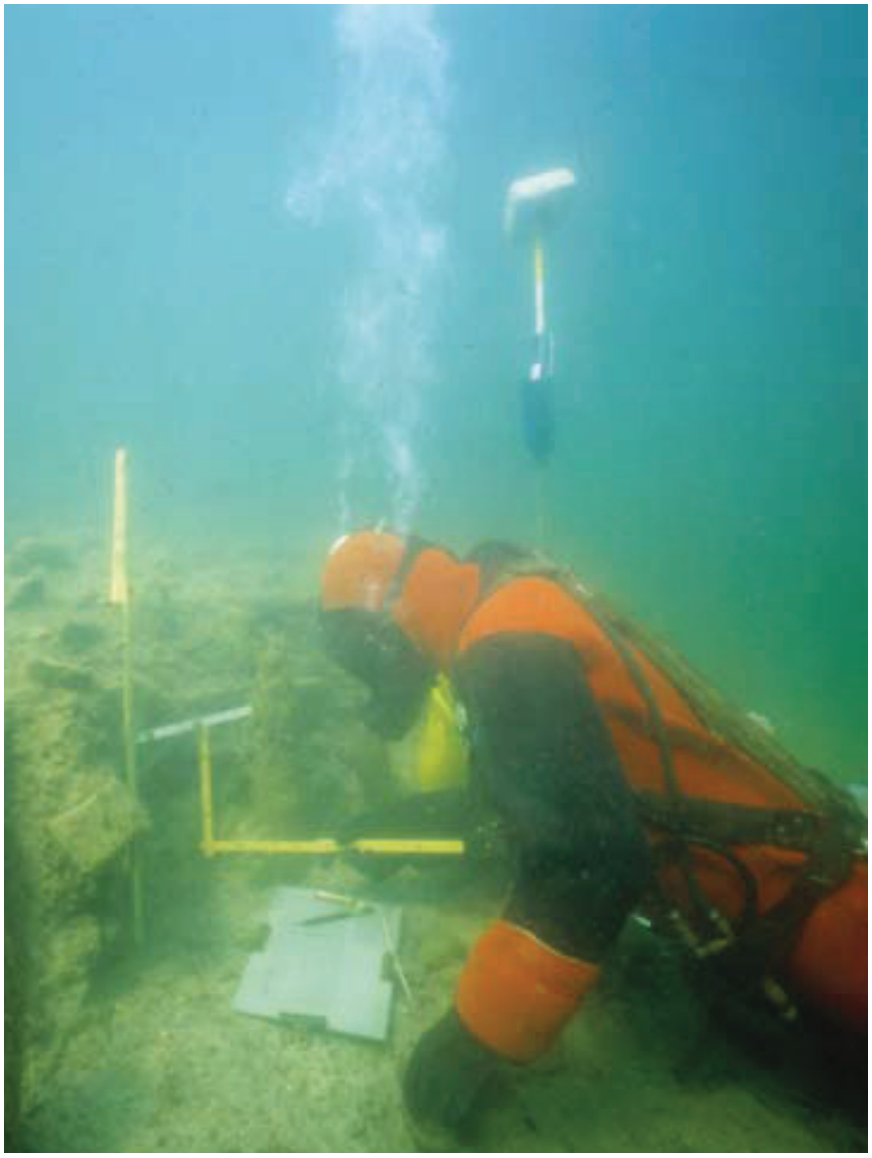
↖ **p. 443 Fig. 5.51** The pile dwellings are an important element in the 'Kulturbaukasten – 36 roofless museums' providing detailed information about 3500 years of cultural history of the new municipal area created by the merging of the Rapperswil and Jona communities.

↖ **p. 440 Fig. 5.47** Thousands of objects are presented on glass-fronted shelves in the 'dépôt visitable' (open collection) of the Laténium (canton of Neuchâtel) and are open to the public on special occasions.

↖ **p. 442 Fig. 5.48** From 2011, the new permanent exhibition in the Museum zu Allerheiligen in Schaffhausen will devote even more space to the pile-dwelling site at Thayngen-Weier (CH-SH-01).

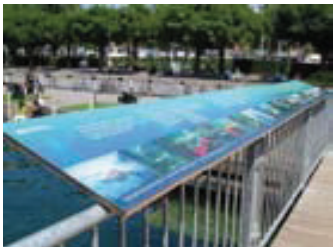
↖ **p. 444 Fig. 5.52** Museum educational activities for schools are an inherent part of practically every museum (shown here the Museum für Urgeschichte(n) Zug).

↖ **p. 442 Fig. 5.49** Due to the fact that the sites in the region of the dam between Lakes Zurich and Obersee are threatened by erosion, archaeological monitoring and research campaigns are still ongoing (shown here the associated site Freienbach–Hurden Seefeld, canton Schwyz).



↖ **p. 447 Fig. 5.55** The workshops on pile-dwelling research and underwater archaeology are among the most popular courses at the Children's University in Vienna (www.kinderuni.at).

↖ **p. 445 Fig. 5.53** There are many occasions where the public can be given information about the cultural heritage of the pile dwellings: during Euro '08 information plaques were installed at the entrance to a VIP float within the fan zone, just above the site Zürich–Grosse Stadt Kleiner Hafner (CH-ZH-10).



↖ **p. 447 Fig. 5.54** This computer-animated reconstruction of a pile dwelling was one of the components of the travelling exhibition 'From Underwater to Public Attention', shown in 2005 and 2006 at numerous locations in Austria, Slovenia and Germany.

↖ **p. 448 Fig. 5.56** In 2001 a website was launched with 400 documents providing comprehensive information about the pile dwellings on Lakes Chalain and Clairvaux (www.chalain.culture.gouv.fr).

↖ **p. 449 Fig. 5.58** Part of the experiment: Several years have passed since the construction of the houses, which now stand in a small forest and one of them has sunk precariously into the water-logged ground.

↖ **p. 449 Fig. 5.57** Experimental archaeology: Life-sized reconstruction of two houses from the Neolithic village of Chalain on the modern lakeshore.

↖ **p. 451 Fig. 5.60** In the coming years core drilling and trial trenching are planned to take stock of the archaeological and water table situationin the Olzreuter Ried (Baden-Württemberg)

↖ **p. 451 Fig. 5.61** 'Uhldi' the Stone Age Man shows children how people used to make fire – one of many big and small events staged by the Pfahlbaumuseum in Unteruhldingen (Baden-Württemberg).

↖ **p. 453 Fig. 5.64** Open-air theatre in the pile-dwelling village: In 2009, the discovery of two children's skulls at the 'Wasserburg Buchau' site was turned into an exciting play to accompany the special exhibition 'Murder in the bog(?)' shown at the Federseemuseum (Baden-Württemberg).

↖ **p. 450 Fig. 5.59** In order to use the media event of the emission 'Steinzeit – Das Experiment. Leben wie vor 5000 Jahren' ↘ **text box** and encourage interest of the viewers in real research into the Stone Age, an exhibition to accompany the television programme was organized.

↖ **p. 452 Fig. 5.62** The 'Pottery Night' held on the night before the European Heritage Day in 2009 gives visitors an impression of prehistoric pottery (Pestenacker, Bavaria).

↖ **p. 452 Fig. 5.63** Teaching unit during the 'Monument Appropriate Diving' course in front of Rose Island (DE-BY-03), performed by the Bavarian Society for Underwaterarchaeology.

↖ **p. 456 Fig. 5.66** In October 2008 the Prehistoric Museum of Isolino Virginia invited to a dinner after the public visit of the excavation. The menu was inspired by the Neolithic diet from about 7000 years ago and based on palaeobotanic analysis result.

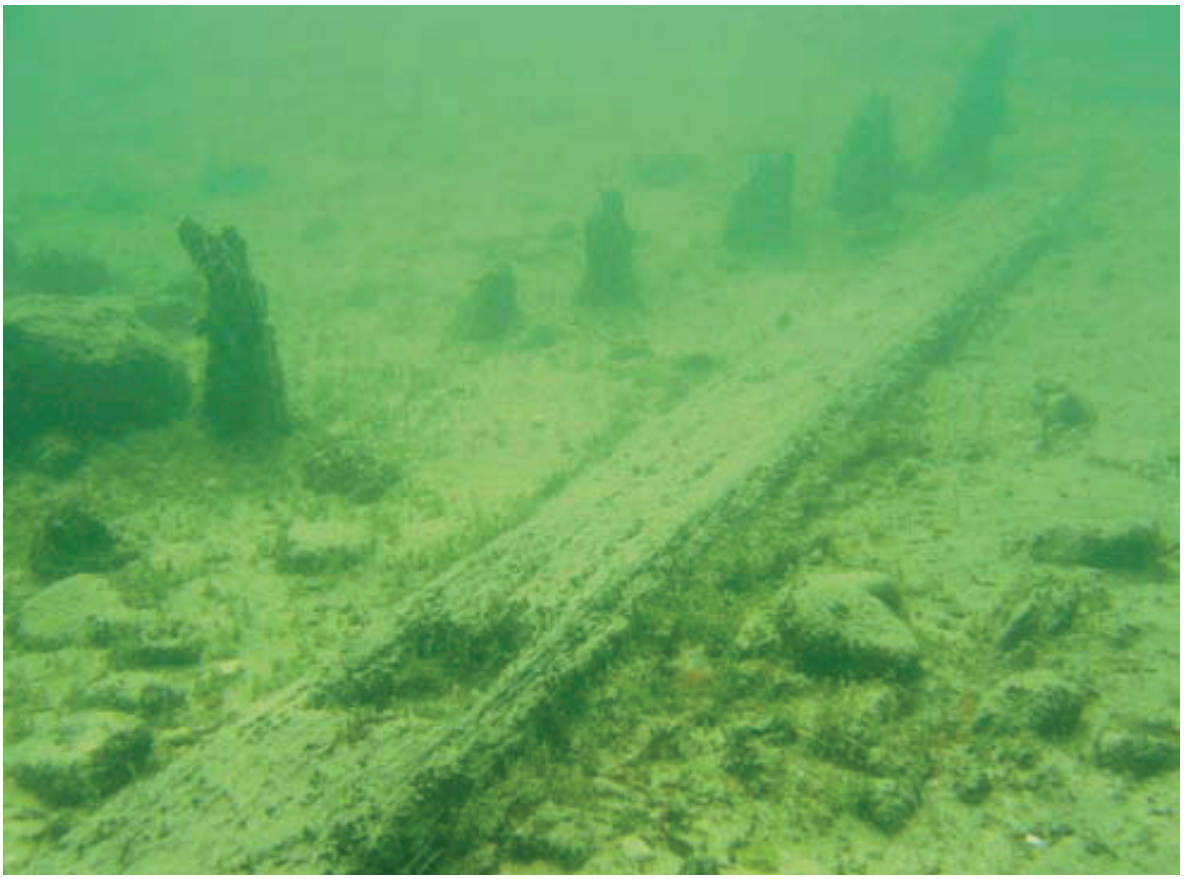
↖ **p. 456 Fig. 5.67** The 'Museo Archeologico dell'Alto Mantovano' in Cavriana, is preparing an international congress about 'Brotlaibidole', characteristic objects of pile-dwelling sites of the Bronze Age.

↖ **p. 454 Fig. 5.65** In the Varese lake area, excavations have been transferred to the Museum', to be available to school classes, and has turned into a learning laboratory.

↖ **p. 458 Fig. 5.68** The Slovene writer Janez Jalen introduced Ljubljansko Barje to Slovene pupils in his very popular history novel 'Bobri' (Beavers) about pile dwellers. A number of cultural events are staged around this novel.

Volume I

6. Monitoring



6.a Key indicators for measuring state of conservation

6.a.1 General

The preservation of organic materials over several thousand years is only possible in anaerobic conditions under water, in complete aridity, in ice or in saline environment. The pile dwellings in the Alpine region are known for their excellent preservation conditions under water. Depending on the type of site, the archaeological layers are situated either beneath sediment on the bottom of a body of water or in waterlogged layers in wetland areas.

The undisturbed deposition under water in a lake or bog results in the excellent preservation of fragile objects made of organic materials such as wood, bark, antler or textiles. Therefore, a good state of conservation is defined by the condition of the finds and architectural features made from organic materials, while the absence of organic materials indicates the extent of degradation of a site.

Because of the various situations and layouts of the sites, different indicators must be introduced to monitor the state of conservation on the long term. In the Id-files the sites were sorted according the category 'Landscape and surroundings' ↘ Volume II. This category gives a general indication of the type of landscape that surrounds the site.

The following classification was defined:

- Category A: the site is located in the lake, on an undeveloped section of shoreline or in a bog with little construction.
- Category B: the site is located entirely or partially on dry land and near existing towns or villages. The location is either a zone of average development density or agricultural usage.
- Category C: the site is located in an urban zone that is already developed.

The key indicators relevant to each category can be listed according these categories ↘ Fig. 6.1. The definitive assignment of the indicators to the single component parts, the periodicity of the measurement and other details will further be developed in the updated Management plan in 2011.

Indicator	Category A	Category B	Category C	Comment	Periodicity	Responsible Authority	Location of Records
Sediment cover	■	–	–	Erosion markers (erosion rate in centimeter per year).	Every 1–6 years	International Coordination Group in collaboration with the regional institutions ↘ Chapter 6.b	Regional and local institutions ↘ Chapter 6.b
Vegetation cover	■	–	–	Measurement of the decrease of reed covering on the base of aerial photographs (optic comparison, surface comparison).	Every 10-15 years	International Coordination Group in collaboration with the regional institutions ↘ Chapter 6.b	Regional and local institutions ↘ Chapter 6.b
Leisure activities and Shipping traffic	■	■	–	Verification of the increase of boat traffic (statistic values).	Every 5–10 years	International Coordination Group in collaboration with the regional institutions ↘ Chapter 6.b	Regional and local institutions ↘ Chapter 6.b

↓

↓

Lowering of groundwater table	■	■	■	Grid of piecometer measurement.	Permanent	International Coordination Group in collaboration with the regional institutions ↘ **Chapter 6.b**	Regional and local institutions ↘ **Chapter 6.b**
Non-natural shores	■	■	–	Renaturation of lake shores within land management plans; evaluation of progress thanks to renaturation.	Every 10–15 years	International Coordination Group in collaboration with the regional institutions ↘ **Chapter 6.b**	Regional and local institutions ↘ **Chapter 6.b**
Lake level fluctuations	■	■	–	Due to long and dry periods in winter, the water levels can drop. Sites threaten to dry and freeze. Until now this is a rare phenomenon. But the global climate change can increase the risk and the phenomenon should be closely observed in the future.	Every 10–15 years	International Coordination Group in collaboration with the regional institutions ↘ **Chapter 6.b**	Regional and local institutions ↘ **Chapter 6.b**
Increase of urbanization	–	■	■	Control of the modification of land management plans and densification of inhabited areas (only relevent for the sites in urban areas).	Every 10–25 years	International Coordination Group in collaboration with the regional institutions ↘ **Chapter 6.b**	Regional and local institutions ↘ **Chapter 6.b**

Fig. 6.1 Key indicators proposed to measure and assess the state of conservation of the property (Legend: ■ significant; – not significant).

6.a.2 Procedures of gathering data for the monitoring of the state of conservation

Various methods are available to measure the state of preservation and to track the dynamics of change at archaeological sites in lakes and bogs. The methods employed under water are fundamentally different to those used in wetland areas.

Methods employed in lakes and rivers

Mapping and surveying

While personal observations can sometimes provide invaluable information in terms of assessing underwater sites, they are almost impossible to utilize and reproduce if they are not linked with exact mapping data. Therefore, the evaluation of sites as part of a monitoring project usually starts with mapping the visible features. This can be performed with varying degrees of precision. Precise mapping, particularly high-precision levelling under water can be very laborious. In order to pinpoint the boundaries of a pile field, a precision of several metres is sufficient, whereas the determination of erosion rates in centimetre ranges only makes sense if a great mapping precision can be achieved. Hence the employment of GPS instruments and tachometers is necessary.

Underwater archaeological inventories record the geological substratum, the stratigraphic situation, the spatial expansion of the archaeological features and the preservation conditions. Basic information about the state of a site such as its extension, the type and thickness of the overburden as well as the condition of its timber constructions and surface finds can be gained by diving or even from a boat.

Test drillings record the thickness of the archaeological layers. These data provide invaluable indications as to the extension of a site, its state of preservation and changes occurring over time.

Hydrographical methods and remote sensing techniques

Hydrographical measurements provide a quick overview over large areas. Technologies used are side scan sonars, single and multi-beam sonars and sediment echo sounders.

In ideal cases, remote sensing from the air can also assist in measuring the state of preservation. This involves targeted fly-overs in good weather conditions and orthophotographs. The combination of aerial photography and hydro-acoustic methods is another option.

Erosion markers

Erosion markers include installations on lake beds ↘ text box that allow long-term observation of erosion processes. Various versions are employed:

1. Erosion markers made of wood or metal. Depending on the system, massive stakes or poles are driven into the ground, either flushing with the subsoil or protruding at certain defined heights from it, and precisely mapped. These markers must be checked regularly. The change in height of the surrounding sediment determines the rate of erosion. It is a simple but efficient method that provides useful information for the evaluation of the state of preservation, particularly in the long term.
2. Sedimentation Erosion Tables (SET). These were developed by limnologists and sedimentologists and are used to gather precise measurements of sediment changes. SETs allow to measure the ground from a measuring plane installed at a certain distance from the lake bed. Metering needles are lowered onto the lake bed from a plane board in order to measure the levels. This method provides very precise values.
3. Measuring chains. Steel or plastic link chains are embedded in the subsoil by means of a device specifically developed for this purpose. The number of links that lie horizontally on the lakebed show the extent of sediment erosion
4. Ceramic erosion markers. A certain number of marked ceramic discs are scattered along a particular line and then mapped. The condition of the lake bed is recorded and the data form the basis for later checks.

Methods employed in wetland areas

Mapping and surveying

Mapping in wetland areas does not pose any difficulties and is carried out with the usual geodetic methods. Basic information for the evaluation of wetland sites can be gleaned from field walking and monitoring drainage trenches. Sediment secretions from animal disturbances can also provide clues.

In many cases, test drillings are the best method of surveying wetland areas. Small excavation trenches have also proved to be useful for the evaluation of settlement structures in wetland areas. Timber fragments recovered during test excavations can provide information about the state of preservation of organic cultural layers. The degree of decay seen on these timber fragments provides important clues as to the degradation of the archaeological features.

Measuring of groundwater levels

Measuring groundwater levels is one of the most important methods of assessing the state of organic layers in wetland areas. This applies particularly to settlement remains in areas with fluctuating groundwater tables. Various piezometer installations are used to measure the groundwater level at certain intervals either mechanically or by means of data loggers, so that a seasonal hydrograph is recorded ↘ text box. Simple gauge boards are sufficient to monitor open water channels in areas containing archaeological remains.

Mapping and observing the vegetation cover

Vegetation may serve as an indicator of the moisture content and provide information on the development of a wetland. The present-day root penetration particularly of reeds and copses can have a negative impact on the preservation of settlement structures and requires close attention.

6.a.3 Maps and inventories as a basis for the evaluation of the state of conservation

The heritage protection authorities in the countries surrounding the Alps have attempted since the 1980s to gather necessary data to maintain fragile cultural goods under water and in wetland areas. First and foremost, these endeavours have taken on the form of projects which entailed mapping prehistoric settlement areas. Such projects have been carried out in various regions:

- Southern part of Lake Constance (canton Thurgau, Switzerland) 1981–1983
- Northern part of Lake Constance and Upper Swabia (Federal state of Baden-Württemberg, Germany) 1979–1983;
- Lakes in the Salzkammergut: Lake Hallstättersee, Lake Mondsee, Lake Fuschlsee, Lake Irrsee, Lake Traunsee and Lake Attersee (Federal states of Oberösterreich and Salzburg, Austria) 1970–1984;
- Lake Bienne (canton Berne, Switzerland) 1984–1987;
- Lake Zurich (inclusive Obersee), Lake Greifensee and Lake Pfäffikon (cantons Schwyz, St. Gall and Zurich, Switzerland) 1996–1998;
- Lake Zug and Lake Ägeri (canton Zug) 1993–2000;
- Lake Morat, Lake Neuchâtel and the northern part of Lake Geneva (cantons Fribourg, Geneva, Vaud, Switzerland), 1994–2001;
- Lake Sempach (canton Lucerne, Switzerland), 2004;
- Lakes in the Upper Savoy alpine region: Southern part of Lake Geneva, Lake Aigebuelette, Lake Bourget and Lake Annecy (Department of Haute-Savoie, Region of Rhône-Alpes, France) 1995–2001;
- Lakes in the Jura mountain range: Lake Chalain and Lake Clairvaux (Department of Jura, Region of Franche-Comté, France) 2000–2001;
- Southern part of Lake Garda (Region of Veneto, Italy) 1989–2003.

Various methods were employed in these projects, including underwater archaeology and underwater surveying as well as bog archaeology in wetland settlements. The mapping of pile fields, drillings and test excavations provided insight into the geological and anthropogenic layers of the sites. In conjunction with natural sciences, materials for dating and samples of finds were recovered which assisted in the cultural evaluation of individual settlements or layers.

Particularly close attention was always paid to the state of conservation of the sites. The methods applied in these investigations varied and were derived from different traditions of research.

In many cases, however, the gained archaeological insight was accompanied by the realisation that erosion had occurred in the shallow water areas of the lakes and drying out had caused damage in the bogs. In Switzerland and in Baden-Württemberg these observations led to the introduction of the first erosion protection measures.

6.a.4 Interdisciplinary projects of measuring the state of conservation

Besides numerous individual projects set up by various heritage protection agencies since 1983 in an effort to gather data on the condition of the archaeological remains and to put in place protection measures, several projects with an interdisciplinary approach to developing comprehensive solutions for large areas with archaeological remains have been launched since 2002.

'Archaeology and Nature Conservation in the Federsee Bog' (Baden-Württemberg, Germany), 1985–2012, www.NABU-Federsee.de

At Lake Federsee, representatives of nature conservation agencies and of the State Heritage Service Baden-Württemberg decided in 1985 to launch a project to extend the existing nature reserves and to set up archaeological reserves with raised bog water levels. This required comprehensive mapping and test excavating with the aim of documenting the archaeological remains. Exposed profiles, drillings and small test excavations were used to gain detailed insight into the geological condition and the state of preservation of the bog. By installing numerous water level gauging stations and mapping the hydrological situation, information was gathered on the groundwater conditions and the fluctuations of the bog water levels. These measures were supported by the purchase of land, which was deemed to be of archaeological relevance and by a programme of rezoning, thus disentangling the interests of agriculture on one hand and heritage and nature conservation on the other. Moreover, the information available to the public about archaeological and cultural heritage was improved by expanding the Federsee Museum. Besides the State Heritage Service Baden-Württemberg and the District Office for Nature Conservation and Landscape Preservation Tübingen, other institutions involved were the NABU-Nature Conservation Centre Federsee, the Land Consolidation Office Riedlingen, the Real Estate Department Ulm, the Community Administration Association Federsee and the Federsee Museum Bad Buchau. Promotional funds came from the EU Life and Leader support programmes, and the German Research Foundation funded the scientific and archaeological analyses. As part of these projects new management plans for the area were set up and a programme of monitoring the bog water tables was launched. The monitoring programme also provided a means to observe the archaeological sites. An exhibition shown at the Council of Europe in Strasbourg in 1999 outlined the initial success of the project and was accompanied by a publication in three languages.

The measures have since been maintained in the northern part of the Federsee region as part of the project 'Restoration of habitats in the Federsee Bog'. In 2009 the ground-breaking ceremony for the wetland restoration project took place following a comprehensive hydrological study carried out by the University of Nürtingen. The areas concerned are situated within the archaeological settlement areas. The project involves blocking and covering drainage ditches and reopening water courses running into the archaeological zones. The groundwater is monitored by means of a network of piezometers (weekly readings). A further method of gauging changes in the moisture content is to map changes in the vegetation and small fauna of the area. Monitoring of the state of preservation of the archaeological features will further enhance the data already compiled and will continue in spot-checks at five to ten-year intervals.

EROSEE – Erosion processes and shoreline stability at inland lakes. The formulation of evaluation criteria for the protection of shallow banks using the example of Lake Bienne (Switzerland), 2002–2006, www.erosee.org

Since 1985, the Society for the Protection of Lake Bienne has successfully maintained projects for the protection of the shore vegetation on Lake Bienne. However, the increased experience in nature-orientated water construction also revealed the existing gaps in their knowledge. It became apparent that the knowledge was insufficient regarding both the hydromorphological processes occurring at lakeshores and the required evaluation criteria for the construction of nature-orientated shore protection measures. As a consequence, between 2002 and 2006, the Society for the Protection of Lake Bienne launched a research project called EROSEE aimed at providing answers to the most urgent questions.

Based on field measurements, and physical hydraulic and numerical modelling, scientifically proven evaluation criteria for the development of lasting nature-orientated measures for the erosion protection of lakeshores were formulated. The relevant factors such as bathymetry, sediment qualities, as well as wind and wave climate were measured in the field at five different locations on Lake Bienne. These measurements were aimed at quantifying the interaction between protection measures and waves in order to calibrate the numerical and physical modelling. Under the leadership of the Society for the Protection of Lake Bienne, various institutions acted as project partners and funders: the Swiss Federal Institute of Technology Lausanne, Berne University of Applied Sciences Burgdorf, the Civil Engineering Department of canton Berne, the Federal Office for Water and Geology, the Landscape Protection Foundation and the Society of Bioengineering. The Archaeology Department of canton Berne was involved in the practical implementation of the project. From this resulted in the installation of extensive erosion protection measures in the prehistoric settlement areas of Lake Bienne (sites of Sutz-Lattrigen) between 2002 and 2006.

Project Interreg IV 'Erosion and heritage protection at Lakes Constance and Zurich' (Germany, Austria, Switzerland), 2008–2011, www.erosion-und-denkmalschutz-bodensee-zuerichsee.eu

German, Swiss and Austrian archaeologists, heritage protection officers, museum specialists and lake researchers came together in 2008 to set up a project aimed at investigating the causes of erosion taking place at the Lakes of Constance and Zurich, testing ecologically sustainable erosion protection measures and preparing for an improved long-term monitoring of the underwater cultural heritage. Set to run until 2011, the project is co-funded by the European Union and various Swiss cantons as part of Interreg IVA. One of the main goals is to develop working methods and measuring techniques that can be employed in monitoring underwater heritage in subalpine inland lakes.

For this purpose, five scuba diving teams with experience in the area of pile-dwelling settlements have been invited to share their varied experiences in mapping archaeological phenomena. Particular attention is being paid to recording the current state of preservation and to documenting indicators of processes of erosion and accumulation. The gathered data are recorded digitally and transposed onto maps. The project incorporates aerial photographs and hydrographic measurements in the analysis of the archaeological data gathered by divers. In order to monitor the sites over a number of decades, checkpoints (so-called erosion markers) are installed on the lake bed and various devices are tested as to their suitability to precisely measure erosion rates. The results of the investigation will be outlined in a report which will introduce various methods of monitoring the situation in the shallow waters of

lakes. The insight gained from the example of Lakes Constance and Zurich can also be called upon when monitoring programmes are established at other lakes throughout the circum-Alpine region.

The following institutions and underwater archaeology teams are involved in the project: the State Heritage Protection Service Baden-Württemberg, the Hemmenhofen Centre (Lead partner), the Departments of Archaeology Thurgau and Zurich, the Vorarlberg State Museum, the Institute of Lake Research of the State Department of the Environment Baden Württemberg, the Limnological Institute of Constance University, the Institute of Water Research of the Swiss Federal Institutes of Technology, the Working Group Shores of Lake Constance, the scuba diving team of the Department of Urban Development of Zurich City, Section Underwater Archaeology, the scuba diving team of canton Thurgau and UWARC, TERAQUA and TERRAMARE, the diving teams working on the German shoreline of Lake Constance.

Monitoring of prehistoric bog settlements in canton Berne (Switzerland), 2005–2015

Since the 1980s, the Archaeology Department of canton Berne has invested considerable resources from its budget for the areas of underwater and wetland archaeology in the pile dwellings on Lake Bienne. Because of its topographic situation, the canton also contains several sites on small lakes and in wetland areas. While the negative impact of erosion is a visible problem at Lake Bienne, for a long time it was not realised that the sites in wetland areas were threatened by drying out. A monitoring project started in 2005 with drillings and test excavations in the immediate vicinity of Lake Lobsigen, a small body of water situated south of Lake Bienne. The project aims to develop methods that will allow us to objectively gauge the condition of wetland settlements. For this purpose, a network of piezometers was installed which provides hourly readings of the changes in the groundwater table. These data are correlated with information about rainfall, in order to provide insight into the speed at which water flows in and out of the sites. Other parts of the project involve micromorphological and archaeobotanic analyses of the sediments in terms of their state of conservation. By using pedological methods, the project also aims to identify parameters concerning the transformation of organic soils. Project partners under the leadership of the Archaeology Department of canton Berne are the Universities of Basel and Zurich as well as a private specialist agency. An extension of the already existing nature reserve and the wetland restoration of areas near the lake are currently being evaluated in collaboration with nature conservation organisations and cantonal institutions.

6.a.5 International exchange

A Conference with the title ‘Archaeology and Erosion – Measures for the protection of lakeside and wetland sites’ held in Marigny (France) in 1994 brought together for the first time an international group of heritage protection officers and underwater archaeologists to discuss the methods of surveying damage and the implementation of protection measures in pile-dwelling settlements. The round-table, which enabled an international exchange of information about proactive heritage protection under water and in wetland areas throughout the subalpine region, reconvened in 2004 at a conference in Neuchâtel (Switzerland). Comprehensive proceedings of both conferences have been published. The next conference is planned to take place in 2014 in Constance (Germany).

As part of the *European Convention on the Protection of the Archaeological Heritage of 1992*, heritage protection officers and archaeologists met at the so-called PARIS conferences (London in 1996 and 2001, Amsterdam in 2006) to discuss methods of preserving archaeological sites, in most cases with organic layers. PARIS stands for 'preserving archaeological remains *in situ*' and the participants pursue similar goals and research questions as the working group 'Archaeology and Erosion'. PARIS 4 is to be held in 2011 in Copenhagen (Denmark).

6.a.6 Ramsar Convention on Wetlands of International Importance

With regard to both submerged sites and sites in wetland areas, the factors threatening the archaeological heritage are closely linked with those causing problems to the protection of the natural vegetation and fauna. In terms of 'non natural shores' for instance, the building up of the lakeshores with walls poses a special problem. Lake-side retaining walls reflect the incoming waves and cause important erosion in the shallow water areas in front of them. Therefore, such walls not only cause problems for archaeological sites because they trigger erosion processes, but also for the natural vegetation and thus indirectly for the fauna. The lakeshore vegetation in Switzerland is highly protected by federal law and numerous cantons are calling for the renaturation of the sections of shores that are built up with walls.

There is a similar connection between commercial shipping and leisure activities on one hand and water and nature conservation on the other. Many of the inland waterways are already under a lot of pressure due to public and private shipping. Busy shipping traffic leads to a greater extent of erosion in respect of the archaeological sites and reed belts. In conclusion, one may state that factors which threaten the archaeological settlement remains usually also pose a problem for nature conservation.

Both lakeshores and wetland areas in densely populated areas throughout Central Europe are among the most threatened landscapes. The ongoing loss of wetland settlements was recognised as early as the 1960s, and in 1971, following lengthy negotiations, the Ramsar Convention on Wetlands of International Importance was adopted. The Ramsar Convention is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. In terms of the Convention, lakes also count as wetland areas in the wider sense. The List of Wetlands of International Importance also contains considerable numbers of bodies of water.

The earliest drafts of the Convention mentioned the cultural value of wetland areas only in passing. It was not until 2008 that the Ramsar Convention on Wetlands 'Culture Working Group' published the document *Culture and wetlands. A Ramsar guidance document*. This document expressly refers to the value and the protection of archaeological heritage under water and in wetland areas (www.ramsar.org/pdf/cop10/cop10_culture_group_e.pdf). Various demands outlined in the document are planned to be included in the Convention at a later date. The document also makes particular reference to the Wetlands Archaeological Research Project (WARP) run by Exeter University and the efforts made by the European Archaeological Council to protect the archaeological heritage in lakes and bogs.

On the basis of the guidance document published in 2008, the cooperation between nature conservation agencies and archaeological services based on the Ramsar Convention on Wetlands may be more meaningful in the future.

Piezometer: Measuring of groundwater levels

As long as archaeological features are located in waterlogged ground, they are well conserved. In submerged sites – provided the lake level fluctuations are not too significant – this does not usually pose a problem. In sites on dry land, however, the situation is different. The lowering of lake levels and drainage operations has resulted in these sites being potentially in the process of drying out.

In order to gauge the state of these sites at regular intervals, the hydrological conditions must be measured. From a technical point of view, the installation of a monitoring network is simple: it only requires the installation of a network of piezometers in the ground. These are pipes of 3 metres in length which are inserted into the ground at regular distances. Small openings on the side allow the groundwater to enter the pipe so that the interior of the pipe is equal to the groundwater table. In order to carry out the measurements, a sensor attached to the end of a measuring tape is lowered into the pipes ↘ Fig. 6.2. Once the probe reaches the surface of the groundwater, an acoustic signal and an LED display are activated. At this point, a reading of the depth of the sensor is taken on the measuring tape.

↘ p. 489

Fig. 6.2 In order to measure the groundwater table at the site Zug–Sumpf (CH-ZG-06), a sensor attached to a measuring tape is lowered into the piezometer pipe. An acoustic signal and an LED display are activated as soon as the sensor reaches the surface of the groundwater. At this stage, a reading of the depth of the sensor is taken on the measuring tape.

Piezometers have been in use in canton Zug (Switzerland) for the past 10 years. The lowering of the lake level by ca. 2.5 m in 1591/92 had led to numerous sites drying out. Today only a small number of sites are located in the lake, while the majority of preserved sites are situated on land. The land reclaimed was originally used for pasture and was later drained.

This was also the case at the site Zug–Sumpf (CH-ZG-06), which was listed as a protected monument by the canton in 1996. A year later the Archaeology Department of canton Zug installed a network of 11 piezometers at 50–100 m intervals over an area of approximately 23,000 m2 and this network is monitored on a weekly basis. The results show that the groundwater table fell below the level of the archaeological layers in some areas in the summer of 2003, when record temperatures were reached. One of the three drainage channels, however, still contained water even during dry periods.

More modern methods which involve permanent electronic readings are being used in Seedorf–Lobsigensee (CH-BE-05). In order to monitor the archaeological layers of the Neolithic bog settlement in the long term, the Archaeological Services of canton Berne launched a monitoring programme at the site in 2008, which will run over several years. In order to gather basic data for the evaluation of the situation, the groundwater table is measured in the area of the archaeological site. Four measuring stations monitoring the groundwater table were installed in December 2008. These are automatic pressure sensors installed in bog hydrological piezometer pipes of 1.3 and 2 m in length. Readings are taken on an hourly basis in order to gather precise data with regard to fluctuations and extreme values due to weather conditions. The values measured are temporarily saved in a data logger from where they can be downloaded onto a mobile PC at three-month intervals. As part of the hydrological analysis, the inflow (precipitation data from neighbouring meteorological stations) and outflow (hydrograph of the groundwater table) can be assessed in relation to each other.

Erosion markers

Erosion around archaeological underwater monuments can take many different forms. Exposed piles, layers containing archeological findings that have been denuded of their protective top layer and exposed findings are all sure signs of the impact of erosion on the lake floor.
Very often, however, the scale and extent of such damage can only be estimated subjectively. In order to make quantitative data available in the medium term, so-called erosion markers have systematically been installed on the shore of Lake Constance in Baden-Württemberg since 2004. These markers are square oak stakes of up to two meters in length that are driven into the lake sediment until they protrude exactly 5 cm above the lake floor ↘ Fig. 6.3. The location of these stakes is recorded in the national coordinate system and the upper edge of the stakes can then be used as a measuring plane. For all subsequent measurements, a simple meter stick is all that is needed to determine the difference between the upper edge of the stakes and the lake floor. The loss of sediment can thus be recorded quickly and easily, and changes monitored over time.

↘ p. 489

Fig. 6.3. So-called erosion markers are a simple method of measuring the erosion rate: an oak stake is located and logged exactly in the coordinate system and the difference between its upper edge and the lake floor is then measured at regular intervals.

Data from just a few years has already shown that different, sometimes even opposing, processes are taking place within individual sites. Erosion seems to depend on the exposure and the slope of the shore, the water level and other factors, and is frequently associated with sediment accumulation in other places. The originally chosen arrangement of the erosion markers in sets of three in Lake Constance in Baden-Württemberg has since made way for a more generous distribution over the entire site concerned. Today, major pile dwelling sites covering several hundred meters, such as Sipplingen–Osthafen (DE-BW-09) and Litzelstetten–Krähenhorn (DE-BW-07), house up to 20 erosion markers that are spread at regular intervals across the sites.
Since 2008, further devices for measuring sediment erosion have been tested as part of the Interreg IV project Erosion and the protection of historic monuments on Lake Constance and Lake Zurich (Erosion und Denkmalschutz am Bodensee und Zürichsee, ↘ Chapter 6.a.4). One important aim of the project is to develop monitoring methods that make it possible to monitor and control underwater sites in the medium and long term. This project creates the essential preconditions for a timely and targeted intervention geared towards the preservation of historical monuments.

↖ **p. 487 Fig. 6.2** In order to measure the ground-water table at the site Zug–Sumpf (CH-ZG-06), a sensor attached to a measuring tape is lowered into the piezometer pipe. An acoustic signal and an LED display are activated as soon as the sensor reaches the surface of the groundwater. At this stage, a reading of the depth of the sensor is taken on the measuring tape.

↖ **p. 488 Fig. 6.3** So-called erosion markers are a simple method of measuring the erosion rate: an oak stake is located and logged exactly in the coordinate system and the difference between its upper edge and the lake floor is then measured at regular intervals.

6.b Administrative arrangements for monitoring the property

General

The monitoring and controlling of the conservation of the sites is one of the tasks carried out by the authorities in charge of the maintenance of the archaeological heritage as outlined in the previous chapters.

The International Coordination Group will make common recommendations and develop strategies for the conservation, protection and monitoring of the pile-dwelling sites ↘ cf. Volume III, Management plan.

Switzerland

In Switzerland, the cantons are in charge of protecting the archaeological heritage. Each canton has its own system of authorities to accomplish the tasks involved. Due to the fact that only certain cantons have underwater archaeology teams, certain projects are tendered to third parties, while the overall responsibility remains in the hands of the cantonal department.

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P +41 (0)22 702 69 89
E pierre.corboud@anthro.unige.ch
www.archeo-info.ch/root/annuaire/associations/grap

Zug ↘

Kantonsarchäologie Zug
Hofstrasse 15
CH-6300 Zug
P 0041 (0)41 728 28 58
E info.arch@zg.ch
www.zug.ch/archaeologie

↘ The Underwater team of the Section Underwater Archaeology of Zurich City is usually charged with carrying out underwater work.

↘ **Stadt Zürich, Amt für Städtebau**
Unterwasserarchäologie
Seefeldstrasse 317
CH-8008 Zürich
P +41 (0)44 387 84 20
E ursula.huegi@zuerich.ch
www.stadt-zuerich.ch/hochbau

Zurich-canton

Kantonsarchäologie Zürich
Stettbachstrasse 7
CH-8600 Dübendorf
P +41 (0)43 343 45 00
E kantonsarchaeologie@bd.zh.ch
www.archaeologie.zh.ch

↘ The Underwater team of the Section Underwater Archaeology of Zurich City is usually charged with carrying out underwater work.

↘ **Stadt Zürich, Amt für Städtebau**
Unterwasserarchäologie
Seefeldstrasse 317
CH-8008 Zürich
P +41 (0)44 387 84 20
E ursula.huegi@zuerich.ch
www.stadt-zuerich.ch/hochbau

Zurich-City

Stadt Zürich, Amt für Städtebau
Unterwasserarchäologie
Seefeldstrasse 317
CH-8008 Zürich
P +41 (0)44 387 84 20
E ursula.huegi@zuerich.ch
www.stadt-zuerich.ch/hochbau

Austria

The Federal Office for the Care of Monuments is in charge of all aspects of heritage protection including the monitoring of archaeological heritage below ground. The State Conservation Departments of Carinthia and Upper Austria are the authorities and service bodies in charge of heritage protection and conservation in the areas of the Salzkammergut (Upper Austria) and the Keutschach Vier-Seen-Tal (Carinthia). Underwater work is usually outsourced to third parties such as the Austrian Association for Wetland and Underwater Archaeology Triton.

Bundesdenkmalamt
Abteilung für Bodendenkmale
A-1010 Wien
Hofburg, Säulenstiege
P +43 (0)1 53 415 267
E archaeo@bda.at
www.bda.at

Landeskonservatorat für Kärnten
Alter Platz 30
A-9020 Klagenfurt
P +43 (0)463 556 30 0
E kaernten@bda.at
www.bda.at/organisation/853

Landeskonservatorat für Oberösterreich
Rainerstrasse 11
A-4020 Linz
P +43 (0)732 664 421
E ooe@bda.at
www.bda.at/organisation/851

Triton – Österreichische Gesellschaft für Feuchtboden- und Unterwasserarchäologie
Judenplatz 1
A-1010 Wien
P +43 (0)676 645 4772
E dworsky@triton.ac.at
www.triton.ac.at

France

The Département des recherches archéologiques sous-marines et subaquatiques (DRASSM) (Department of underwater and submarine archaeological research) is the central service with national juridiction of the Department of Architecture and Heritage of the Ministry of Culture and Communication for the study and conservation of the underwater heritage. Where the Alpine lakes are concerned, it plans and manages excavation and prospecting campaigns; it contributes to establishing and updating the archaeological map of the underwater and littoral heritage; it alerts the competent services and bodies to the risks to which the submerged and littoral archaeological

heritage is subject; it coordinates the national development plan for inland water archaeology; it is the leading promoter of the world heritage dossier.

Ministère de la Culture et de la Communication
Département des recherches archéologiques subaquatiques et sous-marines
147, plage de l'Estaque
F-13016 Marseille
P +33 (0)4 91 14 28 00
E le-drassm@culture.gouv.fr
www.culture.gouv.fr/fr/archeosm/archeosom/drasm.htm

On French territory at regional level, the devolved services of the Ministry of Culture and Communication in charge of the heritage are involved in different stages of the reconnaissance, protection, supervision and management of the pile dwelling sites. They are made up of the regional archaeology services and services for the conservation of historical monuments of the Rhône-Alpes, and Franche-Comté regional department of cultural affairs.

Direction régionale des affaires culturelles de Franche-Comté
Service régional de l'archéologie et Conservation régionale des monuments historiques
7, rue Charles Nodier
F-25043 Besançon Cedex.
P +33 (0)3 81 81 72 00
E jean-francois.piningre@culture.gouv.fr
www.franche-comte.culture.gouv.fr

Direction régionale des affaires culturelles de Rhône-Alpes
Service régional de l'archéologie et Conservation régionale des monuments historiques
Le Grenier d'Abondance,
6, quai Saint-Vincent
F-69283 Lyon Cedex 01
P +33 (0)4 72 00 44 00
E anne.lebot-helly@culture.gouv.fr
www.culture.gouv.fr/rhone-alpes

A number of public or private bodies with local or national jurisdiction act to protect and manage natural areas such as lakes, littorals and wetlands. They thus contribute to the preservation of underwater archaeological deposits in lakes and on lakeshores. They are or will be involved in implementing measures for the conservation, protection and supervision of the pile dwelling sites selected.

Conservatoire des espaces naturels de Haute-Savoie - Agir pour la Sauvegarde des Territoires et des Espèces Remarquables Sensibles (ASTERS)
84, route du Viéran
F-74370 Pringy
P +33 (0)4 50 66 47 51
E asters@asters.asso.fr
www.asters.asso.fr

Conservatoire du patrimoine naturel de la Savoie
Le Prieuré, BP 51
F-73372 Le Bourget-du-Lac Cedex
P +33 (0)4 79 25 20 32
E info@patrimoine-naturel-savoie.org
www.patrimoine-naturel-savoie.org

Conservatoire du littoral (Conservatoire de l'espace littoral et des rivages lacustres)
Délégation Lacs
Chemin de la Grande Roche
Verdex, BP 18
Chemin de la Grande Roche
F-73371 Le Bourget-du-Lac Cedex
P +33 (0)4 79 60 76 30
E jph.deslandes@conservatoire-du-littoral.fr
www.conservatoire-du-littoral.fr

Germany

Baden-Württemberg

The Baden-Württemberg office for the protection of ancient monuments has established a specialised branch for wetland archaeology in Hemmenhofen, Lake Constance. A team of underwater archaeologists and dendrochronologists specialises in the documentation, protection and monitoring of the underwater cultural heritage in the lakes and fens of the state. The team is also responsible for strategy design for the protection of wetland sites:

Regierungspräsidium Stuttgart
Landesamt für Denkmalpflege
Referat 85, Fachbereich
Feuchtbodenarchäologie
Fischersteig 9
D-78343 Gaienhofen-Hemmenhofen
P +49 (0)7735 9377 7112
E helmut.schlichtherle@rps.bwl.de

The branch for wetland archaeology cooperates with the regional councils and their departments for the protection of ancient monuments and nature conservation:

Regierungspräsidium Freiburg
Referat 26 Denkmalpflege
Fachbereich Archäologie
Günterstalstrasse 67
D-79100 Freiburg i.Br.
P +49 (0)761 208 3570
E andrea.braeuning@rpf.bwl.de

Regierungspräsidium Freiburg
Referat 56 Naturschutz und Landschaftspflege
Bissierstrasse 7
D-79083 Freiburg i. Br.
P +49 (0)761 2084 129
E abteilung5@rpf.bwl.de

Regierungspräsidium Tübingen
Referat 26 Denkmalpflege
Fachgebiet Archäologische Denkmalpflege
Alexanderstrasse 48
D-72072 Tübingen
P +49 (0)7071 7572 413
E frieder.klein@rpt.bwl.de

Regierungspräsidium Tübingen
Referat 56 Naturschutz und Landschaftspflege
Konrad-Adenauer-Strasse 20
D-72072 Tübingen
P +49 (0)7071 7575 306
E abteilung5@rpt.bwl.de

To support the monitoring of archaeological sites in the lakes of Baden-Württemberg, contacts and common projects with the relevant institutes of limnology have been established:

Landesanstalt für Umwelt, Messungen und Naturschutz Baden-Württemberg
Institut für Seenforschung
Argenweg 50/1
D-88085 Langenargen
P +49 (0)7543 3040
E gerd.schroeder@lubw.bwl.de
www.baden-wuerttemberg.de/servlet/is/3514/

Universität Konstanz
Limnologisches Institut
Mainaustrasse 252
D-78464 Konstanz
P +49 (0)7531 883 531
E karl.rothhaupt@uni-konstanz.de
www.uni-konstanz.de/limnologie

Bavaria

Bayerisches Landesamt für Denkmalpflege
Hofgraben 4
D-80539 München
P +49 (0)89 211 40
E poststelle@blfd.bayern.de
www.blfd.bayern.de

Generally, the Bavarian State Conservation Office commissions the Bavarian Society for Underwater Archaeology with all underwater archaeological operations ↘ **cf. Chapter 5.j**.

Bayerische Gesellschaft für Unterwasserarchäologie e. V.
c/o Chairman Dr. Tobias Pflederer
Naturbadstrasse 25
D-91056 Erlangen
P +49 (0)9135 219 091
E bgfu@gmx.de
www.bgfu.de

Italy

The legal ownership and competence on protection, conservation and improvement of archaeological sites, such as pile-dwelling sites, belong to the Italian State that exercises them through the Ministero per i Beni e le Attività Culturali (MiBAC). Nevertheless most of the protection and conservation activities are exercised by the Ministero's periferic branches (Soprintendenze per i Beni Archeologici - SBA).

Ministero per i Beni e le Attività Culturali
Soprintendenza per i Beni Archeologici del Friuli Venezia Giulia
Piazza Della Libertà 7
I-34132 Trieste
P +39 040 4194 711
F +39 040 436 34
E sba-fvg@beniculturali.it
www.archeologia.beniculturali.it

Ministero per i Beni e le Attività Culturali
Soprintendenza per i Beni Archeologici della Lombardia
Via Edmondo De Amicis 11
I-20123 Milano
P +39 02 8940 0555
F +39 02 8940 4430
E sba-lom@beniculturali.it
www.archeologica.lombardia.beniculturali.it

Ministero per i Beni e le Attività Culturali
Soprintendenza per i beni archeologici del Piemonte e del Museo antichità egizie
Piazza San Giovanni 2
I-10122 Torino
P +39 011 5214 069
F +39 011 5213 145
E sba-pie@beniculturali.it
www.archeologia.beniculturali.it

Provincia Autonoma di Trento
Soprintendenza per i Beni Archeologici
Via Aosta 1
I-38100 Trento
P +39 0461 492 161
F +39 0461 492 160
E sopr.librariarchivisticiarcheologici@provincia.tn.it
www.trentinocultura.net

Ministero per i Beni e le Attività Culturali
Soprintendenza per i Beni Archeologici del Veneto
Via Aquileia 7
I-35139 Padova
P +39 049 8243 811
F +39 049 8754 647
E sba-ven@beniculturali.it
www.archeologia.beniculturali.it

Slovenia

The Public Institute Ljubljansko Barje Landscape Park which is formally founded by the Government but actually in a process of operational establishment, ensures the implementation of development and protection orientations and protection regimes. It implements immediate supervision in the Landscape Park.

Javni zavod Krajinski park Ljubljansko barje
Podpeška cesta 380
SI-1357 Notranje Gorice
P +386 (0)41 643 958
E info@ljubljanskobarje.si
www.ljubljanskobarje.si

[This institute is formally founded by the Government, however in a process of operational establishment]

In Slovenia the Institute for the Protection of Cultural Heritage (IPCH) is in charge of the protection, conservation and preservation of cultural monuments. Within the IPCH the underwater archaeology team carries out the same tasks but under water.

Zavod za varstvo kulturne dediščine Slovenije
Metelkova 6
SI-1000 Ljubljana
P +386 (0)1 400 79 27
E zvkds@zvkds.si
www.zvkds.si

The Institute of the Republic of Slovenia for Nature Conservation is responsible for the protection and conservation of the nature, which is often closely connected to the protection of cultural heritage.

Zavod Republike Slovenije za varstvo narave
Dunajska cesta 22
SI-1000 Ljubljana
P +386 (0)1 230 95 00
E zrsvn.oe@zrsvn.si
www.zrsvn.si

6.c Results of previous exercises

↘ see 6.a.4

7.

Volume I

Documentation

7.a Photographs, slides, image inventory and authorization table and other audiovisual materials

Id.	**Format** · diapo · épreuve · video	**Caption**	**Date of Photo** (mo / yr)	**Copyright owner** (if different than photographer / director)	**Contact details of copyright owner** (Name, adress, tel / fax, and e-mail)	**Non exclusive cession of rights** (yes / no)
Preface	Digital photograph	Pile field of Fiavé–Lago Carera (IT-TN-02).	-	Trento Alto Adige – Provincia Autonoma di Trento (Soprintendenza per i Beni Archeologici), R. Perini.	Provincia Autonoma di Trento Soprintendenza per i Beni Archeologici Via Aosta 1 I-38100 Trento P +39 0461 492 161 E sopr.librariarchivisticiarcheologici@provincia.tn.it www.trentinocultura.net	yes
Executive summary	Digital photograph	Perforated pile of a Bronze Age footbridge (Freienbach–Hurden Rosshorn, CH-SZ-01).	December 2000	Amt für Städtebau der Stadt Zürich, Unterwasserarchäologie	Stadt Zürich, Amt für Städtebau Unterwasserarchäologie Seefeldstrasse 317 CH-8008 Zürich P +41 (0)44 387 84 20 E ursula.huegi@zuerich.ch www.stadt-zuerich.ch/hochbau	yes
1.a / 1.b	Digital photograph	The pile filed of Molina di Ledro (IT-TN-01) is clearly discernible in the shallow water.	-	Trento Alto Adige – Museo delle Palafitte del lago di Ledro	Museo delle Palafitte Via Lungolago, 1 I-30060 Molina di Ledro (Trento) P +39 0464 509382 E romana.scandolari@mtsn.tn.it www.palafitteledro.it	yes
1.c / 1.d	Digital photograph	Unteruhldigen-Stollenwiesen (DE-BW-10): Aerial photography of the Early Bronze Age pile field and palisade.	March 2002	Regierungspräsidum Stuttgart; Landesamt für Denkmalpflege	Regierungspräsidium Stuttgart Landesamt für Denkmalpflege Referat 85, Fachbereich Feuchtbodenarchäologie Fischersteig 9 D-78343 Gaienhofen-Hemmenhofen P +49 (0)7735 9377 7112 E helmut.schlichtherle@rps.bwl.de	yes
1.e	Digital photograph	Stratigraphy in the site Zürich–Grosse Stadt Kleiner Hafner (CH-ZH-10).	1981	Amt für Städtebau der Stadt Zürich, Unterwasserarchäologie	Stadt Zürich, Amt für Städtebau Unterwasserarchäologie Seefeldstrasse 317 CH-8008 Zürich P +41 (0)44 387 84 20 E ursula.huegi@zuerich.ch www.stadt-zuerich.ch/hochbau	yes
1.f	Digital photograph	Excavation of the site Zug–Riedmatt (CH-ZG-05).	August 2008	Kantonsarchäologie Zug	Kantonsarchäologie Zug Hofstrasse 15 CH-6300 Zug P 0041 (0)41 728 28 58 E info.arch@zg.ch www.zug.ch/archaeologie	yes
2.a	Digital photograph	Arial photography of the site at Pestenacker (DE-BY-01) during excavation, from the southwest.	-	Bayerisches Landesamt für Denkmalpflege - Luftbildarchiv, Nr. 7930/116-6406-16	Bayerisches Landesamt für Denkmalpflege Hofgraben 4 D-80539 München P +49 (0)89 21140 E poststelle@blfd.bayern.de www.blfd.bayern.de	yes

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2.b	Digital photograph	The pile field of the settlement Corcelles-près-Concise-Stations de Concise (CH-VD-05).	-	Archéologie cantonale vaudoise	Archéologie cantonale vaudoise Place de la Riponne 10 CH-1014 Lausanne P +41 (0)21 316 73 29 E nicole.pousaz@vd.ch www.vd.ch/fr/themes/culture/patrimoine/archeologie	yes
3.a	Digital photograph	Siedlung Forschner, Kreis Biberach / Riss (DE-BW-15). Visitors admiring the excavation of the site Siedlung Forschner.	-	Regierungspräsidum Stuttgart; Landesamt für Denkmalpflege	Regierungspräsidium Stuttgart Landesamt für Denkmalpflege Referat 85, Fachbereich Feuchtbodenarchäologie Fischersteig 9 D-78343 Gaienhofen-Hemmenhofen P +49 (0)7735 9377 7112 E helmut.schlichtherle@rps.bwl.de	yes
3.b	Digital photograph	Underwater finds: should we interprete the metal finds discovered in the area of the prehistoric site Freienbach–Hurden Rosshorn (CH-SZ-01) as sacrificial offerings?	April / 2004	Amt für Städtebau der Stadt Zürich, Unterwasserarchäologie	Stadt Zürich, Amt für Städtebau Unterwasserarchäologie Seefeldstrasse 317 CH-8008 Zürich P +41 (0)44 387 84 20 E ursula.huegi@zuerich.ch www.stadt-zuerich.ch/hochbau	yes
3.c	Digital photograph	Stratigraphy of the site Gletterens-Les Grèves (CH-FR-02).	-	Dominique Uldry / OFC	Service archéologique de l'Etat de Fribourg Planche Supérieure 13 CH-1700 Fribourg P +41 (0)26 305 82 00 E SAEF@fr.ch www.fr.ch/sac	yes
3.d	Digital photograph	Vessels from Ig pile-dwelling (SI-IG-01) kept in the National Museum of Slovenia	February 2008	Narodni muzej Slovenije, Tomaž Lauko	Narodni muzej Slovenije Prešernova 20 SI-1000 Ljubljana P +386 (0)1 24 14 400 E info@nms.si www.narmuz-ij.si	yes
4.a	Digital photograph	Exhibition arrangement of the Palù di Livenza section (IT-FV-01) in the Museo Archeologico del Friuli Occidentale of Torre di Pordenone: the Late Neolithic pottery.	September 2009	Museo Archeologico del Friuli Occidentale. Castello di Torre	Museo Archeologico del Friuli Occidentale Castello di Torre, Via Vittorio Veneto, 19 I-33170 Pordenone P +39 0434 541433 E castellotorre.pn@libero.it www.comune.pordenone.it/comune/strutture/museoarcheologico	yes
4.b	Digital photograph	Wooden structures in Thayngen–Weier I-III (CH-SH-01).	1962	Kantonsarchäologie Schaffhausen	Kantonsarchäologie Schaffhausen Herrenacker 3 CH-8200 Schaffhausen P +41 (0)52 632 74 83 E archaeologie@ktsh.ch www.archaeologie.sh.ch	yes
5.a	Digital photograph	Solitary wooden pile in Greng–Spitz (CH-FR-03).	-	Service archéologique de l'Etat de Fribourg	Service archéologique de l'Etat de Fribourg Planche Supérieure 13 CH-1700 Fribourg P +41 (0)26 305 82 00 E SAEF@fr.ch www.fr.ch/sac	yes
5.b	Digital photograph	This almost complete travois was found on the periphery of the settlement Chalain 19 (FR-39-02) and dates from around 3000 BC.	-	Centre de la Recherches Archéologiques de la Vallée de l'Ain, P. Pétrequin	CRAVA Christophe Bontemps 69, Grand Rue F-70100 Gray P +33 (0)6 77 70 75 57 http//crava.over-blog.fr	yes
5.c / 5.d	Digital photograph	Late Stone Age comb made of viburnum shoots from Sutz-Lattrigen–Rütte (CH-BE-06)	-	Bernisches Historisches Museums	Bernisches Historisches Museum Helvetiaplatz 5 CH-3006 Bern P +41 (0)31 350 77 11 E info@bhm.ch www.bhm.ch	yes

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5.e	Digital photograph	Late Stone Age copper objects from settlements around Lakes Mondsee and Attersee (AT-OÖ-07).	-	Naturhistorisches Museum Wien, M. Haller	Naturhistorisches Museum Wien Prähistorische Abteilung Burgring 7 A-1014 Wien P +43 (0)1 521 77 277 E office@nhm-wien.ac.at www.nhm-wien.ac.at	yes
5.f	Digital photograph	Underwater work in Stansstaad–Kehrsiten (CH-NW-01).	-	Amt für Städtebau der Stadt Zürich, Unterwasserarchäologie	Stadt Zürich, Amt für Städtebau Unterwasserarchäologie Seefeldstrasse 317 CH-8008 Zürich P +41 (0)44 387 84 20 E ursula.huegi@zuerich.ch www.stadt-zuerich.ch/hochbau	yes
5.g	Digital photograph	Piles of a lake dwelling site from Lake Constance (Thurgau, Switzerland) waiting to be dated by dendrochronology.	-	Amt für Archäologie Thurgau	Amt für Archäologie Thurgau Schlossmühlestrasse 15a CH-8510 Frauenfeld P +41 (0)52 724 15 70 E archaeologie@tg.ch www.archaeologie.tg.ch	yes
5.h	Digital photograph	Late Bronze Age finds from the site-Littoral de Chens-sur-Léman (FR-74-03).	-	Musée-Château et Observatoire Régional des Lacs Alpins, B. Cottin	Musée-Château et Observatoire Régional des Lacs Alpins Place du Château F-74000 Annecy P +33 (0)4 50 33 87 30 E musees@agglo-annecy-fr www.musees.agglo-annecy.fr	no
5.i	Digital photograph	This jewellery made of shells was found in a lattice pouchin Egolzwil 3 (CH-LU-01).	-	Kantonsarchäologie Luzern	Kantonsarchäologie Luzern Libellenrain 15 CH-6002 Luzern P +41 (0)41 228 65 95 E sekretariat.archaeologie@lu.ch www.da.lu.ch/index/archaeologie.htm	yes
5.j	Digital photograph	A diver shooting photos under water in Sipplingen-Osthafen (DE-BW-09).	February 2005	Regierungspräsidum Stuttgart; Landesamt für Denkmalpflege, Martin Mainberger	Regierungspräsidium Stuttgart Landesamt für Denkmalpflege Referat 85, Fachbereich Feuchtbodenarchäologie Fischersteig 9 D-78343 Gaienhofen-Hemmenhofen P +49 (0)7735 9377 7112 E helmut.schlichtherle@rps.bwl.de	yes
6.a	Digital photograph	Lying timber with a rectangular cavity in front of an eroded stake row in the shallow waters at the north-eastern tip of Rose Island (DE-BY-03) in Lake Starnberg.	-	Bayerische Gesellschaft für Unterwasserarchäologie e. V.	Bayerische Gesellschaft für Unterwasserarchäologie e. V. c/o Chairman Dr. Tobias Pflederer Naturbadstrasse 25 D-91056 Erlangen P +49 (0)9135 219 091 E bgfu@gmx.de www.bgfu.de	yes
6.b / 6.c	Digital photograph	Load-bearing timber constructions of traised houses and palisade (front) at Fiavé–Lago Carera (IT-TN-02).	-	Trento Alto Adige – Provincia Autonoma di Trento (Soprintendenza per i Beni Archeologici), R. Perini.	Provincia Autonoma di Trento Soprintendenza per i Beni Archeologici Via Aosta 1 I-38100 Trento P +39 0461 492 161 E sopr.librariarchivisticiarcheologici@provincia.tn.it www.trentinocultura.net	yes
7.a	Digital photograph	Small wooden sword found in Bolken / Inkwil-Inkwilersee Insel (CH-SO-02).	June 2007	Archäologischer Dienst des Kantons Bern, Albert Hafner	Service archéologique du canton de Berne Postfach 5233 CH-3001 Berne P +41 (0)31 633 98 21/22 E adb@erz.be.ch www.erz.be.ch/site/index/kultur/archaeologie	yes

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7.b / 7.c	Digital photograph	Excavation along the periphery of the island: the Neolithic timber structures of the Isolino Virginia (IT-LM-09).	2005	Museo Civico Archaeologico di Villa Mirabello, D. Banchieri	Museo Civico Archeologico di Villa Mirabello Piazza della Motta, 4 I-21100 Varese P +39 334 6659567 E museoarcheologico.mirabello@comune.varese.it www.cspa-va.it	yes
7.d	Digital photograph	Fragments of Late Bronze Age wicker baskets from Lake Neuchâtel.	-	Office et musée cantonal d'archéologie Neuchâtel	Office et musée cantonal d'archéologie c/o Laténium, Espace Paul Vouga CH-2068 Hauterive P +41 (0)32 889 69 10 E OMAN@ne.ch www.latenium.ch/SA	yes
7.e	Digital photograph	Original piles in Lac de Chalain, rive occidentale (FR-39-02) with the reconstruction of a Neolithic dwelling in the background.	-	Centre de la Recherches Archéologiques de la Vallée de l'Ain, P. Pétrequin	CRAVA Christophe Bontemps 69, Grand Rue F-70100 Gray P +33 (0)6 77 70 75 57 http//crava.over-blog.fr	yes
Credits	Digital photograph	Divers working on an underwater stratigraphy in Erlenbach–Winkel (CH-ZH-01).	-	Amt für Städtebau der Stadt Zürich, Unterwasserarchäologie	Stadt Zürich, Amt für Städtebau Unterwasserarchäologie Seefeldstrasse 317 CH-8008 Zürich P +41 (0)44 387 84 20 E ursula.huegi@zuerich.ch www.stadt-zuerich.ch/hochbau	yes
8.a	Digital photograph	Maharski prekop – excavations from 1970 to 1976 (SI-IG-02).	1970–1976	Muzej in galerije Mesta Ljubljane, Mestni muzej Ljubljana, Tatjana Bregant	Muzej in galerije Mesta Ljubljane Mestni muzej Ljubljana Gosposka ulica 15 SI-1000 Ljubljana P +386 (0)1 24 12 500 F +386 (0)1 24 12 540 E info@mestnimuzej.si	yes
8.b	Digital photograph	Stratigraphy of the site Meilen-Rorenhaab (CH-ZH-06), which was the first site to be identified as a pile dwelling in 1854.	-	Amt für Städtebau der Stadt Zürich, Unterwasserarchäologie	Stadt Zürich, Amt für Städtebau Unterwasserarchäologie Seefeldstrasse 317 CH-8008 Zürich P +41 (0)44 387 84 20 E ursula.huegi@zuerich.ch www.stadt-zuerich.ch/hochbau	yes
8.c	Digital photograph	Selvedge of a textile find in Wangen-Hinterhorn (DE-BW-01).	-	Regierungspräsidum Stuttgart; Landesamt für Denkmalpflege	Regierungspräsidium Stuttgart Landesamt für Denkmalpflege Referat 85, Fachbereich Feuchtbodenarchäologie Fischersteig 9 D-78343 Gaienhofen-Hemmenhofen P +49 (0)7735 9377 7112 E helmut.schlichtherle@rps.bwl.de	yes
8.d	Digital photograph	Excavation of the site Muntelier–Baie de Muntelier (CH-FR-06).	-	Service archéologique de l'Etat de Fribourg	Service archéologique de l'Etat de Fribourg Planche Supérieure 13 CH-1700 Fribourg P +41 (0)26 305 82 00 E SAEF@fr.ch www.fr.ch/sac	yes
9	Digital photograph	Divers bringing samples of wooden piles to the surface (Sutz-Lattrigen, Lake Bienne, Switzerland).	December 2008	Dominique Uldry / OFC	Federal Office of Culture Hallwylstrasse 15 CH-3001 Berne P +41 (0)31 31 322 92 66 E info@bak.admin.ch www.bak.admin.ch	yes

Fig. 7.1 List of photographs and corresponding authorizations.

7. Documentation

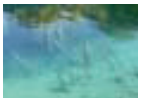
7.a Photographs, slides, image inventory and authorization table and other audiovisual materials

↘ **Preface**

↖ **p. 5** © Trento Alto Adige – Provincia Autonoma di Trento (Soprintendenza per i Beni Archeologici), R. Perini.

↘ **Executive Summary**

↖ **p. 9** © Amt für Städtebau der Stadt Zürich, Unterwasserarchäologie



↘ **1.a / 1.b**

↖ **p. 22** © Trento Alto Adige – Museo delle Palafitte del lago di Ledro

↘ **1.c / 1.d**

↖ **p. 30** © Regierungspräsidum Stuttgart; Landesamt für Denkmalpflege

↘ **1.e**

↖ **p. 36** © Amt für Städtebau der Stadt Zürich, Unterwasserarchäologie

↘ **1.f**

↖ **p. 72** © Kantonsarchäologie Zug

↘ **2.a**

↖ **p. 80** © Bayerisches Landesamt für Denkmalpflege - Luftbildarchiv, Nr. 7930/116-6406-16

↘ **2.b**

↖ **p. 120** © Archéologie cantonale vaudoise

↘ **3.a**

↖ **p. 170** © Regierungspräsidum Stuttgart; Landesamt für Denkmalpflege

↘ **3.b**

↖ **p. 172** © Amt für Städtebau der Stadt Zürich, Unterwasserarchäologie

↘ **3.c**

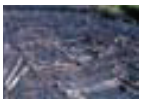
↖ **p. 178** © Service archéologique de l'Etat de Fribourg

↘ **3.d**

↖ **p. 268** © Narodni muzej Slovenije, Tomaž Lauko

↘ **4.a**

↖ **p. 276** © Museo Archeologico del Friuli Occidentale. Castello di Torre



↘ **4.b**

↖ **p. 292** © Kantonsarchäologie Schaffhausen

↘ **5.a**

↖ **p. 330** © Service archéologique de l'Etat de Fribourg

↘ **5.b**

↖ **p. 338** © Centre de la Recherches Archéologiques de la Vallée de l'Ain, P. Pétrequin

↘ **5.c / 5.d**

↖ **p. 378** © Bernisches Historisches Museum

↘ **5.e**

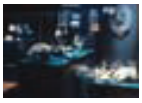
↖ **p. 380** © Naturhistorisches Museum Wien, M. Haller

↘ **5.f**

↖ **p. 392** © Amt für Städtebau der Stadt Zürich, Unterwasserarchäologie

↘ **5.g**

↖ **p. 402** © Amt für Archäologie Thurgau



↘ **5.h**

↖ **p. 412** © Musée-Château et Observatoire Régional des Lacs Alpins, B. Cottin

↘ **5.i**

↖ **p. 434** © Kantonsarchäologie Luzern

↘ **5.j**

↖ **p. 460** © Regierungspräsidum Stuttgart; Landesamt für Denkmalpflege, Martin Mainberger

↘ **6.a**

↖ **p. 478** © Bayerische Gesellschaft für Unterwasserarchäologie e. V.

↘ **6.b / 6.c**

↖ **p. 490** © Trento Alto Adige – Provincia Autonoma di Trento (Soprintendenza per i Beni Archeologici), R. Perini.

↘ **7.a**

↖ **p. 502** © Archäologischer Dienst des Kantons Bern, Albert Hafner

↘ **7.b / 7.c**

↖ **p. 510** © Museo Civico Archaeologico di Villa Mirabello, D. Banchieri

↘ **7.d**

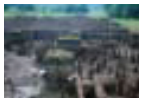
↖ **p. 512** © Office et musée cantonal d'archéologie Neuchâtel

↘ **7.e**

↖ **p. 522** © Centre de la Recherches Archéologiques de la Vallée de l'Ain, P. Pétrequin

↘ **Credits**

↖ **p. 529** © Amt fur Städtebau der Stadt Zürich, Unterwasserarchäologie



↘ **8.a**

↖ **p. 534** © Muzej in galerije Mesta Ljubljane
Mestni muzej Ljubljana,. Tatjana Bregant

↘ **8.b**

↖ **p. 542** © Amt für Städtebau der Stadt Zürich, Unterwasserarchäologie

↘ **8.c**

↖ **p. 550** © Regierungspräsidum Stuttgart; Landesamt für Denkmalpflege

↘ **8.d**

↖ **p. 568** © Service archéologique de l'Etat de Fribourg

↘ **9**

↖ **p. 572** © Dominique Uldry / OFC

7.b Texts relating to protective designation

↘ cf. Annex DVD

7.c Form and date of most recent records or inventory of property

The last inventory of all known pile-dwelling sites from the countries participating in the candidature Switzerland, Austria, France, Germany, Italy and Slovenia is listed on the annexed DVD ↘ cf. Annex DVD. The type and date of the last archaeological interventions on these sites are mentioned on their respective Id-files.

7.d Addresses where inventory, records and archives are held

Objects from pile dwellings have been collected since the 19th century and many have therefore found asylum in museums around the whole world. Finds from the Three Lakes region in Switzerland are known to be found in museums as far away as in the USA. Arnold Guyot, for instance, was originally from canton Neuchâtel and emigrated to the USA, where he became a professor at Princeton University. In 1875 he acquired a collection of pile-dwelling finds from the region of the Three Lakes. Comprising 2,300 artifacts, the collection was extraordinarily varied and was presented to the Laténium (canton Neuchâtel) in 2008. Thanks to this generous gesture, the finds have returned to their source.

However, most pile-dwelling objects can be seen in museums and private collections in the countries and regions where the pile dwellings themselves are situated. The official services of archaeology also are responsible for the archiving of the finds and the documentation of excavations, which may be then preserved in different storage facilities or in museums ↘ Fig. 7.2–7.7.

The written excavation records from the 19th and early 20th centuries are, in the majority, housed in the different museums which where then responsible for the excavations (as an example in Bern: the Bernisches Historisches Museum). The records of all the modern investigations since the setting up of the different cantonal services in the 1960s and 1970s are to be found in the each cantonal service.

Switzerland

The cantonal archaeology services have in many cases outsourced the maintenance of the archaeological heritage to museums. These ensure the conservation of the artefacts recovered. They maintain laboratories and appropriate storage facilities to perform the tasks involved. These museums are largely funded by the local authorities, the cantons or sometimes by the federal government.

Finds from old excavations are held by various museums besides the Swiss National Museum, including cantons where no pile dwellings were found such as the Museum Zofingen or the Museum der Kulturen in Basle, which holds old finds from the Wauwil Bog. Other museums also show additional finds ↘ cf. Chapter 8.c.3.

Canton	Name institution	Street, number	Post code	Municipality	Email	Phone
–	Schweizerisches Landesmuseum	Museumsstrasse 2	CH-8021	Zürich	kanzlei@slm.admin.ch	+41 (0)44 218 65 11
–	Sammlungszentrum Schweizerisches Landesmuseum	Lindenmoosstrasse 1	CH-8910	Affoltern am Albis	christof.kuebler@slm.admin.ch	+41 (0)43 218 65 11
–	Museum der Kulturen	Münsterplatz 20	CH-4051	Basel	info@mkb.ch	+41 (0)61 266 56 00
–	Museum Zofingen	General-Guisanstrasse 18	CH-4800	Zofingen	–	+41 (0)62 751 67 63
AG	Kantonsarchäologie Aargau	Industriestrasse 3	CH-5200	Brugg AG	archaeologie@ag.ch	+41 (0)56 462 48 11
AG	Museum Burghalde	Schlossgasse 23	CH-5600	Lenzburg	burghalde@lenzburg.ch	+41 (0)56 891 66 70
BE	Bernisches Historisches Museum	Helvetiaplatz 5	CH-3005	Bern	info@bhm.ch	+41 (0)31 350 77 11
BE	Archäologischer Dienst des Kantons Bern	Brünnenstr. 66 Postfach 5233	CH-3001	Bern	adb@erz.be.ch	+41 (0)31 633 98 20
BE	Museum Schwab	Seevorstadt 50	CH-2501	Biel-Bienne	info@muschwab.ch	+41 (0)32 322 76 03
FR	Musée de la ville d'Estavayer-le-Lac	Rue du Musée 13	CH-1470	Estavayer-le-Lac	info@museedesgrenouilles.ch	+41 (0)26 664 80 65

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Canton	Name institution	Street, number	Post code	Municipality	Email	Phone
FR	Service archéologique de l'Etat de Fribourg	Planche-Supérieure 13	CH-1700	Fribourg	saef@fr.ch	+41 (0)26 305 82 00
FR	Musée d'Art et d'Histoire	Rue de Morat 12	CH-1700	Fribourg	mahf@fr.ch	+41 (0)26 305 51 40
FR	Musée historique de Morat	Ryf 4	CH-3280	Murten	kontakt@museummurten.ch	+41 (0)26 670 31 00
GE	Université de Genève, Département d'anthropologie et d'écologie	12 rue Gustave-Revilliod	CH-1211	Genève 4	admin-anthro@unige.ch	+41 (0)22 379 69 67
GE	Musée d'art et d'histoire	Rue Charles Galland 2	CH-1206	Genève	mah@ville-ge.ch	+41 (0)22 418 26 00
LU	Kantonsarchäologie Luzern	Libellenrain 15	CH-6002	Luzern	sekretariat.archaeologie@lu.ch	+41 (0)41 228 65 95
LU	Wiggertaler Museum	Gemeindeverwaltung / Postfach	CH-6247	Schötz	hj.luterbach@lula.ch	+41 (0)41 970 28 54
NE	Laténium Parc et musée d'archéologie de Neuchâtel	Espace Paul Vouga	CH-2068	Hauterive	OMAN@ne.ch	+41 (0)32 889 89 15
NE	Musée de l'Areuse	Avenue du Collège 18	CH-2017	Boudry	marie-aldine@bluewin.ch	+41 (0)32 846 19 16
NW	Fachstelle für Archäologie	Stansstaderstrasse 54	CH-6370	Stans	archaeologie@nw.ch	+41 (0)41 618 51 53
NW	Nidwaldner Museum	Mürgstrasse 12	CH-6370	Stans	museum@nw.ch	+41 (0)41 618 73 40
SG	Kantonsarchäologie	Rorschacherstr. 23	CH-9000	St. Gallen	martin.schindler@sg.ch	+41 (0)71 229 38 72
SH	Kantonsarchäologie Schaffhausen	Herrenacker 3	CH-8200	Schaffhausen	markus.hoeneisen@ktsh.ch	+41 (0)52 632 74 83
SH	Museum zu Allerheiligen	Baumgartenstr. 6	CH-8200	Schaffhausen	admin.allerheiligen@stsh.ch	+41 (0)52 633 07 77
SO	Archäologisches Museum	Konradstrasse 7	CH-4600	Olten	karin.zuberbuehler@historischesmuseum-olten.ch	+41 (0)62 212 27 75
SO	Kantonsarchäologie Solothurn	Werkhofstrasse 55	CH-4500	Solothurn	archaeologie@bd.so.ch	+41 (0)32 627 25 76
SZ	Archäologische Sammlung des Staatsarchiv Schwyz	Kollegiumstrasse 30	CH-6430	Schwyz	kaspar.michel@sz.ch	+41 (0)41 819 20 65
TG	Amt für Archäologie Thurgau	Schlossmühlestrasse 15a	CH-8510	Frauenfeld	archaeologie@tg.ch	+41 (0)52 724 15 70
VD	Musée cantonal et d'archéologie et d'histoire	Place de la Riponne 6, Palais de Rumine	CH-1005	Lausanne	info@mcah.ch	+41 (0)21 316 34 30
VD	Musée d'Yverdon-les-Bains	Le Château, Case postale 968	CH-1401	Yverdon-les-Bains	musee.yverdon@bluewin.ch	+41 (0)24 425 93 10
VD	Musée du Léman	Quai Louis-Bonnard 8	CH-1260	Nyon	info@museeduleman.ch	+41 (0)22 361 09 49
ZG	Heimatmuseum Seehof	Dersbach	CH-6343	Buonas	info@risch.zg.ch	+41 (0)41 798 18 19
ZG	Kantonsarchäologie Zug	Hofstrasse 15	CH-6300	Zug	info.arch@zg.ch	+41 (0)41 728 28 58
ZG	Museum für Urgeschichte(n)	Hofstrasse 15	CH-6300	Zug	info.urgeschichte@dbk.zg.ch	+41 (0)41 728 28 90
ZH	Kantonsarchäologie Zürich	Stettbachstrasse 7	CH-8600	Dübendorf	arv.archaeologie@bd.zh.ch	+41 (0)43 343 45 00
ZH	Stadt Zürich, Amt für Städtebau, Unterwasserarchäologie	Seefeldstrasse 317	CH-8008	Zürich	ursula.huegi@zuerich.ch	+41 (0)44 387 84 20
ZH	Ortsmuseum Horgen	Bahnhofstrasse 27	CH-8810	Horgen	ortsmuseum-horgen@bluewin.ch	+41 (0)44 725 15 58
ZH	Ortsmuseum Meilen	Kirchgasse 14	CH-8706	Meilen	bea.neururer@gmx.ch	+41 (0)44 923 22 82
ZH	Heimatmuseum Pfäffikon	Im Kehr / Im Stock 6	CH-8330	Pfäffikon	he_kaspar@bluewin.ch	+41 (0)44 950 42 80
ZH	Museum Wetzikon	Farbstrasse 1	CH-8620	Wetzikon	hanskaspar.walder@wetzikon.ch	+41 (0)44 931 23 78

Fig. 7.2 Overview of the places in Switzerland, where the finds, records and archives from pile-dwelling sites are stored.

Austria

Finds from pile dwellings are mainly in the Museum of Natural History (Naturhistorisches Museum) in Vienna, in the State Museums of Upper Austria and Carinthia, the Pfahlbaumuseum Mondsee and other local museums. Furthermore, the Department of Pre- and Protohistory (Institut für Ur- und Frühgeschichte) at the University of Vienna owns a considerable collection of objects.

While the Federal Historic Preservation Agency (Bundesdenkmalamt) stores finds only for research purposes over a short time span it archives not only the documentation and plans of the pile dwelling examinations by the Federal Historic Preservation Agency between 1970 and 1986 but also the reporting of all other excavations made in Austria. According to § 11, Abs. 6 DMSG there is an obligation to deliver the excavation reports with all necessary documentation material like drawings, photos and other documentary material. The reports and notifications are filed and published if scientific relevant.

Federal State	Name institution	Street, number	Post code	Municipality	Email	Phone
–	Naturhistorisches Museum	Burgring 7	A-1010	Wien	office@nhm-wien.ac.at	+43 (0)1 521 77 277
–	Institut für Ur- und Frühgeschichte, Universität Wien	Franz-Kleingasse 1	A-1190	Wien	ufg.sammlung@univie.ac.at	+43 (0)1 4277 40461
–	Bundesdenkmalamt	Hofburg, Säulenstiege	A-1010	Wien	archaeo@bda.at	+43 (0)1 53 415 267
–	Salzburg Museum	Mozartplatz 1	A-5020	Salzburg	office@salzburgmuseum.at	+43 (0)662 620 808 0
Carinthia	Landesmuseum Kärnten	Museumsgasse 2	A-9021	Klagenfurt	info@landesmuseum-ktn.at	+43 050 536 30599
Upper Austria	Oberösterreichische Landesmuseen - Schlossmuseum	Schlossberg 1	A-4010	Linz	schloss@landesmuseum.at	+43-(0)732-774419 0
Upper Austria	Pfahlbaumuseum Mondsee	Marschall-Von-Wrede-Platz 1	A-5310	Mondsee	office@mondseeland.org	+43 (0)6232 2895
Upper Austria	Heimathaus Vöcklabruck	Hinterstadt 18	A-4840	Vöcklabruck	heimathaus@asak.at	+43 (0)676 8410 6699
Upper Austria	Heimathaus Schörfling	Gmundnerstrasse 8	A-4861	Schörfling am Attersee	klaus.petermayr@utanet.at	+43 (0)7662 2259

Fig. 7.3 Overview of the places in Austria, where the finds, records and archives from pile-dwelling sites are stored.

France

In the case of Lakes Chalain and Clairvaux in the Jura the artefacts from earlier excavations are dispersed in numerous regional (Lons-le-Saunier, Dole) and national (National Museum of Archaeology, MAN) public collections, and even collections abroad. All the artefacts from the recent excavations have been incorporated into the permanent collections of the Lons-le-Saunier Museum of Archaeology with its working area in the René Rémond Study and Conservation Centre.

The archaeological collections from the Savoyan lakes are mainly to be found in the town museums of Chambéry (Musée Savoisien) and Annecy (Musée-Château). The Musée du Chablais in Thonon-les-Bains, however, has recuperated part of the earlier finds. While they are being studied, they have been placed in the departmental excavation storage facilities, jointly managed by the departmental conservation services and the Rhône-Alpes regional department of cultural affairs. Records and archives from pile-dwelling sites are stored in the Département des recherches archéologiques sous-marines et subaquatiques (DRASSM) (Department of underwater and submarine archaeological research) and in the archaeological services of the Ministry of Culture and Communication for Rhône-Alpes and Franche-Comté (directions régionales des affaires culturelles).

Département / Région	Name institution	Street, number	Post code	Municipality	Email	Phone
	DRASSM	157, plage de l'Estaque	F-13016	Marseille	le-drassm@culture.gouv.fr	+33 (0)4 91 14 28 00
–	Musée d'Archéologie Nationale	Château Place Charles de Gaulle	F-78000	Saint-Gerrmain-en-Laye	culturel.man@culture.gouv.fr	+33 (0)1 39 10 13 00

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Département / Région	Name institution	Street, number	Post code	Municipality	Email	Phone
Jura	Musée d`Archéologie de Lons-le-Saunier	7, rue des Cordeliers	F-39000	Lons-le-Saunier	musee.archeologie@ville-lons-le-saunier.fr	+33 (0)3 84 47 88 45
Jura	Musée des beaux-arts et d'archéologie de Dole	85, rue des Arènes	F-39100	Dole	musee.dole@wanadoo.fr	+33 (0)3 84 79 25 85
Savoie	Musée savoisien de Chambéry	Square de Lannoy de Bissy	F-73000	Chambéry	musees@mairie-chambéry.fr	+33 (0)4 79 33 44 48
Savoie	Dépôt archéologique départemental de Savoie	Bâtiment Morel CHS de Bassens	F-73011	Chambéry	–	–
Haute-Savoie	Musée-Château et Observatoire Régional des Lacs Alpins	Place du Château	F-74000	Annecy	musees@agglo-annecy-fr	+33 (0)4 50 33 87 30
Haute-Savoie	Musée du Chablais	Château de Sonnaz 2, rue Michaud	F-74200	Thonon-les-Bains	culture@ville-thonon.fr	+33 (0)4 50 70 69 49
Haute-Savoie	Dépôt archéologique départemental de Haute Savoie	Conservatoire d'Art et d'Histoire 18, avenue de Trésume	F-74000	Annecy	–	+33(0)4 50 51 96 40
Rhône-Alpes	Direction régionale des affaires culturelles	6, quai Saint-Vincent	F-69283	Lyon Cedex 01		+33 (0)4 72 00 44 00
Franche-Comté	Direction régionale des affaires culturelles	7, rue Charles-Nodier	F-25043	Besançon Cedex		+33 (0)3 81 81 72 00

Fig. 7.4 Overview of the places in France, where the finds, records and archives from pile-dwelling sites are stored.

Germany

Baden-Württemberg

In the 19th century many collections and inventories also found their way from the shores of Lake Constance into international museums. The early collections that did remain within the State are in Konstanz, Überlingen, Karlsruhe and Stuttgart. Finds from a second period of research on the 1920s are stored and partly exhibited mostly in Stuttgart, Tübingen, Bad Buchau and Unteruhldingen. The advent of the Baden-Württemberg Cultural Heritage Protection Act (baden-württembergisches Denkmalschutzgesetz, bwDSchG) in 1972 regulated the care of finds. Those found on all State research belong to the State (article 20 bwDSchG).

The Baden-Württemberg Cultural Heritage Protection Act (DSchG) regulates the reporting of all chance finds and gives the State the right to examine them scientifically (Chapter 6 article 20). According to article 23 (treasure trove) the finds can become State possessions.

The finds from present day excavations on the pile dwelling sites are stored in the depots of the highest level heritage protection departments – the State Cultural Heritage Department (Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart) and the Heritage Departments of the Regional Councils of Freiburg and Tübingen (Referate 26, Regierungspräsidien Freiburg, Tübingen). Since the foundation of the State Archaeology Museum in 1992, important finds-complexes are stored in the depots there.

The written excavation records from the 19th and early 20th centuries are, in the majority, housed in the Rosgartenmuseum Konstanz, in the Badensian State Museum Karlsruhe (Badisches Landesmuseum Karlsruhe), in the University of Tübingen, in the Pile Dwellings Museum Unteruhldingen (Pfahlbaumuseum Unteruhldingen), on the premises of State Cultural Heritage Department in Hemmenhofen (Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart, Arbeitsstelle Hemmenhofen) and in the Museum for Prehistory and Early History of the Berlin State Museums (Museum für Vor- und Frühgeschichte der Staatlichen Museen zu Berlin). The records of all the modern investigations since the 1960s are to be found in the State Cultural Heritage Department branch in Hemmenhofen.

Bavaria

Several museums in the Free State of Bavaria present finds from pile-dwelling sites in their permanent exhibitions ↘ Chapters 5.h, 8.c. However, the Bavarian State Conservation Office (Bayerisches Landesamt für Denkmalpflege) and the Bavarian State Archaeological Collection (Archäologische Staatssammlung), both situated in Munich, are solely responsible for the storage of archaeological finds owned by the Free State of Bavaria in their depots. At first, all movable monuments have to be reported and handed over to the State Conservation Office or one of the Local Monument Protection Authorities, according to article 8, §§ 1 and 5 as well as article 9 of the BayDSchG ↘ Chapter 5.b. Eventually, the objects are supposed to be transferred to the State Archaeological Collection. In particular, this applies to all finds from old excavations ↘ see Chapter 5.i. Since § 984 of the BGB is solely valid in the Free State of Bavaria, those institutions have no title on privately owned archaeological objects ↘ cf. Chapter 5.b.

Region	Name institution	Street, number	Post code	Municipality	Email	Phone
Baden-Württemberg	Federseemuseum Bad Buchau	August Gröber Platz	D-88422	Bad Buchau	info@federseemuseum.de	+49(0)7582 8350
Baden-Württemberg	Braith-Mali-Museum	Museumstrasse 6	D-88400	Biberach	museum@biberach-riss.de	+49(0)7351 51331
Baden-Württemberg	Institut für Archäologische Wissenschaften der Universität Freiburg Sammlung der Abteilungen Urgeschichtliche Archäologie / Frühgeschichtliche Archäologie und Archäologie des Mittelalters	Belfortstrasse 22	D-79085	Freiburg	info@ufg.uni-freiburg.de	+49(0)761 203 3383
Baden-Württemberg	Zeppelin Museum Friedrichshafen GmbH	Seestrasse 22	D-88045	Friedrichshafen	zeller@zeppelin-museum.de	+49(0)7541 380111
Baden-Württemberg	Hermann-Hesse-Höri-Museum	Kapellenstrasse 8	D-78343	Gaienhofen	info@hermann-hesse-hoeri-museum.de	+49(0)7735 440949
Baden-Württemberg	Badisches Landesmuseum Karlsruhe	Schloss	D-76131	Karlsruhe	info@landesmuseum.de	+49(0)721 926 6514
Baden-Württemberg	Archäologisches Landesmuseum Baden-Württemberg	Benediktinerplatz 5	D-78467	Konstanz	info@konstanz.alm-bw.de	+49(0)7531 98040
Baden-Württemberg	Rosgartenmuseum Konstanz	Rosgartenstrasse 3-5	D-78459	Konstanz	EngelsingT@stadt.konstanz.de	+49(0)7531 900246
Baden-Württemberg	Heimatmuseum Bodman	Seestrasse 7	D-78351	Ludwigshafen	tourist-info@bodman-ludwigshafen.de	+49(0)7773 930040
Baden-Württemberg	Römisch-Germanisches Zentralmuseum	Ernst-Ludwig-Platz 2	D-55116	Mainz	info@rgzm.de	+49(0)6131 91240
Baden-Württemberg	Reiss-Engelhorn-Museen	Museum Weltkulturen D5	D-68159	Mannheim	reiss-engelhorn-museen@mannheim.de	+49(0)621 2933150
Baden-Württemberg	Museum Fischerhaus Wangen am Untersee	Im Ettenbohl 18	D-78337	Öhningen	Info@museum-fischerhaus.de	+49 (0)7735 3922
Baden-Württemberg	Schloss Sigmaringen	Karl Anton Platz 8	D-72488	Sigmaringen	schloss@hohenzollern.com	+49(0)7571 729230
Baden-Württemberg	Pfahlbausammlung in der Tourist-Information Sipplingen	Seestrasse 3	D-78354	Sipplingen	touristinfo@sipplingen.de	+49(0)7551 949370
Baden-Württemberg	Landesmuseum Württemberg	Schillerplatz 6	D-70173	Stuttgart	info@landesmuseum-stuttgart.de	+49(0)711 89535111
Baden-Württemberg	Museum Schloss Hohentübingen	Burgsteige 11	D-72070	Tübingen	museum@uni-tuebingen.de	+49(0)7071 2977384
Baden-Württemberg	Pfahlbaumuseum Unteruhldinge ,Bodensee	Strandpromenade 6	D-88690	Uhldingen-Mühlhofen	mail@pfahlbauten.de	+49(0)7556 928900
Baden-Württemberg	Ulmer Museum	Marktplatz 9	D-89073	Ulm	Info.ulmer-museum@ulm.de	+49 (0)731 1614330

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Region	Name institution	Street, number	Post code	Municipality	Email	Phone
Bavaria	Archäologische Staatssammlung München	Lerchenfeldstrasse 2	D-80538	Munich	archaeologische.staatssammlung@extern.lrz-muenchen.de	+49 (0)89 2112402
Bavaria	Bayerisches Landesamt für Denkmalpflege	Hofgraben 4	D-80539	Munich	poststelle@blfd.bayern.de	+49 (0)89 21140
Berlin	Museum für Vor- und Frühgeschichte der Staatlichen Museen zu Berlin	Neues Museum, Bodestraße 1-3	D-10178	Berlin	service@smb.museum	+49(0)30 266 42-4242
Rheinland-Pfalz	Römisch-Germanisches Zentralmuseum	Ernst-Ludwig-Platz 2	D-55116	Mainz	info@rgzm.de	+49(0)6131 91240

Fig. 7.5 Overview of the places in Germany, where the finds, records and archives from pile-dwelling sites are stored.

Italy

All the finds from pile-dwelling sites, both from digs and surveys, are State property, except for collections formed before 1909. They are under the protection of Ministero per i Beni e le Attività Culturali (managed through the local Soprintendenza per i Beni Archeologici) (ex Legislative Decree 42/04).

Their display can be organized directly by the Soprintendenza (eg. Museo dell'Area Archeologica-Sirmione) or left to local museums (eg. Desenzano del Garda, Gavardo, Varese, Verona).

In northern Italy the museums are, mostly, run by the city council (the so called 'Civico' Museums). In some cases they belong to a private association (eg. Museo dell'Alto Mantovano-Cavriana).

Region	Name institution	Street, number	Post code	Municipality	Email	Phone
Friuli Venezia Giulia	Museo Archeologico Nazionale di Aquileia	Via Roma, 5	I-33051	Aquileia (UD)	info@museoarcheo-aquileia.it	+39 0431 91035
Friuli Venezia Giulia	Museo Archeologico del Friuli Occidentale-Castello di Torre	Via Vittorio Veneto, 19	I-33170	Pordenone	castellotorre.pn@libero.it	+39 0434 541433 +39 0434 541412
Friuli Venezia Giulia	Soprintendenza per i Beni Archeologici del Friuli Venezia Giulia – Nucleo operativo di Udine	Via Zanon, 20	I-33100	Udine	giorgio.durante@beniculturali.it	+39 0432 502709
Lazio	Museo Nazionale Preistorico Etnografico «L. Pigorini»	Piazzale Guglielmo Marconi, 14	I-00144	Roma	smn-pe@beniculturali.it	+39 06 549521
Lombardy	Civico Museo Archeologico di Arsago Seprio	Viale Vanoni, 20	I-21010	Arsago Seprio (VA)	segreteria@comune.arsago-seprio.va.it	+39 0331 299927 (Comune)
Lombardy	Museo Civico «G. Bellini»	Via Garibaldi, 7	I-46041	Asola (MN)	museocivicoasola@libero.it	+39 0376 710171
Lombardy	Civico Museo Archeologico di Bergamo	Piazza Cittadella, 9	I-24129	Bergamo (BG)	archeomuseo@comune.bg.it	+39 035 242839
Lombardy	Museo Preistorico Isolino Virginia	Via Marconi	I-21100	Biandronno (VA)	daria.banchieri@comune.varese.it	+39 0332 255485 +39 0334 6659567
Lombardy	Musei Civici d'Arte e Storia di Brescia. Santa Giulia Museo della città	Via Musei, 81	I-25126	Brescia	museiarte@comune.brescia.it	+39 030 2977834
Lombardy	Museo Civico di Storia Naturale	Via Ozanam, 4	I-25128	Brescia	-	+39 030 2977834
Lombardy	Museo Archeologico dell'Alto Mantovano	Piazza Castello, 5/8	I-46040	Cavriana (MN)	museo.cavriana@libero.it	+39 030 392652 +39 0376 806330
Lombardy	Museo Civico Archeologico 'P. Giovio'	Piazza Medaglie d'Oro, 1	I-22100	Como	biblioteca.museicivici@comune.como.it	+39 031 271343
Lombardy	Museo Civico Archeologico 'G. Rambotti'	Via T. Dal Molin, 7/c	I-25015	Desenzano del Garda (BS)	cdes.museo@onde.net cmangan@aliceposta.it	+39 030 9144529
Lombardy	Museo della Società gallaratese di Studi Patri	Chiostro del Convento di San Francesco Via Borgo Antico, 4	I-21013	Gallarate (VA)	museidistudipatri@gmail.com	+39 0331 795092

Region	Name institution	Street, number	Post code	Municipality	Email	Phone
Lombardy	Museo Archeologico della Valle Sabbia	Piazzetta San Bernardino, 2	I-25085	Gavardo (BS)	gavardo@istituzionemuseale.191.it	+39 0365 371474
Lombardy	Musei Civici – Museo Archeologico	Palazzo Belgioioso Corso G. Matteotti, 32	I-23900	Lecco	segreteria.museo@comune.lecco.it	+39 0341 481247
Lombardy	Museo Civico di Legnano «G. Sutermeister»	Corso Garibaldi, 225	I-20025	Legnano (MI)	-	+39 0331 543005
Lombardy	Museo Civico Archeologico della Valtenesi	Via Rocca, 20	I-25080	Manerba del Garda (BS)	prolocomanerba@numerica.it	+39 030 9387290/1
Lombardy	Museo Archeologico Nazionale di Mantova	Piazza Castello	I-46100	Mantova	sba-lom@beniculturali.it	+39 0376 320003
Lombardy	Soprintendenza per i Beni Archeologici della Lombardia	Via De Amicis, 11	I-20123	Milano	sba-lom@beniculturali.it	+39 02 89400555
Lombardy	Museo Civico di Storia Naturale	C.so Venezia, 55	I-20121	Milano	-	+39 02 88463280
Lombardy	Civiche Raccolte Archeologiche	Castello Sforzesco, Sale Viscontee della Corte Ducale Piazza Castello, 3	I-20121	Milano	patrizia.frontini@comune.milano.it	+39 02 88467779/80
Lombardy	Museo Pavese di Scienze Naturali	Castello Visconteo	I-27100	Pavia (PV)	-	+39 0382 33853
Lombardy	Museo Civico Archeologico - Antiquarium Platina	Piazza Garibaldi, 3	I-26034	Piadena (CR)	info@museo-piadena.net	+39 0375 380131
Lombardy	Museo Civico Archeologico	Via P. Cappellazzi, 1	I-25010	Remedello (BS)	museo@remedellocultura.it	+39 030 957477
Lombardy	Grotte di Catullo e Museo Archeologico	Piazzale Orti Manara, 4	I-25019	Sirmione (BS)	sba-lom@beniculturali.it	+39 030 916157
Lombardy	Museo Civico Archeologico di Villa Mirabello	Piazza della Motta, 4	I-21100	Varese	museoarcheologico.mirabello@comune.varese.it daria.banchieri@comune.varese.it	+39 0334 6659567
Piedmont	Civico Museo Archeologico di Arona	Piazza San Graziano, 36	I-28041	Arona (NO)	webmaster@comune.arona.no.it	+39 011 5211106 +39 0322 48294
Piedmont	Museo del Territorio Biellese	Via Q. Sella	I-13900	Biella	info@museodelterritorio.biella.it	+39 015 2529345
Piedmont	Museo Nazionale di Antichità	Via XX Settembre, 88/c	I-10124	Torino	info@museoarcheologico.it	+39 011 5211106
Piedmont	Museo Storico Nazionale dell'Artiglieria	Corso Galileo Ferraris, 1	I-10100	Torino	-	+39 011 5603111 +39 011 5211106
Trentino South Tyrol / Autonomous Province of Trento	Museo Parco delle palafitte di Fiavè	Via 3 Novembre	I-38075	Fiavè (TN)	archeologica@provincia.tn.it	+39 0461 492161
Trentino South Tyrol / Autonomous Province of Trento	Museo delle palafitte del Lago di Ledro	Via Lungolago, 1	I-30060	Molina di Ledro (TN)	info@mtsn.tn.it romana.scandolari@mtsn.tn.it	+39 0464 508182
Trentino South Tyrol / Autonomous Province of Trento	Museo di Riva del Garda	Piazza C. Battisti, 3/A	I-38066	Riva del Garda (TN)	museo@comune.rivadelgarda.tn.it	+39 0464 573869
Trentino South Tyrol / Autonomous Province of Trento	Museo Tridentino di Scienze Naturali	Via Calepina, 14	I-38100	Trento	info@mtsn.tn.it	+39 0461 222918
Trentino South Tyrol / Autonomous Province of Trento	Castello del Buonconsiglio – Monumenti e Collezioni Provinciali	Via B. Cesio, 1	I-38100	Trento	franco.marzatico@castellodelbuonconsiglio.tn.it	+39 0461 233770

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Region	Name institution	Street, number	Post code	Municipality	Email	Phone
Trentino South Tyrol / Autonomous Province of Trento	Soprintendenza per i Beni librari archivistici e archeologici della Provincia Autonoma di Trento	Via Aosta, 1	I-38100	Trento	sopr.librariarchivisticiarcheologici@provincia.tn.it	+39 0461 492161 +39 0461 492159
Veneto	Museo Civico Archeologico di Cavaion Veronese	Piazza G. Fra Castoro, 8	I-37010	Cavaion Veronese (VR)	segreteria@comunecavaion.it	+39 045 6265711
Veneto	Museo Civico Archeologico di Castelnovo Bariano	Via Cavo Bentivoglio di S. Pietro Polesine	I-45030	Castelnovo Bariano (RO)	museo@comune.castelnovobariano.ro.it	+39 0425 850202
Veneto	Museo Nazionale Atestino	Via Guido Negri, 9/c	I-35042	Este (PD)	atestino.archeopd@arti.beniculturali.it	+39 042 92085
Veneto	Centro Ambientale Archeologico Museo Civico di Legnago	Via E. Fermi, 1	I-37045	Legnago (VR)	info@centroambientalearcheologico.it	+39 0442 601460
Veneto	Musei Civici agli Eremitani	Piazza Eremitani, 8	I-35100	Padova	-	+39 049 82045450/51
Veneto	Soprintendenza per i Beni Archeologici del Veneto	Via Aquileia, 7	I-35100	Padova	sba-ven@beniculturali.it	+39 049 8243811
Veneto	Soprintendenza per i Beni Archeologici del Veneto – Nucleo Operativo di Verona	Piazza San Fermo, 3	I-37121	Verona	-	+39 045 590935
Veneto	Museo Civico di Storia Naturale	Lungadige Porta Vittoria, 9	I-37129	Verona	mcsnat@comune.verona.it	+39 045 8079400
Veneto	Museo Naturalistico Archeologico	Contrada S. Corona, 4	I-36100	Vicenza	museonatarcheo@comune.vicenza.it	+39 0444 320440 +39 0444 222815

Fig. 7.6 Overview of the places in Italy, where the finds, records and archives from pile-dwelling sites are stored.

Slovenia

The National Museum of Slovenia and the City Museum of Ljubljana keep and display the finds from the pile-dwelling sites of Slovenia. The National Museum of Slovenia holds and exhibits the finds, which were procured from the archaeological excavations which took place during the 19th and up to the beginning of the 20th century. Some finds from these excavations are kept in the Natural History Museum in Vienna as well.

The next period of more intensive pile-dwelling researches started after the Second World War. Since then numerous pile-dwelling sites have been explored and some new locations have been discovered. The artefacts were handed over to the City Museum of Ljubljana. Some inventory, records and archives from recent archaeological excavations are temporarily kept in other Slovenian institutions following the state legislation which allows an authorized person who conducts research to keep the original archive of the archaeological site at longest five years after the research is completed. After this time the entire archive has to be delivered to a national or authorized museum (Cultural Heritage Protection Act, article 33, § 4).

Region	Name institution	Street, number	Post code	Municipality	Email	Phone
–	Narodni muzej Slovenije	Prešernova cesta 20	SI-1000	Ljubljana	info@nms.si	+ 386 (0)1 24 14 400
–	Mestni muzej Ljubljana	Gosposka ulica 15	SI-1000	Ljubljana	info@mestnimuzej.si	+ 386 (0)1 24 12 500
–	Zavod za varstvo kulturne dediščine Slovenije	Metelkova ulica 6	SI-1000	Ljubljana	zvkds@zvkds.si	+ 386 (0)1 400 79 27
–	Inštitut za arheologijo ZRC SAZU	Gosposka ulica 13	SI-1000	Ljubljana	iza@zrc-sazu.si	+ 386 (0)1 47 06 380
–	Univerza v Ljubljani, Filozofska fakulteta, Oddelek za arheologijo	Aškerčeva cesta 2	SI-1000	Ljubljana	katja.svarc@ff.uni-lj.si	+ 386 (0)1 24 11 558

Fig. 7.7 Overview of the places in Slovenia where inventory, records and archives from pile-dwellings sites are being stored.

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Germany

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Italy

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[this institute is formally founded by the Government, and in process of operational establishment]

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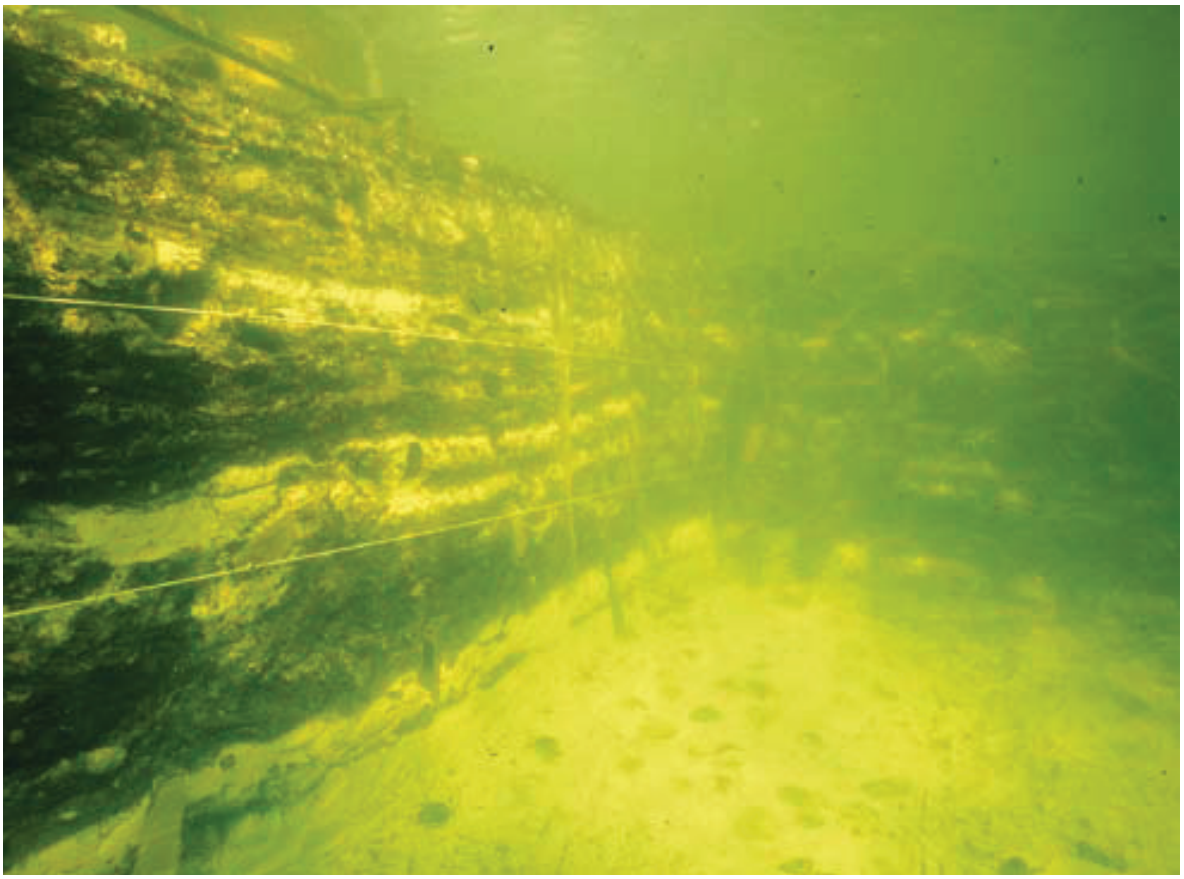
8. Contact information of responsible authorities

8.a Preparer



8.b Official local Institutions / Agencies

Switzerland

In Switzerland, the cantons are in charge of protecting the archaeological heritage. Each canton has its own system of authorities to accomplish the tasks involved. It is important to stress that the responsibilities are similar in all the cantonal archaeological heritage departments. In rare cases, a canton can outsource the tasks to a municipality (Zurich City). Due to the fact that only certain cantons have underwater archaeology teams, certain projects are tendered to third parties, while the overall responsibility remains in the hands of the cantonal department.

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Kantonsarchäologie St. Gallen
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Schwyz
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Staatsarchiv des Kantons Schwyz
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Zurich-City
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Austria

The authority of national heritage protection is executed by the Bundesdenkmalamt in the first instance, which is also a research institution. Appellate instance is the Austrian Federal Ministry for Education, Arts and Culture (BMUKK).

Generally, the Bundesdenkmalamt is responsible for the protection of archaeological sites in Austria. In their roles as an agency and service point, the State Conservation Offices (Landeskonservatorat) for Carinthia and Upper Austria are the first contacts for all issues of monument conservation and maintenance in the regions of the Salzkammergut (Upper Austria) and the Keutschach four lakes valley (Carinthia).

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France

In France, the devolved services of the State possess considerable powers for creating regulations, under the authority of the regional and departemental prefects. They are in charge of implementing the national legislation contained in the Heritage and Environmental Codes and supervising its application in the areas of their jurisdiction: regions or departments. Within their specialisation they are responsible for drawing up the inventory of natural sites and monuments and of the archaeological and architectural heritage, and for coordinating the study, protection and management of these sites. In matters of management of land and underground land rights, they rely on the support of the territorial collectivities, in particular communes and grouped communes, in relation to the establishment of Plans locaux d'urbanisme (local town plans). These services have particular responsibility for examining certain town planning and development planning dossiers in the context of the legislation on historical monuments, natural sites and monuments and archaeology.

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Germany

Baden-Württemberg

According to article 1 of the bwDSchG, executive bodies dealing with monument protection and preservation are the Baden-Württemberg Ministry of Economy (Wirtschaftsministerium Baden-Württemberg, Oberste Denkmalschutzbehörde), the District Governments (Regierungspräsidien, Höhere Denkmalschutzbehörden) and the Local Monument Protection Authorities (Untere Denkmalschutzbehörden). The latter are situated in every rural and urban district of Baden-Württemberg and are therefore parts of the local District Office (Landratsamt) or Municipality (Stadtverwaltung) or parts of an association of administrations (Verwaltungsverband). In particular, it is their remit to prepare expertise, to grant permits and to enforce the Baden-Württembergian Monument Protection Law (Denkmalschutzgesetz Baden-Württemberg) as stated in article 1, para. 3 of that law ↘ cf. Chapter 5.b. The Baden-Württemberg State Conservation Office (Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart) is – according to article 1, para. 3(2) of the bwDSchG – the official advisory body in all maters of monument protection and preservation in the wetlands of the country. In particular, the Department 85 for Archaeological Monuments (Referat 85, Grundsatz, Schwerpunktgrabungen und Feuchtbodenarchäologie) within the State Office is responsible for archaeological issues in wetlands. Wetland and lake shore settlements respectively pile dwelling sites are ministered in the District Governments of Freiburg and Tübingen and by the Local Monument Protection Authorities.

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Bavaria

According to article 11 of the BayDSchG (Bayerisches Denkmalschutzgesetz), executive bodies dealing with monument protection and preservation are the Bavarian State Ministry of Sciences, Research and the Arts (Bayerisches Staatsministerium für Wissenschaft, Forschung und Kunst, Oberste Denkmalschutzbehörde), the District Governments (Regierungen, Höhere Denkmalschutzbehörden) and the Local Monument Protection Authorities (Untere Denkmalschutzbehörden). The latter are situated in every rural and urban district of Bavaria and are therefore parts of the local District Office (Landratsamt) or Municipality (Stadtverwaltung). In particular, it is their remit to prepare expertise, to grant permits and to enforce the Bavarian Monument Protection Law as stated in article 11, para. 4 of that law ↘ **Chapter 5.b**. The Bavarian State Conservation Office (Bayerisches Landesamt für Denkmalpflege) is – according to article 12 of the BayDSchG – the official advisory body in all maters of monument protection and preservation. In particular, the Department for Archaeological Monuments (Abteilung B: Praktische Denkmalpflege Bodendenkmäler) within the State Office is responsible for archaeological issues. Wetland and lake shore settlements respectively pile dwelling sites are ministered in the regional subdepartments as well as the Subdepartment for the Documentation of Settlements and Cultural Landscapes (Referat Z II, Siedlungs- und Kulturlandschaftsdokumentation, ↘ **Chapter 5.f**.

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Italy

According to the Italian law for the conservation and protection of the Cultural heritage and Landscape (Code of the Cultural and Landscape Heritage, D.L 42/2004), the Ministry for Cultural Heritage and Activities is the competent authority for the protection any conservation of the archeological heritage. In the autonomous regions and provinces, such as the Autonomous Province of Trento involved in the nomination, autonomous Offices for Archeological heritage have been established. The Ministry exercises the service through its peripheral offices, the Superintendance for Archeological, Architectural heritage and landscape. They are present in each regional area.

The law establishes that all the archeological findings belong to the State and are part of the national Heritage. Each intervention on archeological sites or in areas declared of importance, an authorization has to be handed out by the Superintendance. They can approve or deny the intervention project.

The regional and local institutions have to implement the national law by introducingthe archeological, architectural and landscape sites listed by the Ministry, in their planning instruments, and by defining use restriction rules, and, accordingly, monitoring them.

The Italian national Authorities together with the regional and local Authorities and, in this case, the Autonomous Province of Trento collaborate for the enhancement of the archeological heritage.

Friuli Venezia Giulia
Ministero per i Beni
e le Attività Culturali
Soprintendenza per i Beni
Archeologici del Friuli Venezia Giulia
Piazza Della Libertà 7
I-34132 Trieste
P +39 040 4194 711
E sba-fvg@beniculturali.it
www.archeologia.beniculturali.it

Lombardy
Ministero per i Beni
e le Attività Culturali
Soprintendenza per i Beni
Archeologici della Lombardia
Via Edmondo De Amicis 11
I-20123 Milano
P +39 02 8940 0555
E sop.arch.lomb@fastwebnet.it
www.archeologica.lombardia.beniculturali.it

Piedmont
Ministero per i Beni
e le Attività Culturali
Soprintendenza per i Beni Archeologici
del Piemonte e del
Museo antichità egizie
Piazza San Giovanni 2
I-10122 Torino
P +39 011 5214 069
E sba-pie@beniculturali.it
www.archeologia.beniculturali.it

Trentino-South Tyrol / Autonomous Province of Trento
Provincia Autonoma di Trento
Soprintendenza per i Beni Archeologici
Via Aosta 1
I-38100 Trento
P +39 0461 492 161
E sopr.librariarchivisticiarcheologici@provincia.tn.it
www.trentinocultura.net

Veneto
Ministero per i Beni
e le Attività Culturali
Soprintendenza per i Beni
Archeologici del Veneto
Via Aquileia 7
I-35139 Padova
P +39 049 8243 811
E sba-ven@beniculturali.it
www.archeologia.beniculturali.it

Slovenia

The public institute 'Ljubljansko Barje Landscape Park', which was established by the Government of the Republic of Slovenia, performs different tasks within the park including park management, ensuring the implementation of development and protection orientations and regimes, implementing nature-protection measures and immediate supervision in the Landscape Park.

Protection, conservation and preservation of the cultural heritage of the Ljubljana region is carried out by the Institute for the Protection of Cultural Heritage, Regional Unit Ljubljana, while the Institute of the Republic of Slovenia for Nature Conservation, Regional Unit Ljubljana, is responsible for the protection and conservation of the nature in that region.

The Regional Development Agency of the Ljubljana Urban region (RDA LUR) prepares planning development programmes and supports economic, social and cultural activities in the 26 municipalities of the central Slovenian region, including the Municipality of Ig, where all the nominated pile-dwelling sites are located.

Javni zavod Krajinski park Ljubljansko barje
Podpeška cesta 380
SI-1357 Notranje Gorice
P +386 (0)41 643 958
E info@ljubljanskobarje.si
www.ljubljanskobarje.si

[This institute is formally founded by the Government, however in a process of operational establishment]

Zavod za varstvo kulturne dediščine Slovenije
Območna enota Ljubljana
Tržaška cesta 4
SI-1000 Ljubljana
P +386 (0)1 24 10 700
E tajnistvo.oeljubljana@zvkds.si
www.zvkds.si

Zavod Republike Slovenije za varstvo narave
Območna enota Ljubljana
Cankarjeva ulica 10
SI-1000 Ljubljana
P +386 (0)1 24 45 350
E zrsvn.oelj@zrsvn.si
www.zrsvn.si

Regionalna razvojna agencija Ljubljanske urbane regije
Tehnološki park 19
SI-1000 Ljubljana
P +386 (0)1 306 19 02
E lur@ljubljana.si
www.rralur.si

Javni zavod Krajinski park Ljubljansko barje
Podpeška cesta 380
SI-1357 Notranje Gorice
P +386 (0)41 643 958
E info@ljubljanskobarje.si
www.ljubljanskobarje.si

[This institute is formally founded by the Government, however in a process of operational establishment]
Regionalna razvojna agencija Ljubljanske urbane regije
Tehnološki park 19
SI-1000 Ljubljana
P +386 (0)1 306 19 02
E lur@ljubljana.si
www.rralur.si

8. Contact information of responsible authorities

8.b Official local Institutions / Agencies

8.c Other local Institutions

8.c.1 Municipalities and other regional authorities

This chapter lists the addresses of the municipalities where the sites are located.

Switzerland

Aargau

CH-AG-01
Gemeindeverwaltung Beinwil am See
Gemeindehaus
CH-5712 Beinwil am See
P +41 (0)62 765 60 10
E gemeindekanzlei@beinwilamsee.ch
www.beinwilamsee.ch

CH-AG-02
Gemeinde Seengen
Unterer Gerbiweg 6
CH-5707 Seengen
P +41 (0)62 767 63 10
E gemeindekanzlei@seengen.ch
www.seengen.ch

Berne

CH-BE-01
Stadt Biel
Mühlebrücke 5
CH-2502 Biel / Bienne
P +41 (0)32 326 11 11
E stadtkanzlei@biel-bienne.ch
www.biel-bienne.ch

CH-BE-02
Gemeindeverwaltung Lüscherz
Hauptstrasse 19
CH-2576 Lüscherz
P +41 (0)32 338 12 27
E info@luescherz.ch
www.luescherz.ch

CH-BE-03
Gemeindeverwaltung Moosseedorf
Schulhausstrasse 1
CH-3302 Moosseedorf
P +41 (0)31 850 13 13
E gemeinde@moosseedorf.ch
www.moosseedorf.ch

CH-BE-04
Einwohnergemeinde Mörigen
Schulstrasse 21
CH-2572 Mörigen
P +41 (0)32 397 02 03
E gemeinde@moerigen.ch
www.moerigen.ch

CH-BE-05
Gemeindeverwaltung Seedorf
Bernstrasse 72
CH-3267 Seedorf
P +41 (0)32 391 99 50
E gemeinde@seedorf.ch
www.seedorf.ch

CH-BE-06
Einwohnergemeinde Sutz-Lattrigen
Poststrasse 21
CH-2572 Sutz
P +41 (0)32 397 12 41
E gemeinde@sutz-lattrigen.ch
www.sutz-lattrigen.ch

CH-BE-07
Gemeindeverwaltung Twann
Moos 11, Postfach 16
CH-2513 Twann
P +41 (0)32 315 03 35
E info@twann.ch
www.twann.ch

CH-BE-08
Gemeindeverwaltung Vinelz
Dorfstrasse 42
CH-3234 Vinelz
P +41 (0)32 338 16 66
E info@vinelz.ch
www.vinelz.ch

CH-SO-02
Gemeindeverwaltung Inkwil
Subingenstrasse 1
CH-3375 Inkwil
P +41 (0)62 961 15 51
E gs@inkwil.ch
www.inkwil.ch

Fribourg

CH-FR-01
Commune de Delley-Portalban
Route de Portalban 10
CH-1567 Delley
P +41 (0)26 677 20 40
E commune@delley-portalban.ch
www.delley-portalban.ch

CH-FR-02
Administration communale Gletterens
CH-1544 Gletterens
P +41 (0)26 667 20 67
E administration@gletterens.ch
www.gletterens.ch

CH-FR-03
Gemeindeverwaltung Greng
de Castellplatz 19
CH-3280 Greng
P +41 (0)26 672 18 82
E verwaltung@greng.ch
www.greng.ch

CH-FR-04
Administration communale Haut-Vully
Route du Lac 114
CH-1787 Môtier
P +41 (0)26 673 11 79
E info@haut-vully.ch
www.haut-vully.ch

CH-FR-05
Stadtverwaltung Murten
Rathausgasse 17
Postfach 326
CH-3280 Murten
P +41 (0)26 672 62 00
E gemeinde@murten-morat.ch
www.murten.ch

CH-FR-06
Gemeindeverwaltung Muntelier
Hauptstrasse 67
Postfach 24
CH-3286 Muntelier
P +41 (0)26 670 41 50
E admin@muntelier.ch
www.muntelier.ch

CH-FR-07
Administration communale Noréaz
Route de l'Eglise 19
CH-1757 Noréaz
P 026 470 23 19
E commune@noreaz.ch
www.noreaz.ch

CH-FR-08
Administration communale de Vernay
Vieux Forel 42A
CH-1475 Forel
P +41 (0)26 663 38 91
E commune.vernay-fr@bluewin.ch
www.vernay-fr.ch

Geneva

CH-GE-01
Mairie de Collonge-Bellerive
1, chemin du Château-de-Bellerive
CH-1245 Collonge-Bellerive
P +41 (0)22 722 11 50.
E info@collonge-bellerive.ch
www.collonge-bellerive.ch

CH-GE-02
Mairie de Corsier
70, route du Lac / case postale 3
CH-1246 Corsier
P +41 (0)22 751 90 60
E info@corsier.ch
www.corsier.ch

CH-GE-03
Mairie de Versoix
18, route de Suisse
CH-1290 Versoix
P +41 (0)22 775 66 00
E info@versoix.ch
www.versoix.ch

Lucerne

CH-LU-01, CH-LU-02
Gemeindekanzlei Egolzwil
Dorfchärn
CH-6243 Egolzwil
P +41 (0)41 984 00 10
E gemeindeverwaltung@egolzwil.ch
www.egolzwil.ch

CH-LU-03
Verwaltungszentrum Hitzkirch
Luzernerstrasse 8, Postfach 361
CH-6285 Hitzkirch
P +41 (0)41 919 70 30
E info@hitzkirch.ch
www.hitzkirch.ch

CH-LU-04
Gemeindekanzlei Schenkon
Schulhausstrasse
CH-6214 Schenkon LU
P +41 (0)41 925 70 90
E gemeinde@schenkon.ch
www.schenkon.ch

CH-LU-05
Stadtverwaltung Sempach
Stadtstrasse 8
CH-6204 Sempach
P +41 (0)41 462 52 00
E stadtverwaltung@sempach.ch
www.sempach.ch

CH-LU-06
Stadtverwaltung Sursee
Christoph-Schnyder-Strasse 2
CH-6210 Sursee
P +41 (0)41 926 90 00
E stadtverwaltung@stadtsursee.ch
www.sursee.ch

Neuchâtel

CH-NE-01
Administration communale
Rue de la Gare 4
CH-2024 Saint-Aubin / Sauges
P +41 (0)32 836 25 62
E commune.saint-aubin-sauges@ne.ch
www.saint-aubin-sauges.ne.ch

CH-NE-02
Administration communale
Rue du Centre 11
Case Postale 36
CH-2023 Gorgier
P +41 (0)32 836 25 25
E commune.gorgier@ne.ch
www.gorgier.ch

CH-NE-03, CH-NE-04
Administration communale
Rue du Temple 1
CH-2022 Bevaix
P +41 (0)32 846 12 26
E bevaix@ne.ch
www.bevaix.ch

CH-NE-05
Bureau communale
Courtils 28
Case postale 64
CH-2016 Cortaillod
P +41 (0)32 843 04 30
E commune.cortaillod@ne.ch
www.cortaillod.ch

CH-NE-06
Administration communale
Rue Haute 20
CH-2013 Colombier
P +41 (0)32 886 49 49
E commune.colombier@ne.ch
www.colombier.ch

CH-NE-06, CH-NE-07
Bureau communale
La Roche 2
CH-2012 Auvernier
P +41 (0)32 731 21 35
E commune.auvernier@ne.ch
www.auvernier.ch

CH-NE-08
Administration communale
Rue Auguste Bachelin 4
CH-2074 Marin-Epagnier
P +41 (0)32 756 02 80
E commune-la-tene@ne.ch
www.commune-la-tene.ch

Nidwalden

CH-NW-01
Gemeindeverwaltung Stansstad
Achereggstrasse 1
CH-6362 Stansstad
P +41 (0)41 618 24 24
E info@stansstad.ch
www.stansstad.ch

Schaffhausen

CH-SH-01
Gemeinde Thayngen
Dorfstrasse 30
CH-8240 Thayngen
P +41 (0)52 645 04 00
E gemeindeverwaltung@thayngen.ch
www.thayngen.ch

Schwyz

CH-SZ-01, CH-SZ-02
Gemeinde Freienbach
Postfach 160
CH-8808 Pfäffikon SZ
P +41 (0)55 416 91 11
E gemeinde@freienbach.ch
www.freienbach.ch

Solothurn

CH-SO-01
Gemeindeschreiberei Aeschi SO
Maiacker 8
CH-4556 Aeschi / SO
P +41 (0)62 961 59 54
E schreiberei.aeschi@besonet.ch
www.aeschi-so.ch

CH-SO-02
Einwohnergemeinde Bolken
Gemeindeverwaltung
CH-4556 Bolken
P +41 (0)62 961 08 65
E kanzlei@bolken.ch
www.bolken.ch
[See also municipality of Inkwil, Canton Berne]

St. Gall

CH-SG-01, CH-SG-02
Stadtverwaltung Rapperswil-Jona
St. Gallerstrasse 40
CH-8645 Jona
P +41 (0)55 225 70 00
E stadt@rj.sg.ch
www.rapperswil-jona.ch
[See also municipality of Hombrechtikon, Canton Zurich]

Thurgau

CH-TG-01
Stadt Arbon
Hauptstrasse 12
CH-9320 Arbon
P +41 (0)71 447 61 61
E stadt@arbon.ch
www.arbon.ch

CH-TG-02
Gemeindeverwaltung Ermatingen
Hauptstrasse 88
CH-8272 Ermatingen
P +41 (0)71 663 30 30
E gemeinde@ermatingen.ch
www.ermatingen.ch

CH-TG-03
Gemeinde Eschenz
Hauptstrasse 88
Postfach 62
CH-8264 Eschenz
P +41 (0)58 346 00 77
E gemeinde@eschenz.ch
www.eschenz.ch

CH-TG-04
Politische Gemeinde Gachnang
Islikonerstrasse 7
CH-8547 Gachnang
P +41 (0)52 369 06 06
E info@gachnang.ch
www.gachnang.ch

CH-TG-05
Politische Gemeinde Hüttwilen
Kanzleiweg 4
CH-8536 Hüttwilen
P +41 (0)52 748 08 48
E info@huettwilen.ch
www.huettwilen.ch

CH-TG-06
Gemeinde Mammern
Huebackerstrasse 30
CH-8265 Mammern
P +41 (0)52 741 32 32
E gemeinde@mammern.ch
www.mammern.ch

Vaud

CH-VD-01
Commune de Bonvillars
Chemin de l'Ancienne Laiterie
CH-1427 Bonvillars
P +41 (0)24 436 12 50
E bonvillars@bluewin.ch
www.bonvillars.ch

CH-VD-02
Municipalité de Chabrey
CH-1589 Chabrey
P +41 (0)26 677 36 10
E commune.chabrey@bluewin.ch
www.chabrey.ch

CH-VD-03, CH-VD-04
Commune de Chevroux
Bâtiment communal, case postale 54
CH-1545 Chevroux
P +41 (0)26 667 10 05
E admin@chevroux.ch
www.chevroux.ch

CH-VD-05
Commune de Corcelles-près-Concise
22, au Village
CH-1426 Corcelles-près-Concise
P +41 (0)24 434 18 08
E corcelles-concise@bluewin.ch
www.corcelles-concise.ch

CH-VD-06, CH-VD-07
Commune de Cudrefin
2, Grand-Rue, case postale 1011
CH-1588 Cudrefin
P +41 (0)26 677 90 10
E commune@cudrefin.ch
www.cudrefin.ch

CH-VD-08, CH-VD-09
Administration communal de Faoug
2, route d'Avenches
CH-1595 Faoug
P +41 (0)26 670 14 10
E info@faoug.ch
www.faoug.ch

CH-VD-10
Commune de Grandson
Hôtel de Ville
57, Rue Basse
CH-1422 Grandson
P +41 (0)26 447 00 09
E greffe@grandson.ch
www.grandson.ch

CH-VD-11, CH-VD-12
Commune de Morges
1, place de l'Hôtel-de-Ville, case postale 272
CH-1110 Morges 1
P +41 (0)21 804 96 40
E greffe@morges.ch
www.morges.ch

CH-VD-13
Adminitration communale
Chemin des Gachettes 2
CH-1787 Mur (VD)
P +41 (0)26 673 25 55
E info@mur-vd.ch
www.mur-vd.ch

CH-VD-14
Adminstration communale de Rolle
Grand-Rue 44, case postale 156
CH-1180 Rolle
P +41 (0)21 822 44 44
E pascal.petter@rolle.ch
www.rolle.ch

CH-VD-15
Commune d'Yverdon-les-Bains
Hôtel de Ville
CH-1400 Yverdon-les-Bains
P +41 (0)24 423 61 11
E greffe@yverdon-les-bains.ch
www.yverdon.ch

CH-VD-16
Commune d'Yvonand
8, avenue du Temple
CH-1462 Yvonand
P +41 (0)24 557 73 00
E greffe@yvonand.ch
www.yvonand.ch

Zug

CH-ZG-01
Gemeindeverwaltung Cham
Mandelhof, Postfach 265
CH-6330 Cham
P +41 (0)41 784 47 47
E info@cham.zg.ch
www.cham.zg.ch

CH-ZG-02
Gemeindeverwaltung Hünenberg
Chamerstrasse 11, Postfach 261
CH-6331 Hünenberg
P +41 (0)41 784 44 44
E info@huenenberg.ch
www.zug.ch/behoerden/gemeinden/hunenberg/en

CH-ZG-03
Gemeinde Risch
Zentrum Dorfmatt
CH-6343 Rotkreuz
P +41 (0)41 798 18 18
E info@risch.zg.ch
www.rischrotkreuz.ch

CH-ZG-04, CH-ZG-05, CH-ZG-06
Stadtverwaltung Zug
Kolinplatz
CH-6300 Zug
P +41 (0)41 728 15 15
E stadtkanzlei@zug.zg.ch
www.stadtzug.ch

Zurich

CH-ZH-01
Gemeindeverwaltung Erlenbach
Seestrasse 59
CH-8703 Erlenbach
P +41 (0)44 913 88 00
E gemeinde@erlenbach.ch
www.erlenbach.ch

CH-ZH-02
Gemeindeverwaltung Greifensee
Gemeindehaus
Im Städtli
CH-8606 Greifensee
P +41 (0)43 399 21 21
E info@greifensee.zh.ch
www.greifensee.ch

CH-ZH-03
Gemeindeverwaltung Horgen
Bahnhofstrasse 10, Postfach
CH-8810 Horgen
P +41 (0)44 728 41 11
E gemeinde@horgen.ch
www.horgen.ch

CH-ZH-04
Gemeindeverwaltung Maur
Zürichstrasse 8
CH-8124 Maur
P +41 (0)43 366 13 66
E info@maur.ch
www.maur.ch

CH-ZH-05, CH-ZH-06
Gemeindeverwaltung Meilen
Dorfstrasse 100, Postfach
CH-8706 Meilen
P +41 (0)44 925 92 54
E meilen@meilen.zh.ch
www.meilen.ch

CH-ZH-07
Stadt Wädenswil
Florhofstrasse 6, Postfach 650
CH-8820 Wädenswil
P +41 (0)44 789 72 11
E info@waedenswil.ch
www.waedenswil.ch

CH-ZH-08
Stadtverwaltung Wetzikon
Bahnhofstrasse 167
CH-8620 Wetzikon ZH
P +41 (0)44 931 32 00
E gemeinde@wetzikon.ch
www.wetzikon.ch

CH-ZH-09, CH-ZH-10, CH-ZH-11
Stadt Zürich
Stadtkanzlei
Stadthausquai 17
CH-8022 Zürich
P +41 (0)44 412 11 11
E stadtkanzlei@zuerich.ch
www.stadt-zuerich.ch

CH-SG-01
Gemeindeverwaltung Hombrechtikon
Feldbachstrasse 12
CH-8634 Hombrechtikon
P +41 (0)55 254 92 92
E gemeinde@hombrechtikon.ch
www.hombrechtikon.ch

Austria

Carinthia

AT-KT-01
Gemeindeverwaltung Keutschach am See
A-9074 Keutschach
P +43 (0)4273 2291
E keutschach-see@ktn.gde.at
www.keutschach.at

Upper Austria

AT-OÖ-01, AT-OÖ-02, AT-OÖ-03, AT-OÖ-04
Gemeindeverwaltung Attersee am Attersee
Nussdorferstrasse 15
A-4864 Attersee
P +43 (0)7666 7755
E gemeinde@attersee.ooe.gv.at
www.attersee.ooe.gv.at

AT-OÖ-05
Gemeindeverwaltung Seewalchen
Rathausplatz 1
A-4863 Seewalchen am Attersee
P +43 (0)7662 4491 0
E gemeinde@seewalchen.ooe.gv.at
www.seewalchen.ooe.gv.at

AT-OÖ-06
Gemeindeverwaltung Nussdorf am Attersee
Dorfstrasse 33
A-4865 Nussdorf am Attersee
P +43 (0)7666 8055
E gemeinde@nussdorf.ooe.gv.at
www2.land-oberoesterreich.gv.at/internetgemeinden

AT-OÖ-07
Marktgemeindeamt Mondsee
Markplatz 14
A-5310 Mondsee
P +43 (0)6232 2203 0
E gemeinde@mondsee.ooe.gv.at
www2.land-oberoesterreich.gv.at/internetgemeinden

France

Jura

FR-39-01
Mairie
1, rue du Jura
F-39130 Clairvaux-les-lacs
P +33 (0)3 84 25 82 42
E mairie@clairvaux-les-lacs.com
www.clairvaux-les-lacs.com

FR-39-02
Mairie
Le Bourg
F-39130 Doucier
P +33 (0)3 84 25 77 57
E mairie.doucier@wanadoo.fr

FR-39-02
Mairie
Le Bourg
F-39130 Fontenu
P +33 (0)3 84 25 76 94
E –

FR-39-02
Mairie
8, rue de Crêts
F-39130 Marigny
P +33 (0)3 84 25 73 33
E mairiemarigny@wanadoo.fr

Savoie

FR-73-01
Mairie
Immeuble Veysin
F-73610 Aiguebelette-le-Lac
P +33 (0)4 79 36 05 62
E mairie.aiguebelette@wanadoo.fr

FR-73-01
Mairie
Le Rocheray
F-73610 Lépin-le-Lac
P +33 (0)4 79 36 01 66
E mairie.lepinlelac@wanadoo.fr

FR-73-01
Mairie
Chef Lieu
F-73610 Saint-Alban-de-Montbel
P +33 (0)4 79 36 02 14
E mairie.stalban.montbel@wanadoo.fr

FR-73-02
Mairie
Route du Lac
F-73470 Novalaise
P +33 (0)4 79 28 70 38
E novalaise@wanadoo.fr
www.novalaise.fr

FR-73-03
Mairie
Chemin du Lac
F-73100 Brison-Saint-Innocent
P +33 (0)4 79 54 33 60
E st-innocent@wanadoo.fr
www.brison-st-innocent.fr

FR-73-04
Mairie
313, rue de l'Eglise
F-73310 Chindrieux
P +33 (0)4 79 54 20 36
E mairie.chindrieux@wanadoo.fr

FR-73-05
Mairie
Chef Lieu
F-73310 Conjux
P +33 (0)4 79 54 25 40
E mairieconjux@numeo.fr

FR-73-06
Mairie
Le Paradis
F-73310 Saint-Pierre-de-Curtille
P +33 (0)4 79 54 25 48
E mairiestpierredecurtilles@numeo.fr

FR-73-07
Mairie
40, chemin Belledonne
F-73100 Tresserve
P +33 (0)4 79 61 45 20
E mairie.tresserve@wanadoo.fr

Haute-Savoie

FR-74-01
Mairie
BP 2305
F-74000 Annecy
P +33 (0)4 50 33 88 88
E mairie@ville-annecy.fr
www.ville-annecy.fr

FR-74-02
Mairie
Place Gabriel Fauré
F-74940 Annecy-le-Vieux
P +33 (0)4 50 23 86 00
E sg@mairie-annecy-le-vieux.fr
www.mairie-annecy-le-vieux.fr

FR-74-03
Mairie
Chef Lieu
1053, rue du Léman
F-74140 Chens-sur-Léman
P +33 (0)4 50 94 04 23
E machens@chens-sur-leman.mairies74.org
www.cc-baschablais.com/commune.php?site=chens

FR-74-04, F-74-06
Mairie
Place de la Mairie
F-74410 Saint-Jorioz
P +33 (0)4 50 68 60 44
E infos@saint-jorioz.fr
www.saint-jorioz.fr

FR-74-05, F-74-06
Mairie
2000, route d'Albertville
F-74320 Sévrier
P +33 (0)4 50 19 01 10
E mairie@sevrier.fr
www.sevrier.fr

Germany

Baden-Württemberg

DE-BW-01
Gemeindeverwaltung Öhningen
Klosterplatz 1
D-78337 Öhningen
P +49 (0)7735 81915
E buergermeister@oehningen.de
www.gemeinde-oehningen.de

DE-BW-02, DE-BW-03
Gemeindeverwaltung Gaienhofen
Im Kohlgarten 1
D-78343 Gaienhofen
P +49 (0)7735 81821
E gemeinde@gaienhofen.de
www.gaienhofen.de

DE-BW-04
Gemeinde Allensbach
Rathausplatz 1
D-78476 Allensbach
P +49 (0)7533 80121
E gemeinde@allensbach.de
www.allensbach.de

DE-BW-05, DE-BW-06, DE-BW-07
Stadtverwaltung Konstanz
Kanzleistrasse 13/15
D-78462 Konstanz
P +49 (0)7531 900211
E OB-Frank@stadt.konstanz.de
www.konstanz.de

DE-BW-08
Gemeinde Bodman-Ludwigshafen
Rathaus Ludwigshafen
Hafenstrasse 5
D-78351 Ludwigshafen
P +49 (0)7773 930011
E buergermeister@bodman-ludwigshafen.de
www.bodman-ludwigshafen.de

DE-BW-09
Gemeinde Sipplingen
Rathausstrasse 10
D-78354 Sipplingen
P +49 (0)7551 809620
E gemeinde@sipplingen.de
www.sipplingen.de

DE-BW-10
Gemeindeverwaltung Uhlingen-Mühlhofen
Aachstrasse 4
D-88690 Uhldingen-Mühlhofen
P +49 (0)7556 71710
E buergermeister@uhldingen-muehlhofen.de
www.uhldingen-muehlhofen.de

DE-BW-11, DE-BW-12
Gemeinde Seekirch
Hauptstrasse 23
D-88422 Seekirch
P +49 (0)7582 91296
E info@seekirch.de
www.seekirch.de

DE-BW-11, DE-BW-13, DE-BW-14
Bürgermeisteramt Alleshausen
Hauptstrasse 10
D-88422 Alleshausen
P +49 (0)7582 8178
E gemeinde@alleshausen.de
www.alleshausen.de

DE-BW-15
Stadt Bad Buchau
Marktplatz 2
D-88422 Bad Buchau
P +49 (0)7582 80814
E stadt@bad-buchau.de
www.badbuchau.de

DE-BW-16
Stadtverwaltung Bad Schussenried
Wilhelm-Schussen-Strasse 36
D-88427 Bad Schussenried
P +49 (0)7583 940 110
E rathaus@bad-schussenried.de
www.bad-schussenried.de

DE-BW-17
Gemeinde Hosskirch
Kirchstrasse 2
D-88374 Hosskirch
P +49 (0)7587 631
E info@gemeinde-hosskirch.de
www.gemeinde-hosskirch.de

DE-BW-18
Bürgermeisteramt Wolpertswende
Kirchplatz 4
D-88284 Wolpertswende
P +49 (0)7502 94030
E eberhard.heurich@wolpertswende.de
www.wolpertswende.de

DE-BW-19
Stadtverwaltung Aulendorf
Hauptstrasse 35
D-88326 Aulendorf
P +49 (0)7525 934 100
E info@aulendorf.de
www.aulendorf.de

DE-BW-20
Stadtverwaltung Bad Waldsee
Hauptstrasse 29
D-88339 Bad Waldsee
P +49 (0)7524 941301
E info@bad-waldsee.de
www.bad-waldsee.de

DE-BW-21
Gemeindeverwaltung Blaustein
Marktplatz 2
D-89130 Blaustein
P +49 (0)7304 802 501
E gemeinde@blaustein.de
www.blaustein.de

Bavaria

DE-BY-01
Gemeinde Weil
Landsberger Strasse 15
D-86947 Weil
P +49 (0)8195 9313 0
E hauptamt@weil.de
www.gemeinde-weil.de

DE-BY-02
Gemeinde Geltendorf
Schulstrasse 13
D-82269 Geltendorf
P +49 (0)8193 9321 0
E Gemeinde@Geltendorf.de
www.geltendorf.de

DE-BY-03
Gemeinde Feldafing
Possenhofener Strasse 5
D-82340 Feldafing
P +49 (0)8157 93110
E gemeinde@feldafing.de
www.feldafing.de

DE-BY-03
Bayerische Verwaltung der staatlichen Schlösser, Gärten und Seen
Schloss Nymphenburg, Eingang 16
D-80638 München
Postal Address: Postfach 20 20 63,
D-80020 München
P +49 (0)89 17908 0
E poststelle@bsv.bayern.de
www.schloesser.bayern.de

DE-BY-03
Branch Lake Starnberg: Bayerische Verwaltung der staatlichen Schlösser, Gärten und Seen
Aussenstelle Starnberger See
Max-Zimmermann-Strasse 11
D-82319 Starnberg
P +49 (0)8151 6975
E seeverwaltung.starnbergersee@bsv.bayern.de
www.schloesser.bayern.de/deutsch/seen/objekte/starnber.htm

Italy

Friuli Venezia Giulia

IT-FV-01
Regione Autonoma del Friuli Venezia Giulia
Piazza Oberdan, 6
I-34133 Trieste
P +39 040 3771111
E regurp.ts@regione.fvg.it
www.regione.fvg.it

IT-FV-01
Provincia di Pordenone
Largo S. Giorgio, 12
I-33170 Pordenone
P +39 0434 2311
E cultura@provincia.pordenone.it
E patrimonio@provincia.pordenone.it
www.provincia.pordenone.it

IT-FV-01
Comune di Caneva
Piazza Martiri Garibaldini, 8
I-33070 Caneva (Pordenone)
P +39 0434 797411
E segreteria@comune.caneva.pn.it
www.comune.caneva.pn.it

IT-FV-01
Comune di Polcenigo
Piazza Plebiscito, 1
I-3070 Polcenigo (Pordenone)
P +39 0434 74001
E info@comune.polcenigo.pn.it
www.comune.polcenigo.pn.it

IT-FV-01
Comunità Montana del Friuli Occidentale
Piazzale Vittoria, 1
I-33080 Barcis (Pordenone)
P +39 0427 76038 76083
E info@cm-friuli-occidentale.regione.fvg.it
www.cmfriulioccidentale.it

Lombardy

IT-LM-01–IT-LM-13
Regione Lombardia
Unità operativa: Valorizzazione aree e parchi archeologici e complessi monumentali
Via Fabio Filzi, 22
P +39 02 6765 3712
E monica_abbiati@regione.lombardia.it
www.lombardiacultura.it

IT-LM-01–IT-LM-05, IT-LM-13
Provincia di Brescia
Palazzo Broletto, Piazza Paolo VI, 29
I-25100 Brescia
P +39 030 3748 555
E urp@provincia.brescia.it]
www.provincia.brescia.it/portal/page/portal/provincia

IT-LM-06
Provincia di Cremona
c.so Vittorio Emanuele II, 17
I-26100 Cremona
P +39 0372 4061
E urp@provincia.cremona.it
www.provincia.cremona.it

IT-LM-07–IT-LM-08
Provincia di Mantova
Via Principe Amedeo, 32
I-46100 Mantova
P +39 0376 2041
E urp@provincia.mantova.it
www.provincia.mantova.it

IT-LM-09–IT-LM-12
Provincia di Varese
Villa Recalcati
I-21100 Varese
P +39 0332 252 042
E provinciavarese@provincia.va.it
www.provincia.va.it/index.html

IT-LM-01
Comune di Desenzano del Garda
Via Carducci, 4
I-25015 Desenzano del Garda (Brescia)
P +39 030 9994211
E urp@comune.desenzano.brescia.it
www.comune.desenzano.brescia.it

IT-LM-02
Comune di Manerba del Garda
Piazza Garibaldi, 19
I-25080 Manerba del Garda (Brescia)
P +39 0365 659801
E info@comune.manerbadelgarda.bs.it
web.comune.manerbadelgarda.bs.it

IT-LM-03
Comune di Padenghe sul Garda
Via I. Barbieri, 3
I-25080 Padenghe sul Garda (Brescia)
P +39 030 9995611
E segreteria@comune.padenghe.brescia.it
www.comune.padenghesulgarda.bs.it

IT-LM-04, IT-LM-13
Comune di Sirmione
Piazza Virgilio, 52
I-25019 Sirmione (Brescia)
P +39 030 9909100
E sirmione@sirmionebs.it
www.comune.sirmione.bs.it

IT-LM-05
Comune di Polpenazze del Garda
Piazza Biolchi, 1
I-25080 Polpenazze del Garda (Brescia)
P +39 0365 674012
E info@comune.polpenazzedelgarda.bs.it
www.comune.polpenazzedelgarda.bs.it

IT-LM-06
Comune di Piadena
Piazza Garibaldi, 3
I-26034 Piadena (Cremona)
P +39 0375 98125
P +39 0375 98328
www.comune.piadena.cr.it

IT-LM-07
Comune di Cavriana
Via Porta Antica, 23
I-46040 Cavriana (Mantova)
P +39 0376 811411
E comune.cavriana@cert.legalmail.it
www.comune.cavriana.mn.it

IT-LM-08
Comune di Monzambano
Piazza V. Emanuele, 15
I-46040 Monzambano (Mantova)
P +39 0376 800502
E info@comune.monzambano.mn.it
www.comune.monzambano.mn.it

IT-LM-09
Comune di Varese
Sindaco: Avv. Attilio Fontana
Via Sacco, 5
I-21100 Varese
P +39 0332 255 204
P +39 0332 255 237
E sindaco@comune.varese.it
E segreteria.sindaco@comune.varese.it
www.comune.varese.it

IT-LM-09
Comune di Biandronno
Piazza Cavour, 10
I-21024 Biandronno (Varese)
P +39 0332 766131
E ufficiosegreteria@comune.biandronno.va.it
www.comune.biandronno.va.it

IT-LM-10
Comune di Bodio-Lomnago
Piazza Don Cesare Ossola, 2
I-21020 Bodio Lomnago (Varese)
P +39 0332 947 136
E info@comune.bodio-lomnago.va.it
www.comune.bodio-lomnago.va.it/

IT-LM-11
Comune di Besnate
Via XXV Aprile, 7
I-21010 Besnate (Varese)
P +39 0331 274 892
E direzione@comune.besnate.va.it
www.comune.besnate.va.it

IT-LM-12
Comune di Cadrezzate
Via Vittorio Veneto, 29
I-21020 Cadrezzate (Varese)
P +39 0331 953102
E comune.cadrezzate.va@halleycert.it
www.comune.cadrezzate.va.it

Piedmont

IT-PM-01–IT-PM-02
Regione Piemonte
Piazza Castello, 165
I-10122 Torino
P +39 011 4321111, +39 011 4324903
E urp@regione.piemonte.it
www.regione.piemonte.it

IT-PM-01
Provincia di Biella
Via Battistero, 4
I-13900 Biella
P +39 015 35071
E sindaco@comune.biella.it
www.comune.biella.it

IT-PM-02
Provincia di Novara
Via Rosselli, 1
I-28100 Novara
P +39 0321 3701
E sindaco@comune.novara.it;
urp@comune.novara.it
www.comune.novara.it

IT-PM-01
Provincia di Torino
Piazza Palazzo di Città, 1
I-10122 Torino
P +39 011 4421111
E urc@comune.torino.it
www.comune.torino.it

IT-PM-01
Comune di Azeglio
Piazza Massimo D'Azeglio, 2
I-10010 Azeglio (Torino)
P +39 0125 72106
www.piemonteweb.it

IT-PM-01
Comune di Viverone
Via Umberto I, 107
I-13886 Viverone (Biella)
P +39 0161 98497
www.piemonteweb.it

IT-PM-02
Comune di Arona
Via San Carlo, 2
I-28041 Arona (Novara)
P +39 0322 231111
E webmaster@comune.arona.no.it
www.comune.arona.no.it/

Trentino South Tyrol / Autonomous Province of Trento

IT-TN-01, IT-TN-02
Provincia Autonoma di Trento
Piazza Dante, 15
I-38100 Trento
P +39 0461 494 600
E presidente@provincia.tn.it
www.provincia.tn.it/

IT-TN-01
Comune di Molina di Ledro
Via Roma, 14
I-38060 Molina di Ledro (Trento)
P +39 0464 508 127
E c.molinadiledro@comuni.infotn.it

IT-TN-02
Comune di Fiavé
Piazza S. Sebastiano, 24
I-38075 Fiavé (Trento)
P +39 0465 735 029
E c.fiave@comuni.infotn.it

Veneto

IT-VN-01–IT-VN-07
Regione Veneto
Direzione Beni Culturali
Ufficio Valorizzazione Patrimonio Storico Archeologico
Palazzo Sceriman, Cannaregio 168
I-30121 Venezia
P +39 041 2792629
E serv.beniculturali@regione.veneto.it
e francesco.ceselin@regione.veneto.it
www.regione.veneto.it

IT-VN-01–IT-VN-06
Provincia di Verona
Via Santa Maria Antica, 1
I-37121 Verona
P +39 045 9288611
E urp@provincia.vr.it
http://portale.provincia.vr.it/

IT-VN-07
Provincia di Padova
Palazzo Santo Stefano
Piazza Antenore, 3
I-35121 Padova
P +39 049 8201111
E urp@provincia.padova.it
www.provincia.pd.it/

IT-VN-01, IT-VN-02
Comune di Lazise
Piazza Vittorio Emanuele II, 20
I-37017 Lazise (Verona)
P +39 045 6445111
E info@comune.lazise.vr.it
www.comune.lazise.vr.it

IT-VN-03
Comune di Nogara
Via Falcone-Borsellino, 1
I-37054 Nogara (Verona)
P +39 0442 513311
E info@comune.nogara.vr.it
www.comune.nogara.vr.it/

IT-VN-04, IT-VN-05
Comune di Peschiera del Garda
P.le Betteloni, 3
I-37019 Peschiera del Garda (Verona)
P +39 045 6400600
E info@peschieradelgarda.org
www.peschieradelgarda.org

IT-VN-06
Comune di Cerea
Via XXV Aprile, 52
I-37053 Cerea (Verona)
P +39 0442 80055
E info@comune.cerea.vr.it
www.cerea.net/home

IT-VN-07
Comune di Arquà Petrarca
Piazza San Marco, 1
I-35032 Arquà Petrarca (Padova)
P +39 0429 777100
E arqua.petrarca@tin.it
www.comune.arqua.pd.it/

Slovenia

SI-IG-01, SI-IG-02
Občina Ig
Govekarjeva cesta 6
SI-1292 Ig
P + 386 (0)1 280 23 00
E info@obcina-ig.si
www.obcina-ig.si

8.c.2 Museums and collections of archaeological finds

The following list contains museums and archaeological parks that have finds from pile-dwelling sites as part of their permanent exhibitions. Also listed are archaeological parks with reconstructions of pile dwellings. In the 19th century, artefacts from lakeside settlements were sold to collectors and are thus on display in many museums all over the world. The addresses listed here only refer to the countries that are involved in the Unesco World Heritage candidature Prehistoric Pile Dwellings around the Alps.

Switzerland

Aargau

Lenzburg
Museum Burghalde
Schlossgasse 23
CH-5600 Lenzburg
P +41 (0)62 891 66 70
E burghalde@lenzburg.ch
www.museumburghalde.ch

Berne

Bern
Bernisches Historisches Museum
Helvetiaplatz 5
CH-3006 Bern
P +41 (0)31 350 77 11
E info@bhm.ch
www.bhm.ch

Biel
Museum Schwab
Seevorstadt 50
CH-2502 Biel
P +41 (0)32 322 76 03
E info@muschwab.ch
www.bielbienne.ch

La Neuveville
Musée d'histoire
Ruelle de l'Hôtel de Ville
CH-2520 La Neuveville
P +41 (0)32 751 67 15
E catherine.chapuis@bluewin.ch
www.laneuveville.ch

Lüscherz
Pfahlbaumuseum Sammlung Iseli
Gemeindehaus
CH-2576 Lüscherz
P +41 (0)32 338 22 27
E info@luescherz.ch
www.luescherz.ch

Twann
Pfahlbausammlung Dr. Carl Irlet
Zwez Abbelise, Dorfstr. 28
CH-2513 Twann
P +41 (0)32 315 11 59
www.twann.ch

Fribourg

Estavayer-le-Lac
Le Musée des grenouilles
Rue du Musée 13
CH-1470 Estavayer-le-Lac
P +41 (0)26 664 80 65
E info@museedesgrenouilles.ch
www.museedesgrenouilles.ch

Fribourg
Musée d'art et d'histoire
Rue de Morat 12
CH-1700 Fribourg
P +41 (0)26 305 51 40
E mahf@fr.ch
www.mahf.ch

Gletterens
Village Lacustre de Gletterens
CH-1544 Gletterens
P +41 (0)76 381 12 23
E info@village-lacustre.ch
www.village-lacustre.ch

Murten
Museum Murten
Ryf 4
CH-3280 Murten
P +41 (0)26 670 31 00
E kontakt@museummurten.ch
www.museumsmurten.ch

Geneva

Geneva
Musée d'art et d'histoire
Rue Charles Galland 2
CH-1206 Genève
P +41 (0)22 418 26 00
E mah@ville-ge.ch
www.ville-ge.ch

Lucerne

Schötz
Wiggertaler Museum
Gemeindeverwaltung / Dorfchärn 1,
Postfach
CH-6247 Schötz
P +41 (0)41 970 28 54
E hj.luterbach@lula.ch
www.hvwiggertal.ch/museum

Neuchâtel

Boudry
Musée de l'Areuse
Avenue du collège 18
CH-2017 Boudry
P +41 (0)32 846 19 16
E marie-aldine@bluewin.ch
www.le-musee.ch

Hauterive
Laténium
Parc et musée d'archéologie
de Neuchâtel
Espace Paul Vouga
CH-2068 Hauterive
P +41 (0)32 889 89 15
E OMAN@ne.ch
www.latenium.ch

Schaffhausen

Schaffhausen
Museum zu Allerheiligen
Baumgartenstrasse 6
CH-8200 Schaffhausen
P +41 (0)52 633 07 77
E admin@allerheiligen@stsh.ch
www.allerheiligen.ch

Schwyz

Vorderthal
Marchmuseum
Wägitalerstrasse 2
CH-8857 Vorderthal
E info@marchring.ch
www.marchring.ch

Solothurn

Olten
Archäologisches Museum
Kanton Solothurn
Konradstrasse 7
CH-4600 Olten
P +41 (0)62 212 89 89
E info@historischesmuseum-olten.ch
www.historischesmuseum-olten.ch

Schönenwerd
Bally Landschaftspark
c/o Kanzlei Bürgergemeinde
Burgstrasse 16
CH-5012 Schönenwerd
www.schoenenwerd.ch

St. Gall

Rorschach
Museum im Kornhaus
Hafenplatz 2
CH-9401 Rorschach
P +41 (0)71 841 70 34
E info@tourist-rorschach.ch
www.tourist-rorschach.ch

St. Gall
Historisches und Völkerkundemuseum
Museumstr. 50
CH-9000 St. Gallen
P +41 (0)71 242 06 42
E infi@hmsh.ch
www.hmsh.ch

Thurgau

Arbon
Historisches Museum Arbon
Schloss Arbon
CH-9320 Arbon
P +41 (0)71 446 60 10
www.arbon.ch/index.php?show=195

Museums-Gesellschaft
Alemannenstrasse 4
CH-9320 Arbon
P +41 (0)71 446 10 58

Eschenz
Museum Eschenz, 'Blauer Aff'
Unterdorfstrasse 14
CH-8264 Eschenz
P +41 (0)52 741 64 60
E museum@eschenz.ch
www.museum-eschenz.ch

Frauenfeld
Museum für Archäologie des Kantons Thurgau
Freie Strasse 26
CH-8510 Frauenfeld
P +41 (0)52 724 22 19
E archaeologie@tg.ch
www.archaeologisches-museum.tg.ch

Pfyn
Pfyn-Trotte
CH-8505 Pfyn
P +41 (0)52 770 14 65
E info@museumpfyn.ch
www.museumpfyn.ch

Steckborn
Heimatmuseum im Turmhof
Seestr. 84
CH-8266 Steckborn
P +41 (0)52 761 30 28
E –

Vaud

Grandson
Musée du Château de Grandson
Place Château
CH-1422 Grandson
P +41 (0)24 445 29 26
E chateau@grandson.cvwww.chateau-grandson.ch

Lausanne
Musée cantonal et d'archéologie et d'histoire
Place de la Riponne 6, Palais de Rumine
CH-1005 Lausanne
P +41 (0)21 316 34 30
E info@mcah.ch
www.musee-vd.ch

Yverdon-les-Bains
Musée d'Yverdon-les-Bains
Le Château, Casa postale 968
CH-1401 Yverdon-les-Bains
P +41 (0)24 425 93 10
E musee.yverdon@bluewin.ch
www.yverdonlesbains-tourisme.ch

Zug

Risch
Heimatmuseum Seehof
Zentrum Dorfmatt 1
CH-6343 Buonas
P +41 (0)41 798 18 19
E info@risch.zg.ch

Zug
Kantonales Museum für Urgeschichte
Hofstr. 15
CH-6300 Zug
P +41 (0)41 728 28 80
E info@urgeschichte@dbk.zg.ch
www.museenzug.ch

Zurich

Horgen
Ortsmuseum Horgen
Bahnhofstrasse 27
CH-8810 Horgen
P +41 (0)44 725 15 58
E ortsmuseum-horgen@bluewin.ch
www.ortsmuseum-horgen.ch

Meilen
Ortsmuseum Meilen
Kirchgasse 14
CH-8706 Meilen
P +41 (0)44 923 22 82
E bea.neururer@gmx.ch
www.ortsmuseum-meilen.ch

Pfäffikon [from 2011]
Heimatmuseum Pfäffikon
Im Kehr / Im Stock 6
CH-8330 Pfäffikon
P +41 (0)44 950 42 80
E he_kaspar@bluewin.ch
www.chronikstube.de.tl/heimatmuseum.htm

Wetzikon
Museum Wetzikon
Farbstrasse 1
CH-8620 Wetzikon
P +41 (0)44 931 23 78
E hanskaspar.walder@wetzikon.ch
www.wetzikon.ch/stadt/kultur/museum

Zurich
Schweizerisches Landesmuseum
Museumsstrasse 2
CH-8021 Zürich
P +41 044 218 65 11
E kanzlei@slm.admin.ch
www.slmnet.ch

Austria

Bregenz
Landesmuseum Bregenz
Kornmarktplatz 1
A-6900 Bregenz
P +43 (0)5574 460 500
E info@vlm.att
www.vlm.at

Vienna
Naturhistorisches Museum
Prähistorische Abteilung
Burgring 7
A-1014 Wien
P +43 (0)1 521 77 277
E office@nhm-wien.ac.at
www.nhm-wien.ac.at

Vienna
Institut für Ur- und Frühgeschichte
Studiensammlung des Institutes für
Ur- und Frühgeschichte
Franz-Kleingasse 1
A-1190 Wien
P +43 (0)1 4277 40461
E ufg.sammlung@univie.ac.at
httP//ufgsammlung.univie.ac.at

Carinthia

Klagenfurt
Landesmuseum Kärnten
Museumsgasse 2
A-9021 Klagenfurt
P +43 (0)50 536 30599
E info@landesmuseum-ktn.at
www.landesmuseum-ktn.at

Upper Austria

Linz
Oberösterreichische Landesmuseen
Schlossmuseum
Schlossberg 1
A-4010 Linz,
P +43 (0)732 774 419 0
E schloss@landesmuseum.at
www.landesmuseum.at/en/lm

Mondsee
Heimat- und Pfahlbaumuseum
Marschall-Von-Wrede-Platz 1
A-5310 Mondsee
P +43 (0)6232 2895
E office@mondseeland.org
www.mondseeland.org/museen.html

Schörfling
Heimathaus Schörfling
Gmundnerstrasse 8
A-4861 Schörfling am Attersee
P +43 (0)7662 2259
E klaus.petermayr@utanet.at

Vöcklabruck
Heimathaus Vöcklabruck
Hinterstadt 18
A-4840 Vöcklabruck
P +43 (0)676 8410 6699
E heimathaus@asak.at
www.voecklabruck.at

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Saint-Germain-en-Laye
Musée d'Archéologie Nationale
Château, Place Charles de Gaulle,
F-78000 Saint-Germain-en-Laye
P +33 (0)1 39 10 13 00
E culturel.man@culture.gouv.fr
www.musee-antiquitesnationales.fr

Franche Comté

Besançon
Musée des Beaux Arts et d'Archéologie
1, place de la Révolution
F-25000 Besançon
P +33 (0)3 81 87 80 49
E musee-beaux-arts-archeologie@besancon.fr
www.musee-arts-besancon.org

Dôle
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85, rue des Arènes
F-39100 Dôle
P +33 (0)3 84 79 25 85
E musee.dole@wanadoo.fr
www.musees-franchecompte.com

Lons-le-Saunier
Musée d'Archéologie du Jura
Rue René Maire
F-39000 Lons-le-Saunier
P +33 (0)3 84 47 88 45
E musee.archeologie@ville-lons-le-saunier.fr
www.ville-lons-le-saunier.fr

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Annecy
Musée-Château et Observatoire Régional des Lacs Alpins
Place du Château
F-74000 Annecy
P +33 (0)4 50 33 87 30
E musees@agglo-annecy-fr
www.musees.agglo-annecy.fr

Chambéry
Musée Savoisien
Square de Lannoy de Bissy
F-73000 Chambéry
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E musees@mairie-chambery.fr
www.mairie-chambery.fr

Charavines
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Place de l'église
F-38850 Charavines
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E info@museelacdepaladru.com
www.museelacdepaladru.com

Germany

Berlin
Staatliche Museen zu Berlin
Museum für Vor- und Frühgeschichte
Spandauer Damm 22
D-14059 Berlin
P +49 (0)30 32674840
E mvf@smb.spk-berlin.de
www.smb.museum/smb/home/index.php

Mainz
Römisch-Germanisches Zentralmuseum
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D-55116 Mainz
P +49 (0)6131 91240
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Heimatmuseum Allensbach
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E info@museum-allensbach.de
www.museum-allensbach.de

Bad Buchau
ArchäoPark Federsee
Federseemuseum Bad Buchau
August Gröber Platz
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www.federseemuseum.de

Biberach an der Riss
Museum Biberach (Braith-Mali-Museum)
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www.museum-biberach.de

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E kindl@blaustein.de
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D-78351 Bodman-Ludwigshafen
P +49 (0)7773 930040
E tourist-info@bodman-ludwigshafen.de
www.bodman-ludwigshafen.de

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D-78166 Donaueschingen
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E a.wilts@fuerstenberg-gv.de
www.fuerstenberg-kultur.de

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D-79098 Freiburg im Breisgau
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Friedrichshafen
Zeppelin Museum Friedrichshafen GmbH
Seestrasse 22
D-88045 Friedrichshafen
P +49 (0)7541 380111
E zeller@zeppelin-museum.de
www.zeppelin-museum.de

Gaienhofen am Bodensee
Hermann-Hesse-Höri-Museum
Kapellenstrasse 8
D-78343 Gaienhofen am Bodensee
P +49 (0)7735 440949
E info@hermann-hesse-hoeri-museum.de
www.hermann-hesse-hoeri-museum.de

Karlsruhe
Badisches Landesmuseum Karlsruhe
Schloss
D-76131 Karlsruhe
P +49 (0)721 926 6514
E info@landesmuseum.de
www.landesmuseum.de

Konstanz
Archäologisches Landesmuseum Baden-Württemberg
Branch Konstanz
Benediktinerplatz 5
D-78467 Konstanz
P +49 (0)7531 98040
E info@konstanz.alm-bw.de
www.konstanz.alm-bw.de

Konstanz
Rosgartenmuseum Konstanz
Rosgartenstrasse 3–5
D-78459 Konstanz
P +49 (0)7531 900 246
E EngelsingT@stadt.konstanz.de
www.rosgartenmuseum-konstanz.de

Mannheim
Reiss-Engelhorn-Museen
Museum Weltkulturen D5
D-68159 Mannheim
P +49 (0)621 2933 150
E reiss-engelhorn-museen@mannheim.de
www.reiss-engelhorn-museen.de

Offenburg
Museum im Ritterhaus
Ritterstrasse 10
D-77652 Offenburg
P +49 (0)781 822577
E museum@offenburg.de
www.museum-offenburg.de

Radolfzell
Stadtmuseum Radolfzell
Seetorstrasse 3
D-78315 Radolfzell
P +49 (0)7732 81530
E museum@radolfzell.de
www.radolfzell.de

Sigmaringen
Unternehmensgruppe Fürst von Hohenzollern
Schloss Sigmaringen
Karl Anton Platz 8
D-72488 Sigmaringen
P +49 (0)7571 729 230
E schloss@hohenzollern.com
www.hohenzollern.com

Sipplingen
Pfahlbausammlung in der Tourist-Information Sipplingen
Tourist-Information Sipplingen
Seestrasse 3
D-78354 Sipplingen
P +49 (0)7551 9499 370
E touristinfo@sipplingen.de
www.sipplingen.de

Stuttgart
Landesmuseum Württemberg
Schillerplatz 6
D-70173 Stuttgart
P +49 (0)711 8953 5111
E info@landesmuseum-stuttgart.de
www.landesmuseum-stuttgart.de

Tübingen
Museum Schloss Hohentübingen
Burgsteige 11
D-72070 Tübingen
P +49 (0)7071 2977 384
E museum@uni-tuebingen.de
www.uni-tuebingen.de/museum-schloss/

Überlingen
Städtisches Museum Überlingen
Krummebergstrasse 30,
D-88662 Überlingen
P +49 (0)7551 991 079
E museum.ueberlingen@gmx.de
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Uhldingen-Mühlhofen
Pfahlbaumuseum
Unteruhldingen Bodensee
Freilichtmuseum und Forschungsinstitut
Strandpromenade 6
D-88690 Uhldingen-Mühlhofen
P +49 (0)7556 928 900
E mail@pfahlbauten.de
www.pfahlbauten.de

Ulm
Ulmer Museum
Marktplatz 9
D-89073 Ulm
P +49 (0)731 1614 330
E info.ulmer-museum@ulm.de
www.museum.ulm.de

Wangen am Untersee
Museum Fischerhaus Wangen am Untersee
Förderverein Fischerhaus Wangen am Untersee e.V.
Im Ettenbohl 18
D-78337 Öhningen
P +49 (0)7735 3922
E info@museum-fischerhaus.de
www.museum-fischerhaus.de

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Feldafing
Gärtnerhaus auf der Roseninsel
Wittelsbacher Park 1
D-82340 Feldafing
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Aussenstelle Starnberger See
Max-Zimmermann-Strasse 11
D-82319 Starnberg
P +49 (0)8151 6975
E seeverwaltung.starnbergersee@bsv.bayern.de
www.schloesser.bayern.de/deutsch/seen/objekte/starnber.htm

Mindelheim
Südschwäbisches Archäologiemuseum
Jesuitenkolleg
Hermelestrasse 4
D-87719 Mindelheim
P +49 (0)8261 6964
E museen@mindelheim.de
www.mindelheimer-museen.de

München
Archäologische Staatssammlung München –
Museum für Vor- und Frühgeschichte
Lerchenfeldstrasse 2
D-80538 München
P +49 (0)89 2112402
E archaeologische.staatssammlung@extern.lrz-muenchen.de
www.archaeologie-bayern.de

Nürnberg
Germanisches Nationalmuseum
Kartäusergasse 1
D-90402 Nürnberg
P +49 (0)911 13310
E info@gnm.de
www.gnm.de

Pestenacker
Prähistorische Siedlung Pestenacker
Staatsstrasse 2052
D-86947 Weil-Pestenacker

Förderverein Prähistorische Siedlung Pestenacker e.V.
c/o Chairman Mr. Michael Bachmeir
Jahnstrasse 6
D-86916 Kaufering
P +49 (0)8191 70249
E bachmeirmichael@web.de
www.gemeinde-weil.de/ueber/fvpsp.htm

Italy

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Soprintendenza al Museo Nazionale Preistorico Etnografico 'L. Pigorini'
Piazzale Guglielmo Marconi, 14
I-00144 Roma E.U.R.
P +39 06 549521
E smn-pe@beniculturali.it
www.pigorini.arti.beniculturali.it

Friuli Venezia Giulia

Pordenone
Museo Archeologico del Friuli Occidentale
Castello di Torre, Via Vittorio Veneto, 19
I-33170 Pordenone
P +39 0434 541433
E castellotorre.pn@libero.it
www.comune.pordenone.it/comune/strutture/museoarcheologico

Lombardy

Arsago Seprio
Civico Museo Archeologico
Viale Vanoni, 20
I-21010 Arsago Seprio (Varese)
P +39 0331 299927
E segreteria@comune.arsago-seprio.va.it
www.simarch.org/

Biandronno-Varese
Museo Preistorico Isolino Virginia
via Marconi
I-21024 Biandronno Varese
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E museoarcheologico.mirabello@comune.varese.it
www.cspa-va.it/isolino_virgina.html,cspa.va@alice.it

Brescia
Musei Civici d'Arte e Storia
Via Musei, 81
I-25121 Brescia
P +39 030 2977800
E museiarte@comune.brescia.it
www.museiarte.brescia.it

Cavriana
Museo Archeologico dell'Alto Mantovano
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I-46040 Cavriana (Mantova)
P +39 0376 806330
E museo.cavriana@libero.it
www.museocavriana.it

Como
Museo Archeologico 'Paolo Giovio'
Piazza Medaglie d'Oro, 1
I-22100 Como
P +39 031 271343
E biblioteca.museicivici@comune.como.it
www.comune.como.it/como_files/da_visitare/musei/giovio.html

Desenzano
Museo Civico Archeologico 'Giovanni Rambotti'
Chiostro di Santa Maria de Senioribus
Via T. Dal Molin, 7/c
I-25015 Desenzano del Garda (Brescia)
P +39 030 91 44 529
E cdes.museo@onde.net
www.onde.net/desenzano/citta/museo/index.htm

Gallarate
Museo della Società di Studi Patri
Chiostro del Convento di S. Francesco
Via Borgo Antico, 4
I-21013 Gallarate (Varese)
P +39 0331 795092
E museidistudipatri@gmail.com

Gavardo
Museo Archeologico della Valle Sabbia
Piazzetta San Bernardino, 2
I-25085 Gavardo (Brescia)
P +39 0365 371474
E gavardo@istituzionemuseale.191.it
www.museivallesabbia.net

Lecco
Musei Civici-Museo Archeologico
Palazzo Belgiojoso, c.so G. Matteotti, 32
I-23900 Lecco
P +39 0341 481247
E segreteria.museo@comune.lecco.it
www.museilecco.org/ma/index.htm

Manerba
Museo Civico Archeologico della Valtenesi
Via Rocca, 20
I-25080 Manerba del Garda (Brescia)
P +39 0365 551121
E info@comune.manerbadelgarda.bs.it
www.comune.manerbadelgarda.bs.it

Mantova
Museo Archeologico Nazionale di Mantova
Piazza Castello
I-46100 Mantova
P +39 0376 320003
E archeologia.mn@inwind.it
www.archeologica.lombardia.beniculturali.it

Milano
Civiche Raccolte Archeologiche
Castello Sforzesco, Sale Viscontee della Corte Ducale
Piazza Castello
I-20121 Milano
P +39 02 88467779
E patrizia.frontini@comune.milano.it
www.milanocastello.it

Piadena
Civico Museo Archeologico Platina
Piazza G. Garibaldi, 3
I-26034 Piadena (Cremona)
P +39 0375 98125
E info@museo-piadena.net
www.museo-piadena.net

Sirmione
Grotte di Catullo e Museo Archeologico
Piazzale Orti Manara, 4
I-25019 Sirmione (Brescia)
P +39 030 916157
E sba-lom@beniculturali.it
www.archeologica.lombardia.beniculturali.it

Varese
Museo Civico Archeologico di Villa Mirabello
Piazza della Motta, 4
I-21100 Varese
P +39 334 6659567
E museoarcheologico.mirabello@comune.varese.it; cspa.va@alice.it
www.cspa-va.it

Piedmont

Arona
Civico Museo Archeologico di Arona
Piazza San Graziano, 36
I-28041 Arona (Novara)
P +39 0322 48294
E webmaster@comune.arona.no.it
www.archeomuseo.it/

Biella
Museo del Territorio Biellese
Chiostro di San Sebastiano
Via Q. Sella
I-13900 Biella
P +39 015 2529345
E info@museodelterritorio.biella.it
www.museodelterritorio.biella.it

Torino
Museo Nazionale di Antichità
Via XX Settembre, 88 c
I-10124 Torino
P +39 011 5211106
E info@museoarcheologico.it
www.museoantichita.it/

Torino
Museo Storico Nazionale dell'Artiglieria
Corso Galileo Ferraris, 1
I-10100 Torino
P +39 011 5603111
www.artiglieria.org/

Trentino South Tyrol / Autonomous Province of Trento

Fiavé
Museo Parco delle Palafitte di Fiavé
Via 3 Novembre
I-38075 Fiavé (Trento)
P +39 0461 492161
E archeologica@provincia.tn.it
www.trentinocultura.net

Molina di Ledro
Museo delle Palafitte
Via Lungolago, 1
I-30060 Molina di Ledro (Trento)
P +39 0464 509382
E romana.scandolari@mtsn.tn.it
www.palafitteledro.it

Riva del Garda
Museo di Riva del Garda
Piazza C. Battisti, 3/A
I-38066 Riva del Garda (Trento)
P +39 0464 573869
E museo@comune.rivadelgarda.tn.it
www.comune.rivadelgarda.tn.it/museo/

Trento
Museo Tridentino di Scienze Naturali
Via Calepina
I-38100 Trento
P +39 0461 222 918
E info@mtsn.tn.it
www.mtsn.tn.it/

Trento
Castello del Buonconsiglio
Monumenti e Collezioni Provinciali
Via B. Clesio 1
I-38100 Trento
P +39 0461 233770
E franco.marzatico@castellodelbuonconsiglio.tn.it
http://new.buonconsiglio.it/

Veneto

Castelnovo Bariano
Museo Archeologico
via Cavo Bentivoglio di S. Pietro Polesine
I-45030 Castelnovo Bariano (Rovigo)
P +39 0425 850202
E museo@comune.castelnovobariano.ro.it
www.comune.castelnovobariano.ro.it/museo/index.htm

Cavaion Veronese
Museo Civico Archeologico di Cavaion Veronese
Piazza G. Fracastoro 8
I-37010 Cavaion Veronese (Verona)
P +39 045 6265711
E segreteria@comunecavaion.it
www.comunecavaion.it/index.htm

Este
Museo Nazionale Atestino
Via Guido Negri, 9/c
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P +39 042 92085
E atestino.archeopd@arti.beniculturali.it
www.ceramicadieste.it/museoat/museo.htm

Legnago
Centro Ambientale Archeologico Museo Civico di Legnago
Via Fermi, 10
I-37045 Legnago (Verona)
P +39 0442 601460
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Verona
Museo Civico di Storia Naturale
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P +39 04 58079400; +39 045 8035639
E mcsnat@comune.verona.it
www.museostorianaturaleverona.it/

Vicenza
Museo Naturalistico Archeologico
Contrada S. Corona, 4
I-36100 Vincenza
P +39 0444 320440
E museonatarcheo@comune.vicenza.it
www.museicivicivicenza.it

Slovenia

Ljubljana
Mestni muzej Ljubljana
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SI-1000 Ljubljana
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www.mestnimuzej.si

Ljubljana
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P +386 (0)1 24 14 400
E info@nms.si
www.narmuz-lj.si

8.c.3 Laboratories of dendrochronology

This section lists the dendrochronological laboratories dealing with timbers from the *Prehistoric Pile Dwellings around the Alps*.

Switzerland

Archäologischer Dienst des Kantons Bern
Bereich Unterwasser- und Feuchtbodenarchäologie
Labor für Dendrochronologie
Seestrasse 6
CH-2572 Sutz
P +41 (0)32 397 19 87
E john.francuz@erz.be.ch
www.erz.be.ch/site/index/kultur/archaeologi

Laboratoire de dendrochronologie
Office cantonal d'archéologie
Espace Paul Vouga
CH-2068 Hauterive
P +41 (0)32 889 87 38
E patrik.gassmann@ne.ch
www.latenium.ch/SA

L.R.D. Laboratoire Romand de Dendrochronologie
4 Rue Saint-Michel
CH-1510 Moudon
P +41 (0)21 905 17 17
E ird@bluewin.ch
www.lrd.ch

Amt für Städtebau der Stadt Zürich
Labor für Dendrochronologie
Seefeldstrasse 317
CH-8008 Zürich
P +41 (0)44 387 84 30
E felix.walder@zuerich.ch
www.dendrolabor.ch

Austria

Working group on Dendrochronology at the Department of Geography
University of Innsbruck
Innrain 52f
A-6020 Innsbruck
P +43-(0)512-507 5401
E kurt.nicolussi@uibk.ac.at
www.uibk.ac.at/geographie/forschung/dendro/

Vienna Institute for Archaeological Sience – Dendrolab
Universität Wien
Geozentrum
Althansstrasse 14
A-1090 Vienna
P +43 (0)1 4277 403 08
E otto.cichocki@univie.ac.at
www.univie.ac.at/vias/dendrochronologie.html

Institute of Wood Science and Technology
University of Natural Resources and Applied Life Sciences
Peter Jordan Strasse 82
A-1190 Vienna
P +43 (0)1 47654 4250
E ihf@mail.boku.ac.at
www.map.boku.ac.at/holzforschung.html

France

Laboratoire Chrono-environnement
Université de Besançon
La Bouloie-UFR Sciences et Techniques
16, route de Gray
F-25030 Besançon cedex.
P +33 (0)3 81 66 62 55
E chrono-env@univ-fcomte.fr
http://chrono-environnement.univ-fcomte.fr

Archéolabs
Le Châtelard
F-38840 Saint-Bonnet-de-Chavagne
P +33 (0)4 76 38 51 03
E archeolabs@wanadoo.fr
www.archeolabs.com

Germany

Landesdenkmalamt Baden-Württemberg
Abteilung Archäologische Denkmalpflege
Arbeitsstelle Gaienhofen-Hemmenhofen
Fischersteig 9
D-78343 Hemmenhofen
P +49 (0)7735 3001
E andre.billamboz@rps.bwl.de

Bayerisches Landesamt für Denkmalpflege
Dienststelle Thierhaupten
Dendrolabor
Klosterberg 8
D-86672 Thierhaupten
P +49 (0)8271 427 536
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E franz.herzig@t-online.de

Italy

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E dendrodata@tin.it

Slovenia

Univerza v Ljubljani
Biotehniška fakulteta
Oddelek za lesarstvo
Rožna dolina, Cesta VIII/34
SI-1000 Ljubljana
P +386 (0)1 423 11 61
E katarina.cufar@bf.uni-lj.si

8.d Official Web address

www.palafittes.ch

9.

Volume I

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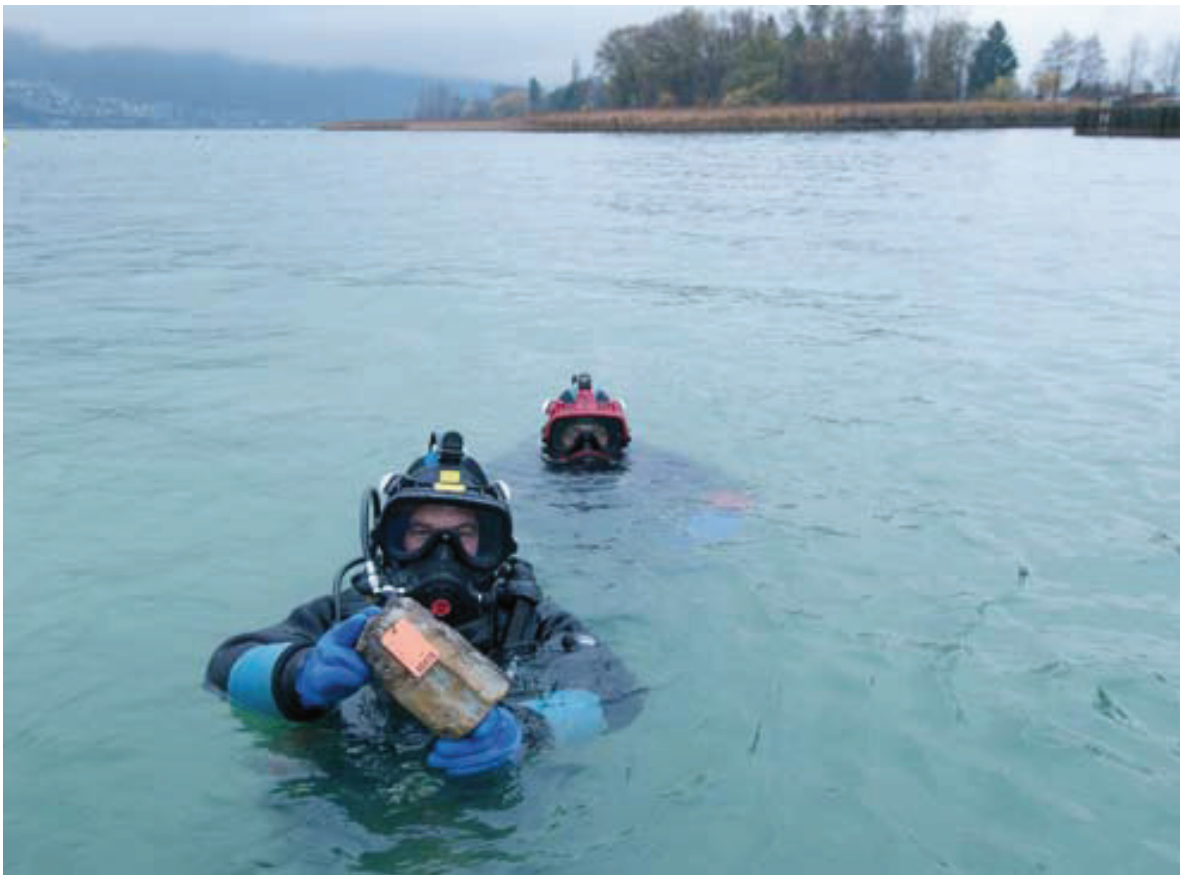

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