

Archaeological Research in the Federsee Fen, Southwest Germany. Retrospective and Future Prospects.

*Arheološke raziskave na barju Federsee v južni Nemčiji.
Dosedanja prizadevanja in obeti za prihodnost.*

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Abstract: In 1979, the State Office for Cultural Heritage Management (*Landesdenkmalpflege*)¹ Baden-Württemberg restarted trial trenching in the Federsee fen after a long break in investigations following World War II. Responsible for the scientific research and management of the wetland sites located in the foothills of the Alps in Baden-Württemberg is the branch office (*Arbeitsstelle*)² for wetland archaeology in Hemmenhofen, which over the three decades of its activity gained considerable experience in the exposure of the archaeological heritage in wetland areas. Drainage works and modern agriculture, in particular, lead to a continuous dewatering of the Federsee fen and hence to the decomposition of archaeological remains. To prevent the archaeological sites from disappearing, protection measures need to be implemented. With the inscription of the pile dwellings on UNESCO's World Heritage List in 2011, the South German wetland archaeology now faces a turning point.

Keywords: archaeological research, Federsee, pile dwellings, protection measures, PR-work, research history, South Germany, wetland archaeology, world heritage

Retrospective

The Federsee basin, which is located at the northern edge of the Alpine foothills in Upper Swabia, close to the upper Danube River, is one of the fens richest in archaeological finds around the Alps. Since the first discoveries of archaeological sites in the 19th century, but especially after the large-scale excavations and landscape research in the 1920s undertaken by the *Urgeschichtliche Forschungsinstitut (UFI)* of the *Eberhard Karls Universität Tübingen* (e.g. Schmidt 1930/1937), the Federsee fen gained reputation as an important archaeological area (Schlichtherle 2003, 179). Until 1930, four Neolithic and one Bronze Age settlement were found in the southern Federsee fen (Schröter 2009, 15–33). The large-scale excavations of these five sites during the 1920s can be described as “*siedlungsarchäologische Pionierleistung*” (Schlichtherle 2009a, 9f). The modern excavation techniques and scientific analyses undertaken were forward-looking. Foundations for botanical, zoological, geological as well as dendrochronological analyses were laid.

Like most of the German prehistory, the archaeological research of the Federsee region in the 1930s was greatly

Izveček: Zavod za varstvo kulturne dediščine (*Landesdenkmalpflege*)¹ Baden-Württemberg je leta 1979, po dolgem premoru vse od 2. svetovne vojne, ponovno začel izvajati sondiranja na barju Federsee. Izpostava (*Arbeitsstelle*)² za arheologijo mokrih okolij v Hemmenhofnu že več kot 30 let vodi znanstvene raziskave ter upravlja barja na obronkih Alp v pokrajini Baden-Württemberg, s čimer so pridobili pomembne izkušnje na področju predstavljanja arheološke dediščine v mokrih okoljih. Ob tem pa so predvsem kopanje drenažnih jarkov in sodobno kmetijstvo vodili v nenehno osuševanje barja Federsee in posledično propadanje arheoloških ostalin. V želji po preprečevanju izginjanja arheoloških najdišč je potrebno sprejeti ukrepe za njihovo zaščito. Vpis kolišč na UNESCO Seznam svetovne dediščine leta 2011 predstavlja za južnonemško arheologijo mokrih okolij prelomno točko.

Ključne besede: arheološke raziskave, Federsee, kolišča, zaščitni ukrepi, odnosi z javnostmi, zgodovina raziskav, južna Nemčija, arheologija mokrih okolij, svetovna dediščina

influenced by the national socialist ideology (discussed in detail e.g. in Strobel 1999, 2000, 2006; Schöbel 2002). The false interpretation of the archaeological record based on this ideology overshadowed the achievements of the field archaeology in the 1920s and caused a blockade of large research projects in the Federsee fen for decades to come.

Smaller projects and follow-up investigations of known settlements in the 1950s and 1960s, managed by archaeologist Ernst Wall, concentrated on the further development of scientific analyses and the reconstruction of the lake development and its dry-up and transgression phases (e.g. Blank 1961; Wall 1961; Schütrumpf 1968). The 1952 and 1960 excavations of the Ehrenstein site, a settlement in the Blautal close to Ulm, was the only large project after World War II (Zürn 1965; Schlichtherle 1990a, 135).

With the considerable test excavations at the Forschner settlement, the next large project only got off the ground in 1975 and 1976, set up by the branch office of the State Office for Cultural Heritage Management (*Landesdenkmalpflege*) Baden-Württemberg in Tübingen (Schlichtherle 2009a, 10).

The State Office for Cultural Heritage Management (*Landesdenkmalpflege*) Baden-Württemberg more precisely H. Schlichtherle and colleagues, carried out the Bodensee-Oberschwaben project starting in 1979 – an

1 *Landesdenkmalpflege Baden-Württemberg*. Od tu dalje / from here on *Landesdenkmalpflege*.

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appraisal of the prehistoric wetland settlements of the Alpine foothills in Baden-Württemberg – in the framework of the German Scientific Agency (*Deutsche Forschungsgemeinschaft*). Surveys, coring and small-scale trial trenching were conducted in the early 1980s in order to locate known sites, to record their state of preservation, to gain information about their scientific importance and to take samples for scientific analyses (Schlichtherle 1984; Schlichtherle 2009a, 10f). The results showed the devastating effects of modern agriculture, forestry and drainage works taking place since the 18th century. The already known as well as the potential sites were shown to be highly endangered. For example, the re-investigation of the Taubried I Neolithic settlement, first excavated in the 1920s, included sampling of suitable wood for dendro-dating that was inevitably unsuccessful, because the excavators in the 1920s had taken out most of the timber and what was left was decayed due to the dehydration of the area (Strobel 2000, 150).

The establishment of the branch office for underwater and wetland archaeology (*Arbeitsstelle*) of the State Office for Cultural Heritage Management (*Landesdenkmalpflege*) Stuttgart in 1981, located in Hemmenhofen at Lake Constance (*Bodensee*), provided new foundations for the underwater and wetland archaeology. Its task is to investigate and protect the wetland sites in southwest Germany. Shortly after establishment, the office came to include laboratories for dendrosciences, pollen analyses, botanical analyses of macro remains and pedology, which provided cross-linked analyses of the archaeological record (Hagmann, Schlichtherle 2011, 48f).

The different DFG programmes taking place between 1983 and the beginning of the 21st century, which included excavations and scientific analyses (e.g. Becker 1984; 1985; Kokabi 1995; Maier, Vogt 2007; Rösch 1984; Schlichtherle 1990b; Maier 2004; Schmidt 2004; Stephan 2004; Torke 2000), brought about a new settlement chronology of the Federsee fen and enabled extensive knowledge to be gained about the environment and economic history. The advancements of dendrochronological and pollen analyses (e.g. Billamboz 2009; Billamboz, Becker 1985; Kromer, Billamboz, Becker 1985; Liese-Kleiber 1990) had a large impact on this new chronology. New knowledge was also gained by re-assessing and re-publishing the old excavations from the 1920s, partly supplemented by the results of the trial trenching in the 1980s (Bollacher 2001; Schröter 2009; Strobel 2000).

The knowledge on the Neolithic settlement history of the Federsee was also advanced with the sites newly discovered from 1979 onwards (Schlichtherle 2009a, 11; Schlichtherle 2009b). Especially in the northern Federsee fen, a new settlement area was documented consisting of numerous settlements. In the western Federsee fen, close to the town of Bad Buchau, new prehistoric settlement areas and corduroy roads were found. In the first two decades after the establishment of the branch office (*Arbeitsstelle*) in Hemmenhofen, the excavations carried out in the Federsee fen were mainly research excavations. This changed in the last decade when rescue excavations became the predominant measure, for example at Bachwiesen in Bad Buchau in advance of constructing an extension to the local health clinic (e.g. Schlichtherle 2005).

The knowledge gained at the Federsee fen contributes greatly to the settlement history of the Alpine foothills from the Neolithic until the Early Iron Age (Schlichtherle 2003, 179f).

The disillusioning results of the trial trenching in the early 1980s led the State Office for Cultural Heritage Management (*Landesdenkmalpflege*) to acquire land in order to prevent archaeological sites from being destroyed further. Until the 1990s, the nature reserve of the Federsee fen was limited to the core area of the lake basin and covered 14km² of the 33km² large Federsee fen, which thus excluded the archaeologically important fringe areas (Schlichtherle 2003, 179). Besides archaeological remains, nature and wildlife also greatly suffered because of modern agriculture and the dry-up of large reed areas. For that reason, Archaeology and Nature preservation decided to collaborate (Schlichtherle, Strobel 1999). The partners for the State Office for Cultural Heritage Management (*Landesdenkmalpflege*) were the District Agency for Nature Conservation and Landscape Management (*Bezirksstelle für Naturschutz und Landschaftspflege*) as well as the Federsee Nature Reserve (*Naturschutzzentrum Federsee*) which was assigned with the management of the Federsee fen area by the Regional Administrative Council (*Regierungspräsidium*) Tübingen.

In four stages, four new conservation areas were constituted in the south, west and north of the Federsee fen as well as in the Steinhäuser Ried; the latter still being in preparation. Rehydration measures were planned for suitable areas in these nature reserves (Schlichtherle 2001, 130).

Large-scale acquisition of land (around 500 ha) on the part of the State Office for Cultural Heritage Management (*Landesdenkmalpflege*) enabled the Higher Nature



Figure 1. Wooden structures of the Late Neolithic settlement in the Seekirch-Stockwiesen in the Northern Federsee basin, excavated in 1992 (Seekirch, Kr. Biberach, Germany). The position of only few decimetres under the surface, which is typical for the archaeological record in the Northern Federsee area, causes a high sensitivity of the organic finds to dehydration. (Photo: © Landesamt für Denkmalpflege Baden-Württemberg)

Slika 1. Lesene strukture poznoneolitske naselbine Seekirch-Stockwiesen na severnem delu barja Federsee, ki je bila izkopana v letu 1992 (Seekirch, okraj Biberach, Nemčija). Lega le nekaj decimetrov pod površino, značilna za arheološka najdišča v tem delu barja, je vzrok za visoko občutljivost najdb iz organskih materialov na izsuševanje. (Foto: © Zavod za varstvo kulturne dediščine Baden-Württemberg).

Conservation Agency (*Höhere Naturschutzbehörde*) of the Regional Administrative Council (*Regierungspräsidium*) Tübingen to designate new nature conservation areas. This brought about a conflict of interest between the cultural heritage and nature protection services, on the one hand, and agriculturists, on the other (Schlichtherle 2001, 126). A major step in solving this conflict was an edict of the Ministry of Finance (*Finanzministerium*) towards the Ministry of the Interior (*Innenministerium*) Baden-Württemberg in 1991, which allowed the acquisition of land in the whole Federsee region that could be offered to the agriculturists in exchange for the land, intended to be included into the nature conservation areas (Schlichtherle 2003, 181).

The projects LIFE and LEADER, financially supported by the EU, were submitted by the District Agency for Nature Conservation and Landscape Management (*Bezirksstelle für Naturschutz und Landschaftspflege*) Tübingen and the town Bad Buchau supported the planned protection measures considerably since 1997. These projects involved a development of hydrological concepts to raise the water level, an elaboration of plans for landscape care and tourist management as well as the implementation of the necessary protection measures. The southern Federsee fen was chosen as the pilot scheme. After extensive public discussion, the area was designated as a nature conservation area in 1994 and the



Figure 2. On the left: a coring group of the campaign 2012 in the Northern Federsee fen. The drainages in the area are visible as lines with higher vegetation, as can be seen behind the group (Photo: M. Kaiser). On the right: a wooden construction element found in the Late Neolithic settlement Ödenahlen (Kr. Biberach, Germany) during the campaign in 2012. The well preserved piece was found at a depth, where perfect wet conditions still exist (Photo: H. Schlichtherle, © Landesamt für Denkmalpflege Baden-Württemberg).

Slika 2. Na levi: skupina, ki je delala vrtine v sezoni 2012 na severnem delu barja Federsee. Izsuševalni jarki so vidni kot linije z višjo vegetacijo, opazni na primer v ozadju skupine (foto: M. Kaiser). Na desni: element lesene konstrukcije iz poznoneolitske naselbine Ödenahlen (okraj Biberach, Nemčija) med izkopavanji v letu 2012. Dobro ohranjen kos je bil najden na globini, kjer še obstajajo dovolj vlažni pogoji (Foto: H. Schlichtherle, © Zavod za varstvo kulturne dediščine Baden-Württemberg).

rehydration measures were implemented in 2001 and 2002 (Schlichtherle 2003, 181; Schlichtherle 2001, 130). A web of measuring points to control the water level was installed and monitored regularly by the nature protection service (Schlichtherle 2001, 131).

In the discussions with the municipalities, the presentation of the archaeological sites and artefacts played an important role in creating an awareness of the uniqueness and richness of the archaeological heritage at Federsee, which was essential for the planned protection measures and the interventions in the property structure. Annual trial trenching in the 1980s and 1990s, organised guided tours, 'open excavation' days and the development of an archaeological trail across the fen played an important part in offering the people the chance to connect the landscape with the archaeological heritage. In the framework of the pilot scheme, the Federsee Museum (*Federseemuseum*), in which the archaeological finds are exhibited, was extended by an open-air zone with reconstructed Stone and Bronze Age houses (Baumeister 2000). Special exhibitions, especially those presenting important recent finds and scientific results, but also lectures and the gradual improvement of the PR work by the museum, the Antiquarian Society (*Altertumsverein*) and the town

representatives of Bad Buchau, also contributed to an increased awareness of the heritage in the area (Schlichtherle 2003, 181f).

The establishment of other conservation areas in the north and west is still under way.

The archaeological investigations in 2012 in the northern Federsee fen were preliminary to the rehydration measures in this area, which will start in the winter of 2012/2013 in the framework of the LIFE + programme (Schwab 2011). The investigations were aimed at determining the areas where rehydration measures could be conducted without endangering the archaeological sites. They involved a coring web to be laid over a large area to detect the presence of further sites. In addition to that, the area of the late Neolithic settlement at Ödenahlen was surveyed in order to determine the extent of the settlement area. Small trial trenches were dug to record its state of preservation. The archaeological record showed the increasing dehydration from the 1980s onwards, when the settlement was found and investigated (Schlichtherle 1995). The trial trenching also brought to light a sensational find of a complete and well-preserved log boat in the gyttja of the former lake.

Summing up, the State Office for Cultural Heritage Management (*Landesdenkmalpflege*) in cooperation with the District Agency for Nature Conservation and Landscape Management (*Naturschutz und Landschaftspflege*) working at the Federsee fen seem to be on the right path to protect in a sustainable manner not only a single site, but the wetland landscape as a whole.

Future prospects

The inscription of the series of 111 Prehistoric Pile Dwellings around the Alps, out of the nearly 1000 known, on UNESCO's World Heritage List in June 2011 (Hagmann 2011) provided a new basis for the implementation of the protection measures, for the archaeological research as well as for the presentation of the archaeological heritage in these wetland sites. With the ratification of the Convention Concerning the Protection of the World Cultural and Natural Heritage, the States Parties to the Convention took on the obligation to preserve these World Heritage sites for future generations (Hagmann, Schlichtherle 2011).

The wetland World Heritage sites of southwest Germany are managed by the Pile Dwellings Information Centre (*Pfahlbauten-Informationszentrum*) Baden-Württemberg, which operates in accordance with the World Heritage Convention and is financially supported by the federal state of Baden-Württemberg (Web 1).

The inscription of the wetland sites on the World Heritage List will hopefully bring about an increased awareness on the part of the municipalities and the people of the value of the habitation remains in the Federsee fen and of the need to introduce protection measures. After all, four of the 18 inscribed wetland sites in Germany are located around the Federsee.

The proposed and the partly implemented protection measures, the ongoing research and the continuous PR-work provide a good basis for future work in accordance with the World Heritage Convention.

The protection measures need to be fully implemented to be successful, but also require long-term monitoring to control their results. An important factor in ensuring a favourable reception of the measures on the part of the public is also a further facilitation of land use that is compatible with the interests of both the nature protection and cultural heritage management.

The protection measures should not hinder further investigation of the protected sites; research should continue in order to gain new knowledge, but also to sustain the public interest. It should employ non-destructive or the least destructive methods of investigation. A step in this direction was taken by geologist T. Baum from the Eberhard Karls University in Tübingen (*Eberhard Karls Universität Tübingen*) during the 2012 trial trenching in the northern Federsee fen, more precisely in the settlement area at Ödenahlen, where he conducted ground penetrating radar prospection in order to test its applicability on wetland sites.

The State Office for Monument Conservation (*Landesamt für Denkmalpflege*) Baden-Württemberg faces a difficult task in presenting this invisible cultural treasure to the public in an effective way without posing a threat to its state of preservation. The visualization and presentation of the natural and cultural heritage in the Federsee fen is primarily in the domain of the museums in the area as well as the media, which should work together with the State Office for Cultural Heritage Management (*Landesdenkmalpflege*). As Schlichtherle wrote in 2003, the development of sustainable tourism through visitor guidance, archaeological theme parks and places where nature can be experienced first-hand, tip the scales (Schlichtherle 2003, 187).

Plans for 2013 include more effort in the presentation of recent investigation results. This includes rearranging and extending the existing exhibitions. The Federsee Museum (*Federseemuseum*) in Bad Buchau, for example, is already preparing to extend its open-air area to include reconstructions of houses from several periods of the prehistoric Federsee settlement. The permanent exhibition of the museum will also be rearranged.

For 2016, the State Museum (*Archäologisches Landesmuseum*) Baden-Württemberg plans to mount a major temporary exhibition on pile dwellings in collaboration with the State Office for Cultural Heritage Management (*Landesdenkmalpflege*).

A contribution of the media, on the other hand, is the development of a pile-dwelling application for iPhone and Android-Smartphones in 2011, which can be downloaded free in the App Store or Android Market (Hagmann 2011, 21). The App for Switzerland, Bavaria and Baden-Württemberg guides the way to accessible archaeological sites and provides basic information.

The international cooperation within the framework of the World Heritage „Pile Dwellings around the Alps“ created new possibilities for the exchange of knowledge and experience. This is especially true in the case of young archaeologists and natural scientists who want to work or are already working in the field of wetland archaeology.

The trial trenching in the Federsee fen in August 2012 was accompanied by a two-week workshop. The latter involved twelve international students and graduate young scientists from around the Alps with a research focus on wetland sites, who followed a course and excursion programme, but also took part in the fieldwork. They were provided with insights into ongoing archaeological and scientific investigation, the problems of investigating under bog conditions and the management of wetland sites by German and Swiss researchers (cf. Leghissa, Vinazza in this volume). The Federsee Workshop was organized by the State Office for Cultural Heritage Management (*Landesdenkmalpflege*) Baden-Württemberg in cooperation with the International Coordination Group and the Swiss Coordination Group of the UNESCO World Heritage Site of the Prehistoric Pile Dwellings around the Alps.

It is desirable for the future to regularly hold events such as workshops, seminars or practical training on an international level to educate young scientists and broaden their knowledge of the circumalpine phenomenon of pile dwellings, as they will have to deal with the management and investigation of the sites in the future.

I would like to thank the branch office (*Arbeitsstelle*) Hemmenhofen of the State Office for Monument Conservation (*Landesamt für Denkmalpflege im Regierungspräsidium*) Stuttgart for providing invaluable information as well as graphic material.

Arheološke raziskave na barju Federsee v južni Nemčiji. Dosedanja prizadevanja in obeti za prihodnost.

(Povzetek)

Od 1980-ih dalje je Zavod za varstvo kulturne dediščine Baden-Württemberg (*Landesdenkmalpflege*) skupaj z Zavodom za varstvo narave (*Naturschutz und Landschaftspflege*) začel izvajati zaščitne ukrepe na barju Federsee. Velik pomen imajo razglašena naravovarstvena območja, ob tem pa naj omenimo tudi nekatera območja, kjer je bil bodisi zaradi njihovega arheološkega pomena bodisi zaradi prisotnosti lokalnega rastlinstva in živalstva ponovno dvignjen vodostaj. Ob tem so Zavod za varstvo kulturne dediščine, Muzej Federsee (*Federseemuseum*) in Naravovarstveni center Bad Buchau (*Naturschutzzentrum Federsee* - NABU) izboljšali delo z javnostmi. To vključuje vodene ogledе naravnih rezervatov, obiske arheoloških izkopavanj, arheološko pot, razstave in predavanja, vse skupaj pa ima pomemben doprinos k javnemu odobravanju zaščitnih ukrepov.

Območje Federsee je del Prazgodovinskih kolišč okoli Alp, ki so bila junija 2011 uvrščena na UNESCO Seznam svetovne dediščine. To daje arheološkim najdiščem v mokrih okoljih večji ugled, ki lahko vodi do širšega razumevanja za bodoče ukrepe za zaščito in okrepi ozaveščenost ljudi o kulturnih zakladih, ki so skriti v barju Federsee. Uvrstitev med svetovno dediščino pa ob tem zavezuje k še bolj zavzetemu predstavljanju arheološke dediščine javnosti. To lahko dosežemo ob sodelovanju z mediji, z novimi razstavami in ustanavljanjem oz. širjenjem arheoloških tematskih parkov, kjer lahko ljudje izkusijo pretekle načine življenja. Prav tako pa je pomembno razvijati nedestruktivne raziskovalne metode ter izobraževati bodoče generacije arheologov, ki bodo nekoč upravljali kulturno dediščino. Če bomo temu sledili, bomo lahko trajno ohranili ta edinstvena arheološka najdišča.

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