Muddy Waters.

An international, interdisciplinary and theoretical approach to why people initially settled lacustrine environments in the European Neolithic.

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DULCE INTRODUCCIÓN AL CAOS (INTRODUCTION)

Hornstaad-Hörnle

Almost spring, 3910 BC

In the early morning the settlement rests quietly, hugged by the water from one side and a slight hillslope from the other. The fog covering the lake is slowly rising, now touching the treetops of the dense forest surrounding the scene. Close to the houses cows, pigs and some goats and sheep have breakfast, grazing on the shrubs growing near the lakeside. The silence of dawn is broken by one of the dogs, barking and running towards the edge of the forest. From the shadows cast by the trees emerges a small, triumphant group of women and men carrying the carcass of a deer. Slowly the rest of the village starts to stir, awoken from a sleepy stillness by the barking of the dogs and the first sunbeams reflecting on the lake. Some of the inhabitants gather their tools and make their way towards the open patches in the forest where new crops will be planted. The long and dark winter is almost over and the storages are becoming empty. Hopefully this year will bring a new period of abundance, like the one some summers ago. A lot changed since then. Some of the original inhabitants of the settlement left, some newcomers were welcomed. The coming and going of people is barely something new here. From all directions people come and go, not even the looming mountains in the distance with their snowy tops are an obstacle.

A sudden splash startles the birds that were sitting near the lakeshore. Some of the village's children are throwing stones into the water, their shouting alternated with smaller or bigger splashes interrupting the peaceful lapping of waves that usually envolves the village. For today the soft symphony of the water is over. Here is someone fetching a bucket of water, there are some animals coming closer to drink the fresh water. The settlement is buzzing with activity now. It is not until tonight when the sun will hide, not yet ready for the sweet and warm evenings that fill the air with the buzzing sounds of insects, that the calmness will ripple over the lake once again.

Amsterdam

10.03.2017

The first doubtful sunlight of the morning gradually blends out the streetlights, the colourful neonlights here and there, and hides the electric lights behind the windows. The city starts a new day and it is as if the many neighbourhoods stretch over the flat landscape surrounding them in one last yawn. One of the first ferries that day makes its way across the Ij Lake. It carries a diverse audience. Some are carrying big bags, shopping lists clutched in their hands. Milk, bread, cheese. Some are huddled in a corner, tired after a long night out. Others stand next to their bikes, ready to jump back on and make their way to the office. As the ramp is lifted and the metal vehicle makes its way over the water the last morning fog is lifting, slowly revealing the Central Station. With a deep thud the metal touches the other shore. Passengers are released and make their way into the buzzing streets. Buses, trams, cars, bicycles, pedestrians. The streets are filled by people, the people that were passengers a second ago have already dissolved into the crowd of tourists, people who are going to work, students, people who are just strolling around, people who know where they are going, some more tourists . After walking away from the station and having been pressed through the aorta of the cit,y only a memory of the lake-that-was-once-sea lingers in the form of a seagull, lost between some pidgeons. A quick turn right, through a small alley, left and then right again leads to a much calmer street. High houses define the limits of the street, cut in half by a canal and stitched back together by countless bridges. Except for a bicycle on the street and a group of ducks in the water everything is quiet. In the distance the *ding ding* of the trams continues and now the ducks move to the other side of the canal with flapping wings, startled by one of the many tour-boats showing tourists the charms of the city. The city is, as always, buzzing. An everlasting buzz which fills the air with an electricity that never fades. The day carries on and it is not until late at night that the city's pulsing rhythm calms down. Barely are the ripples in the canals still enough to show the reflection of the lit windows, or everything starts anew and a deep thud awakes the lake.

The places in both of the stories are built on piles, linking their inhabitants to the water they live on. Such pile dwellings or lakeside dwellings have been the subject of archaeological research for the biggest part of two centuries, starting with the excavations conducted on the Swiss lakeshores and spreading from there. Nowadays, prehistoric piledwellings in Europe are also known from other countries and other areas. Generally it has been accepted that these kind of sites are regular settlements, though highly appreciated by archaeologists because of the wetland conditions, preserving organic material in the archaeological record that is otherwise lost. Because of this feature lakeside settlement research has contributed valuable information regarding topics such as architecture, objects made of organic materials or archaeobotanical studies. Recent research on these sites in the pre-Alpine area has mainly focused on topics such as the abandonment of the lakeshores, often relying on climate studies to explain the causes but also exploring possibilities of cultural change, reconstructions of the environment and settlement lay-out, as will be explained into greater detail in the second part of this chapter. Nevertheless, one important aspect of settling on the lake or lakeshore has been neglected in research so far. Why did people start settling wetlands? Authors have touched upon the subject in publications throughout the last decades, as the following list of citations illustrates:

Was mag vorgeschichtliche Siedler die in nahezu allen Landschaften Europas sorgsam darauf bedacht waren, trockenen geeigneten Baugrund auszuwählen, dazu bewogen haben, sich in grundnassem, von Zeit zu Zeit überflutetem oder gar ständig wasserbedecktem Gelände niederzulassen? Dazu muss man wissen daß das Alpenvorland nicht zu den bevorzugten Bereichen Europas gehörte, in denen sich seit dem 6. Jt. V. Chr. Die ersten Ackerbaukulturen ausbreiteten. Die Zentren des Geschehens, das Altsiedelland, lagen außerhalb. In Südwestdeutschland und in Ost-Frankreich erbrachten neue Untersuchungen Hinweise darauf, daß die Bautätigkeit an den Seeufern immer dann an Intensität gewann, wenn auch in benachbarten Altsiedellandschaften eine rege Siedeltätigkeit herrschte. Die Verknappung bevorzugter Lebensräume könnte also zum Ausweichen in Randgebiete geführt haben, zu denen die Seen zu rechnen sind.

(What could have moved prehistoric settlers, in almost all European landscapes carefully selecting suitable soils, to stay in humid areas, frequently flooded or even continuously covered by water? It is important to know that the pre-Alps were not among the most favourable European regions, in which the first agricultural communities spread since the 6th millennium BC. The centres of activity, the Altsiedelland (old settlement land), were found somewhere else. In southwestern Germany and eastern France new investigations came up with evidences that building activities near lakeshores always intensified when the neighbouring "old settlement lands" were also intensively used. The scarcity of favourable living space could have led people to divert to marginal regions, to which we could count the lakes)

Schlichtherle 1997, 11

It is difficult to pinpoint exactly the time when humans decided to settle wetland environments. We have always been fascinated by water, no matter what it was; a sea, a river, a lake or a simple marshy point, and certainly we have been linked to them in a way or another since the dawn of humanity. It is not until "recently" though

that humans began to settle humid environments systematically, building their settlements within them, and fully connecting their everyday life to that particular ecosystem. (…) A number of theories have been formulated regarding the origin and spread of the lake-dwelling phenomenon in the Alpine region, but the most plausible one seems to argue for a southern provenance. This hypothesis is based on palaeobotanical analyses of a specific kind of wheat also called the "lake-dwelling-wheat" (*Triticum durum/turgidum*), which is commonly found on most of the wetland sites around the Alps. Traces of it have in fact been found on some of the Catalan lacustrine environments near Banyoles in south-eastern Spain and on Lake Bracciano (central Italy).

Menotti 2004, 2

Les communautés néolithiques se sont rapprochées progressivement des régions circumalpines. Nouveauté structurelle d'envergure, les palafittes traduisent le défi des pionniers de la colonisation aux environnements lacustres. (…) Dans ces environnements apparemment inhospitaliers, différentes méthodes et techniques d'agencement des structures ont permit d'affronter les inondations soudaines déterminées par le régime irrégulier des niveaux des eaux : maisons surélevées, aménagement des zones d'habitation et de circulation à même le sol (à l'aide de surfaces en bois et en écorces, de concentrations caillouteuses artificielles et de chapes d'argile). (…) Plusieurs hypothèses ont essayé d'expliquer la présence de villages en zones marécageuses ou facilement inondables. En effet, les Préalpes ne font pas partie des environnements préférés pour l'agriculture, pratiquée a partir du VIe millénaire principalement dans les grandes plaines alluvionnaires. (…) Il n'est pas exclu que les sols de craie lacustre et les formations forestières aient joué un rôle important ; les premiers facilitent l'implan-tation des pieux, les deuxièmes fournissent le bois de construction. L'aménagement de structures relativement légères d'une vie moyenne d'une dizaine à une vingtaine d'années assuraient des logements avec un investissement d'effort proportionnel aux déplacements des villages dictés par les contraintes des activités agricoles. De plus, la proximité du lac et de la forêt pouvait garantir l'accès aux ressources dérivées de la pêche, de la chasse et de la cueillette et pallier – au moins en partie – les déficits éventuels de la production agro-pastorale.

(Neolithic communities gradually moved closer to the circum-alpine regions. In a structural innovation of scale, the pile dwellings reflect the challenge of pioneers in the colonization of lacustrine environments. (…) In these seemingly inhospitable environments, different methods and building techniques have made it possible to withstand sudden floods, determined by the irregular water levels: raised houses, the development of living and traffic/working areas on the soil (using wood and bark surfaces, artificial gravel and clay screeds). (…) Several hypotheses have tried to explain the presence of settlements in marshy or easily flooded areas. Indeed, the pre-Alps are not part of the preferred environmnets for agriculture, practiced since the 6th millennium in the great alluvial plains. (…) It is not excluded that lacustrine chalk soils and forest formations played an important role; the first facilitate the installation of the piles, the second provide the timber. The development of relatively light structures of an average life-span of ten to twenty years ensured housing with an investment of effort that was proportional to the displacements of the settlements, dictated by agricultural activities. In addition, the proximity of the lake and the forest guaranteed access to resources from fishing, hunting and gathering and at least partially offset any shortfalls in agro-pastoral production.)

Schlichtherle/Hafner/Borrello 2011, 75

Die Liste moderner Pfahlbausiedlungen, die in einem unterteilten Gesellschaftssystem aus genau diesen Gründen – Fischfang und Verteidigung – entstanden sind ist lang. Doch der Vergleich allein liefert noch keine stichhaltigen Beweise für die Situation im Neolithikum, sondern erlaubt es lediglich, noch zu überprüfende Hypothesen zu formulieren. Bis Heute konnte im Alpenraum nicht eine einzige jungsteinzeitliche Siedlung nachgewiesen werden, in welcher der Fischfang die Lebensgrundlage bildete. Vielmehr handelte es sich

bei den Bewohnern um Bauern, die Mineralböden und Wälder bewirtschafteten, d. h. Ackerbau, Viehhaltung und Holzwirtschaft betrieben.

(The list of modern pile dwellings, developed in a subdivided social system for precisely these reasons – fishing and defense – is long. However, the comparison alone provides little conclusive evidence for the situation in the Neolithic period. It only permits us the formulate yet to be tested hypotheses. Until today, in the Alpine area not a single Neolithic settlement could be found in which fishing formed the basis for life. The inhabitants rather cultivated the mineral soils and forests, meaning they practiced farming, kept livestock and exploited timber.)

Pétrequin 2016, 67

In prehistoric Macedonia the settlements in the marshy wetlands were a rather usual phenomenon, taking into consideration the abundant lakes of the era. We should therefore seek the reasons for such lake settlements between the geographic "fate" and conscious choice, in an amazing conspiracy of geography and history (Braudel 1985). The Neolithic community could exploit the multiple assets that the lake microenvironment offered.

Touloumis/Hourmouziadi 2003, 76

The decision to inhabit wetland locations was a conscious choice by communities, but the reasons behind this choice remain unclear (…) Social aspects are more problematic to propose as reasons influencing the decision to settle wetland environments. It is well known that the environments and special places/features within the landscape played a significant aspect in the ideology of prehistoric communities (Earle and Kristiansen 2010:252; Tilley 2010:29) (…) However, such aspects are difficult to identify through the archaeological record, and the factors behind social influences to reside in wetland environments and lake-dwellings largely remains unknown.

Jennings 2014, 80 f.

The approaches to the question why people settled in wetlands are manifold and a variety of explanations can be found. Pre-Alpine lakesides perhaps started being settled because of a demographic pressure, leading people to settle less favourable areas (Schlichtherle 1997), but the arrival of lakeside settlements here also has to do with influences from southern Europe, recognised in the form of "lake-dwelling-wheat" (Menotti 2004). At the same time the lacustrine environment provided advantages such as the ease of construction on the lakeshore (Schlichtherle, Hafner, and Borrello 2011) and the vicinity of resources provided by the forest (wood, but also hunting grounds) and the lake (Touloumis and Hourmouziadi 2003a). Fishing is mentioned anew in other hypotheses based on ethnographical evidences, although it is also mentioned that not a single pre-Alpine lakeside settlement shows a strong emphasis on fishing, and a defensive role is added to the list (Pétrequin 2016). Finally, in the light of recent developments in archaeological research and indicating the direction that can be expected from the present work, social aspects and a possibly important role played by the landscape are touched upon (Jennings 2014a).

In this small selection of publications very different argumentations were mentioned, without indications of any contrasting of evidences or reasons. Therefore, in the current work a closer look at the question is proposed. In order to study any further aspects of lakeside

settlements it is important to understand the initial reasons that led to the settling of wetlands in various regions, admitting and appreciating differences or similarities in various approaches and areas. This brings us to one of the important pillars on which the present work rests, namely that of an inclusive approach, both in terms of assessing the many different aspects, materials and influences that are present at sites and in an international approach, including sites from different countries and research traditions.

The landscape is an important factor with strong agency, opening the way for interpretations that take more social and ideological or symbolical aspects into account. The latter are assessed against the background of current theoretical movements both in and beyond archaeological research. The interdisciplinary aspect of this work is guaranteed by including the more theoretical aspects of anthropology in addition to the practical use of geographical methods. This work can be characterised as a symbiosis of an interdisciplinary and theoretical approach implemented in order to take a closer look at the question why people in the European Neolithic started settling wetlands, at the hand of several case studies. The appraisal of this question is both the result of a current gap in research and embodies the opportunity to exercise the described multifold and innovative approach, which will be discussed into further detail in the second chapter.

After this first outline of what is to be expected from the present work, the second part of the introduction will shed some light on the history of research and both the points of focus and gaps in previous research. The second chapter discusses the goals and methodology of this work. Not only does it explain the motivation for the chosen approach and presents the working way, it also unveils the theoretical discourses that have influenced this work. What follows is the dataset on which this method and theory are applied. Four archaeological and two other case studies have been selected. An effort is made to present these sites in a uniform way, in spite of differences in the state of research and research approaches to present an integral assessment. In order to reach comparable bases that will permit us to elaborate hypotheses the surrounding area of each site is assessed, both in terms of natural surroundings and contemporaneous settlements.

Rescources are mapped and analysed and there is special attention for networks and exchange. No new material is contributed in this study, illustrating that in archaeological research there is much left to be done in terms of interpretation and the focus should not always necessarily lie on finding more material. Sometimes it is not the new material, but a re-assessment of the available material that leads to revelations. Therefore no exhaustive databases of the material and data concerning each site have been included in this work, but

rather concise overviews, always accompanied by the listing of detailed publications where the reader can retrieve further information. The following chapter is intended to stretch beyond everything that has been published about these sites so far in the form of comparisons, assessing different aspects (material and non material) that were at play at each site. Finally, before the conclusions bring the narrative to a consistent end, the fifth chapter assesses the different roles that water possibly occupied in people's lives at each site.

Research history and the current state of investigation

The research history is a fundamental part of every continuous line of investigation. Taking past tendencies into account, trying to trace a certain bias in past research and the results this has had is essential. In this case the research history plays an especially important role as pile dwellings have been the subject of research for well over 150 years and have been dealt with in many different approaches and by researchers in a variety of countries. Luckily the research history of this topic has been well documented and summarized in books such as F. Menotti's "Living on the Lake in Prehistoric Europe" (Menotti 2004b), or other more general books on pile dwellings (Schlichtherle/Wahlster 1986; Schlichtherle 1997; Ruoff 1972).

As the common story goes, pile dwellings were discovered in Switzerland during the especially cold and dry winter of 1853. Ferdinand Keller published a report on the Ober-Meilen settlement in 1854 (Keller 1854) and before long pile dwelling settlements were appearing everywhere. An important name in this story is that of the Swiss school teacher Johannes Aeppli. It was him who decided to report the Ober-Meilen site to the Antiquarian Association in Zürich (Menotti 2004; 1). As a result of this Ferdinand Keller started to investigate said site and consequently published the report which would set everything in motion: *Die keltischen Pfahlbauten in den Schweizerseen* (Keller 1854). In this report pile dwellings, which later turned out not to be quite as Celtic as Keller had assumed, were compared to contemporary settlements in New Guinea and New Zealand. Illustrations showed artistic interpretations of small wooden villages, elevated on platforms right above the water. This romantic image inspired scholars and looters both, each for their own reasons, and what followed was the so-called lake-dwelling fever (Ruoff 2004; 11).

The prehistoric remains "hidden" in lakes around the Alps and other parts of Europe were not completely unknown, fishermen on the Swiss lakes had known of the existence of wooden piles long before. But as we know to be true in archaeology; not only do you usually find what you look for, it works the same the other way around: you do not find what you are

not looking for. Thus, when the research interest became official, many people decided to have a second look at some materials that had been discarded earlier. In Ljubljana, Slovenia, already in 1826 some chance finds had appeared during the digging of irrigation ditches (Veluscek 2004; 72). Nobody had paid much attention to these materials until Keller's report came out and confirmed the interest of this type of finds and the settlements they represent. The story of earlier research in Great Britain is similar, due to agricultural improvements in the mid 18th century people were already well aware of objects below the surface (Coles 2004; 100). However, without any precedents or guide it was not easy to actually kickstart investigations, this was done only after the Swiss discoveries (Hafner 2010).

Once research was up and running lakeside settlements turned out to play an important role in the start of prehistoric research generally. Without any written sources to rely on, prehistory was a tricky topic. It is understandable that at first sight the more glamorous material culture from Classical or Medieval times would catch someone's eye more easily than the lithics and handmade ceramics from prehistory. And this is without even mentioning the fact that instead of leaving villas and walls, prehistoric settlements are often reduced to a slightly lighter or darker spot in the sediment. So when the rather spectacularly preserved pile dwelling settlements became well known this was an important step for prehistoric archaeology as it gained popularity and more people seemed to become interested (Ruoff 1972).

As mentioned before, British and circum-Alpine wetland research was boosted after the first findings. England, Ireland, Switzerland, Germany, France, Austria, Slovenia and Italy all report discoveries from the second half of the 19th century (Menotti 2004). The level and quality of research at this point varies in every area. As prehistoric archaeology was not a very well developed discipline at the time, research was mainly led by motivated amateurs. Any excavating methods were invented on the spot, or often even reduced to anyone owning a shovel digging away in the lakemarl. The fact that the first site had to be reported to the Antiquarian Society, due to the absence of a proper archaeological instance, is quite telling. Looters, plundering the sites, formed a big part of the beginning research. This is something we can still notice nowadays in for example museum archives. Pile dwelling materials were abundant and well preserved, at the same time their discovery coincided with, or better said, led to an increased interest in prehistory. As a result, around that time many museums decided that they needed to incorporate more prehistoric material into their collection, and to the day of today many museums possess impressive amounts of de-contextualized and often random material (Arnold 2012). Stored away in a dusty box with a half empty label saying "Switzerland" or "*Pfahlbaukultur*".

On the other hand, there is also a bright side to this period of early research. Many of the people, starting out as amateurs who had taken an interest in archaeology did extra-ordinary work, taking into account the means that were available to them. Several of them even became awarded doctoral degrees by universities in recognition of their work (Ruoff 2004; 12). Methods to excavate the tricky wetland environments were developed, researchers coped with this unknown line of investigation. It is not surprising that this first period of research is often referred to as a "pioneer" period, with many pioneers taking the first steps in a new and unknown territory. The main research question at this moment in time was whether the pile dwellers were living on the coast of the lakes, or whether their houses were actually located in the lake, elevated above the water (Guyan 1955). This question soon became known as the *Pfahlbauproblem*.

This "problem" first arose when researchers started to show interest in the actual construction of the lakeside settlements. In 1875, when the first houses were excavated at the Federsee it was assumed that the houses stood on platforms. This was partially due to the massive amount of piles that was found, not seeming to belong to any specific structure, and partially due to the romanticized ethnographic images in F. Keller's first publications (Keller 1854). Part of the discussion was also purely semantic. The word *Pfahlbauten* as it is used by Keller, literally translated into English as pile dwellings, refers to a settlement that consists of several wooden houses constructed on top of a wooden platform in the lake, on a spot that would not fall dry even during low-tide (Speck 1990). However, excavations showed that this model was not compatible with all settlements (Paret 1942).

Each archaeologist was convinced they had a definitive answer, that their freshly excavated site held the key to this mystery. In this way this discussion lasted for several decades and dominated pile dwelling research. Were the settlements built in the water, or on the shore? Was there indeed a main platform, or were houses erected individually on piles? Many volumes concerning the "*Pfahlbauproblem*" are still witnesses of this, starting with Reinerth disputing Keller's platform theory, arguing for a semi-dry setting (Reinerth 1932).

Later, other researchers took the discussion even further away from the lakeshore and argued for houses built on completely dry land (Paret 1942). This, in turn, was rejected by other publications (Keller-Tarnuzzer/Reinerth 1925). It is known that one of the main reasons why E. Vogt took an interest in the site of Egolzwil 3, included as a case study in this work, was to contribute his own view to the *Pfahlbauproblem* discussion, supporting Paret. Indeed, what he found at Egolzwil 3 were the remains of a dry-land settlement (Vogt 1951). After many years of specific research the discussion began to lose its edge and the more neutral term 'lakeside

settlements' got into use. Other research topics were of greater interest from then on and the new scientific developments captured the attention of most archaeologists, wrestled free from the dominating grip of the *Pfahlbauproblem*. However, as research proceeded, as much as 50 years later some of the previous ideas, such as Reinerth's, regarding the *Pfahlbauproblem* were redeemed (Hochuli 1994; Menotti 1999). At the same time other settlement models, once defended by Paret and Vogt, were found more often too (Aspes 1997; Hochuli 1994). Nowadays it is widely accepted that there are many different variations of pile dwellings existing alongside one another.

The research topics that were dealt with in each country are an important part of the research history as they reflect the tendencies and can explain certain approaches. The discovery of pile dwellings in Switzerland illustrates this well. When the pile dwellings were first discovered, around 1850, Switzerland was dealing with identity issues (Sherratt 2004; 269). The Helvetic Confederation, which had been around for a long time, made place for the brand new nation-state of Switzerland in 1848. Joining different cantons into a single nation was not only a matter of re-drawing borders, the ideological issue was of great importance here too. What the Swiss were missing was an official national discourse, merging scraps and bits of land where people spoke three different languages and had very varying backgrounds is not free of complications. For these reasons it was in the nation's interest to create a common factor, a discourse everybody could get behind so that a common identity could be created. The fact that the pile dwellings were discovered all around Switzerland in the 1850s and blown up scientifically shortly afterwards seems to be a logical step.

Another example, not explaining a research impuls but rather an approach, is how ethnology was used and abused in early archaeological research (Pétrequin/Bailly 2004; 37). When the pile dwelling settlements first gained popularity it was partially thanks to the romantic image that had been painted. The detailed illustrations accompanying publications, depicting little villages on stilt platforms in the middle of a lake were mainly based on ethnological parallels found in other countries. Keller was the first to do this, and French colleagues joined this approach, appealing to the powerful idea of "La Grande France". The prehistoric lakedwelling settlements that were found were thought to bear great similarities to the settlements in countries that were then colonies, such as Guinea, until 1958 known as French Guinea. The supposed similarity was then strengthened by the use of many ethnological parallels in research. In this way, by establishing a certain "cultural" link, the occupation of these territories was justified. Moreover, the concept of culture evolution is also present, assuming that all previous cultures are building up to the present, this

being the ultimate manifestation of success. In this way the colonists were able to underline their own superiority, as they would represent a more advanced stage of cultural evolution, having already left the pile dwellings stage behind them, unlike their colonies. However, once colonialism had become a word that was best avoided, pile dwelling research rapidly abandoned anything connected to ethnology as it could be seen as a reminder of a politically incorrect past. Only later did researchers start to acknowledge the value of including ethnological studies and methodologies again in some cases (Pétrequin 1984).

On a more general level, the level and quality of individual countries' investigation varied, depending on the interest and available means. But in all cases, even if there are slight differences in the exact dates, a period of "professionalisation" can be distinguished in pile dwelling research after the initial period of excitement and excited looting (Schlichterle and Wahlster 1986). Switzerland, Germany and France quickly realised what potential the good preservation of organical material held (Menotti 2004). Bones, grains and pollen were studied already from an early stage, in this way contributing valuable information for the reconstruction of the environment and subsistence economy of pile dwellings. Already in 1860 archaeologists, zoologists and botanists in Switzerland cooperated on this topic (Schlichtherle 1997). Nowadays the possibilities provided by archaeobotanical research are intensively used, amplified by recent scientific developments. With the current interest in landscape archaeology the value of archaeobotanical and palynological studies' contribution has only increased.

Other countries developed slightly differently. The first systematic documentation by divers in Austria started later, between 1970 and 1986 (Ruttkay et al. 2004; 53). Slovenia carried out its first official archaeological excavation as early as 1875 (Veluscek 2004; 72), but subsequently suffered a wave of exploitation by looters, which is similar to what happened in Northern Italy (Marzatico 2004; 83). In Britain there was a more varied abundance of wetland contexts, not specifically limited to pile dwelling sites. After the first impulse from Switzerland this interest increased. In 1892 a young student initiated an excavation in Glastonbury, setting the bar very high for any further research thanks to his detailed and meticulous methodology (Bulleid/Gray 1911). Also here pollen stratigraphies and archaeobotanical evidences were an important part of research, as is reflected for example by the standard work by Godwin "History of the British Flora" (Godwin 1956), inspired by the work at wetlands (Coles 2004).

After the fruitful first steps that were taken in pile dwelling research, like everything else it suffered a big blow once the 1st World War swept across Europe. In most countries research was called to a halt. Even though there are some stories of investigation during

the period from the beginning of the 1st World War to the end of the 2nd World War generally this was not a priority or, more often, not even a possibility. However, there are some exceptions. In this period of time pile dwelling research in Germany flourished. The newly founded Institute of Prehistoric Research from Tübingen University started carrying out professional excavations at the Federsee in 1919, developing techniques for underwater excavations in 1929 and starting systematic dendrochronological sampling in 1939 (Billamboz 2001). An important figure in research around this time was Hans Reinerth. He dedicated a considerable part of his time and efforts to the study of the Higher Nordic Culture, trying to prove that a more primitive "West" culture had been replaced by stronger and superior "Northern" people (Keller-Tarnuzzer/Reinerth 1925). The *Pfahlbaumuseum* in Unteruhldingen was under his direction for a long period of time, even after the 2nd World War had ended (Schöbel 2002). Therefore, this specific period of research and the way in which pile dwellings were used to support and justify a political ideology in Germany did damage to the image of pile dwelling research. Afterwards it took some time before research was back on track in most central European countries.

From the second half of the 20th century onwards the research of pile dwelling settlements saw a big boost, lasting until the present. Research methods became increasingly scientific, as was the tendency in other fields of archaeology too (Menotti/O'Sullivan 2013). Especially in wetland archaeology the possibilities of implementing scientific methods are very extensive.

An important element here is dendrochronology. The discovery and initial research of pile dwellings goes hand in hand with the development of dendrochronological techniques. Thanks to the abundant presence of wooden remains it was possible to create extensive sequences for central Europe, which were then crossreferenced with the help of C14 dating, thus establishing an extra-ordinary dating framework. Dendrochronology was first introduced in Europe as early as 1920 (Billamboz 2013), but it was not until the late 30s that researchers started to make serious use of it. Many archaeologists saw the potential of this technique for Central Europe as there were so many wetland sites with wood preservation.

With the discovery of the radiocarbon method, dendrodating made a huge leap forward. Now it was possible to calibrate the dendrodatings and for the first time obtain such exact chronologies. In the Bern laboratory it was attempted to assign an absolute timescale to the floating tree-ring chronologies. This showed that the occupation of pile dwellings took place some 1000 years earlier than had been assumed so far. The archaeological community needed some time before this fact was processed and accepted, but calibrated dendrodating had shown its potential and

would soon become an integral part of any archaeological project.

Thanks to the highly specific and accurate datings obtained from calibrated dendrochronology dating many interesting matters regarding for example settlement and house dynamics have been assessed. It has been possible to reconstruct the development of settlements, seeing into great detail when individual houses were built, the settlement's growth phases and even how and when houses were re-built or adapted. Thanks to this highly specific information, usually impossible to trace for other settlements, it has been possible to paint vivid images concerning multi-facetted concepts such as settlement dynamics (Ebersbach 2010; Hofmann et al. 2016).

Some other examples of important developments in recent research are the reconstruction of the environment with archaeobotanical evidences, isotope, fitolite and strontium analyses, and so on. The topics that can be assessed through this, such as climate change, lake fluctuations and the reconstruction of the environment are leading the way for more extensive research. This could lead to further insights into the interaction of the lakedwellers with their landscape. This would be valuable because of the unique nature of lakeside settling, in which lakedwellers were both conditioned and affected by the intense relationship with water. Also further studies into the relationship with the hinterland of lakeside settlemants could lead to very interesting results. So far archaeologists have been offered only small peeks into similar topics.

Another aspect that is still lacking for a great part in lakeside settlement research are international approaches. As was mentioned earlier, the first published finds in Switzerland were the impulse for other countries nearby to start searching for similar lakedwelling settlements. From the British Islands some lakeside settlements and mainly crannogs are known, but also from other parts in Europe lakeside settlements started being found in the late 20th century, such as for example in Northern Spain (Tarrús 2008; Bosch Lloret et al. 2011), Central Italy (Fugazzolla 1993; 2002), Northern Greece (Facorellis/Sofronidou/Hourmouziadis et al. 2014), Macedonia (FYROM) (Naumov 2016), Albania (Cabanes 2008), Russia (Mazurkevich/Polkovnikova/Dolbunova 2014) and indications exist for lakeside settlements in Bulgaria (Angelova/Draganov 2003; Kuniholm/Newton/Kromer 2007) (Figure 1). These settlements present different chronologies compared to the Central European pile dwellings, usually pertaining to an earlier Neolithic. The fact that these settlements, similar in many ways, have been discovered in different parts of Europe from the Neolithic onwards calls for attention and presents us with the possibility of finding answers to a wide variety of questions. In an attempt to unify the knowledge from various corners of Europe and contribute to the

diminishing of the existent knowledge gaps in a multi-facetted approach the next pages will explore the question why people settled near the lake in the Neolithic.

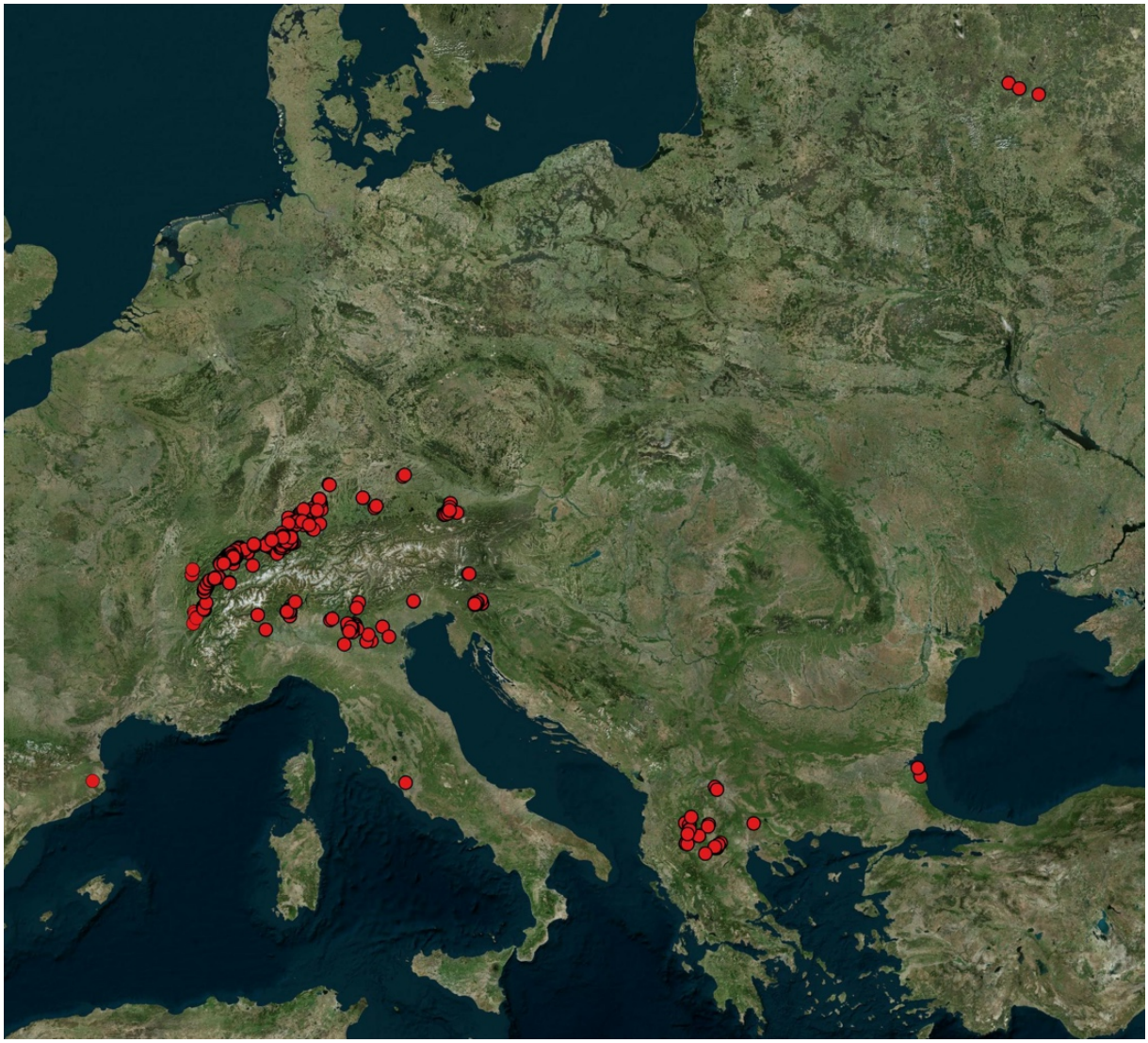

Figure 1: Lakeside settlement sites mentioned in text (British wetland sites are excluded) Data layers: OpenLayers - Google Physical. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña. (for details see Annex 1)

PRIMER MOVIMIENTO: EL SUEÑO (GOALS AND METHODOLOGY)

Methodology

After considering various formats it was decided to centre research around several case studies from different countries, in order to gain maximal reach and assess the varying aspects that can be encountered both in terms of archaeological sites and differing research traditions. It was decided to assess each site in a holistic approach, therefore as many varied factors as possible were included. Purposefully no material category was singled out to base this study on as this would underrepresent a complex reality. This approach is possible because all material of the selected case studies had already been studied and published. Though this work intends to illustrate that the process of unifying research results from different periods and countries is valuable, it is by no means a simple task.

Direct and Indirect Resources

In order to maintain a grip on the variety of factors to be assessed, a division is proposed. This construction is not necessarily meant to be dualistic, although seemingly contrasting "direct" and "indirect" resources are mentioned.

This division is constructed from the eye of the archaeologist, and not from the point of view of the assessed lake dwellers. Thus, this first category, that of "direct resources", includes elements to which the archaeologist can have a fairly straightforward relation such as animal bones, plant remains, ceramics, wood, stone or bone. Reflected in this category are things that can be dealt with directly on-site, things that can be picked up and assessed. This type of study is the groundwork for each archaeological investigation and is most often published for excavated sites in the form of reports. Examples can be found in the literature on which the current work is based.

The category of "indirect" resources, however, focuses more strongly on thought processes that can be expressed through elements from the archaeological record, leading to a certain overlap with the "direct" resources. Included in this category are factors such as the landscape and ritual expressions, topics which can be found in more interpretative works of research (Kyriakidis 2007; Bradley 2005a; Ingold 2000a; Tilley 1994a; Hodder 1986a). The word resources connects both categories and brings all

discussed elements back to the same level, attributing an equal value to all.

Case Studies

As this work started out as a theory-based literature study the idea to include several examples had always been present. Without this, the danger existed that the work would be very „dry“. This idea of including a limited number of examples was strengthened because at a certain point it became clear that it would be impossible to assess all of the sites in all of the regions that were supposed to be included. Therefore the work was narrowed down to several regions, each represented by one or two case studies. The first of two important decisions was to focus on the first settlements in each region. In this way there is a clear delimitation, excluding many other sites, at the same time linking settlements in different regions in their pioneer status. Although the chronologies can differ, they would still be the earliest representatives of lakeside settlements in that area, validating an assessment of people's initial settling motivation (Figure 2 and 3).

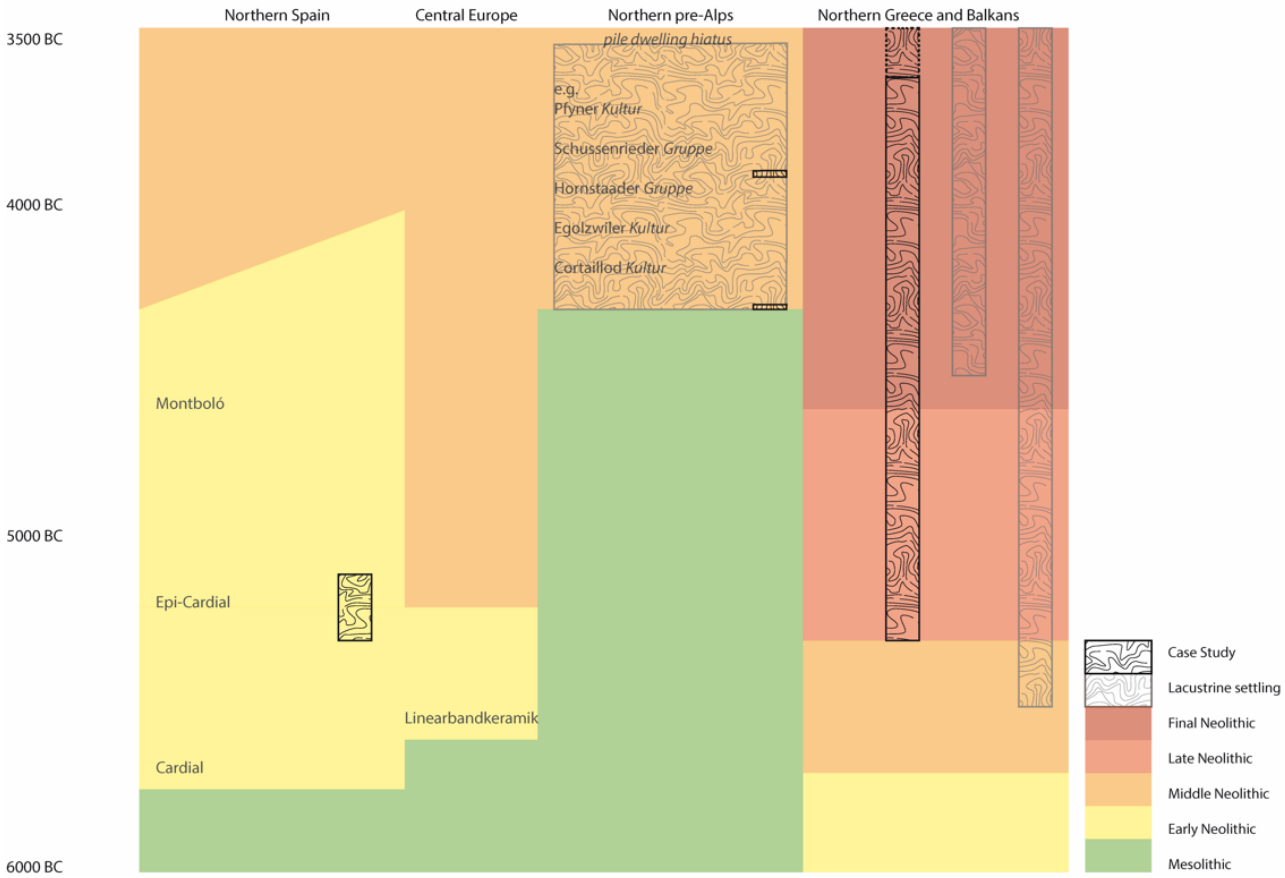

Figure 2: Chronological frame of the case studies (image by author)

This „first/earliest“ factor was important not only as a construct to link sites in different areas, but also for the background of the research question itself. To trace the motivation for this decision it seemed important to go back to the initial reasons, transform the question into „why did people start settling close to the lake?“. After all, the reasons and thought processes that lead people to stay in a certain place, or re-settle it are very different and entail other processes.

Apart from this, the re-settling of sites, mainly in the Alpine Bronze age following a general abandonment, has been and still is being studied extensively (Menotti 1999; Ebersbach 2013). Also the abandoment of lakeside settlements in central Europe in the Iron Age has received much attention, leading to very detailed and innovative work (Jennings 2014a). Nevertheless, the beginnnig of lakeside settlements has received very limited attention in research. These existing interpretations were already discussed in the introduction.

The other important decision in choosing the case studies was the international aspect of this work. The decision to include different geographical locations spread around Europe was made intending to bridge gaps in research, caused by small-scaled research, and promote a general broader view for research topics. It

Figure 3: Geographical location of the case studies. Data layers: GADM database (www.gadm.org). Generated by author (2020). Using: Qgis Version 3.10 - A Coruña.

was purposefully chosen not to include extensive overviews and images of the materials that were found at each site for two reasons. First of all, this would not contribute to the work, which intends to offer concise overviews of the necessary data and is more dedicated to the interpretation than the presentation of these. Secondly, for most of the sites the material has been extensively published in catalogues and monographs about the archaeological research. It would be superfluous to repeat this. Nevertheless, below the literature that has been studied exhaustively for each site is discussed so that interested readers can easily find more information.

Egolzwil 3

The site of Egolzwil 3 is known as one of the oldest lakeside settlements north of the Alps. Apart from that, it has been studied extensively and published relatively well. The site was first dated after the 1950-1952 campaigns, however, the obtained radiocarbon datings are very scattered and are nowadays considered to be too young. After the 1985–1988 campaigns the site was radiocarbondated again, getting a date from 4290 BC. This approximate age was confirmed by dendrodatings, which indicated 4275 BC. In 2011 the site was dendrochronologically dated with newly obtained material, which was contrasted in three different laboratories. This led to a date between 4278 and 4270 BC. Dendrochronological research also indicated that the site existed for a minimum of 9 years (Stöckli, Seifer, and Sormaz 2013).

Research started being carried out at this site in 1932 as a result of the fascination for the earlier mentioned *Pfahlbauproblem*. When attention shifted to other sites it grew quiet around Egolzwil 3, but not for long. In 1985 new campaigns started, this time hoping to answer questions regarding the Mesolithic-Neolithic transition. As the researchers relied on a false dating, however, this led to very limited success. More recently, in the first decade of the 21st century there has been a renewed interest in Egolzwil 3 once again. This time it were mainly test trenches that were dug to check on the state of preservation and take more samples for dating.

Throughout the last centuries the site has been investigated several times, each time with a different research question, reflecting the research interests from that time. The *Pfahlbauproblem* was an important topic in the first decades of pile dwelling research and by the end of the 20th century the Neolithic transition was gaining popularity. The renewed research at the beginning of this century is linked to the candidature for UNESCO World Heritage many circum-Alpine settlements were included in. In order to lift this project off the ground many of the sites needed to be checked and research was impulsed.

The scattered nature of research at the site of Egolzwil 3, especially in the first two instances plainly using the site to reflect certain trends in archaeology of that moment, is clearly

visible in literature. Although the site is documented well, as was mentioned before, it was not always easy to find all of the required information. Many books or articles are dedicated to highly specialised parts of research. Among the many different works a comprehensible overview was often lacking. The main publication on this site is R. Wyss' "Steinzeitliche Bauern auf der Suche nach neuen Lebensformen. Egolzwil 3 und die Egolzwiler Kultur", which consists of two volumes (1994 and 1996). In the first volume the material culture is discussed and catalogued, whereas the second volume deals with the results of the excavations. Apart from this an important recent publication is A. De Capitani's "Egolzwil 3, die Keramik der neolithischen Seeufersiedlung", published in 2013. This volume not only discusses the ceramics of the site in great detail, having carried out typological and scientific analyses of the material, but also offers an overview of previous publications, the research history and, very importantly, the most recent datings of Egolzwil 3.

Older work includes T. Böllinger's publications on the environment of Egolzwil (Samenanalytische Untersuchung der frühjungsteinzeitlichen Siedlung Egolzwil 3, 1994 and Wirtschaft und Umwelt des jungsteinzeitlichen Wohnplatzes Egolzwil 3, 1992), H. R. Stampfli's assessment of the animal bones (die Tierknochen aus den jungsteinzeitlichen Siedlungen Egolzwil 3 und 4, 1992) or the very first mention of the site in E. Vogt's article "Das steinzeitliche Uferdorf Egolzwil 3 (Kt. Luzern): Bericht über die Ausgrabung 1950" (1951). Another source that was used in this work, with permission of the author, is the unpublished Master Thesis "Die Silices aus der neolithischen Siedlung Egolzwil 3 (Kt. Luzern)" by A. Kienholz (2011).

Hornstaad-Hörnle I

Hörnle I is the second site to be included in this project. This was most of all a practical decision. For the purpose of this study another northern pre-Alpine settlement as a comparison was necessary. The decision for this to be a German site, and not a French, Slovenian or Austrian one was influenced by the accessibility of literature and archaeologists that are familiar with the site.

After a scan of the different sites that can be found in southern Germany, Hörnle I stood out immediately. This site has been the subject of a 10 year long research programme, supported by the DFG (German Reseach Council). Therefore many different aspects of the site were studied equally by experts, without a strong focus on a single question overshadowing the whole. Everything has been neatly published in a series of volumes called *Siedlungsarchäologie im Alpenvorland*. Most of the volumes are dedicated to Hornstaad-Hörnle I, but also other sites and studies from the region are included, making it a very valuable ensemble.

Volume I describes the work carried out at the Hornstaad-Hörnle I site between 1973

and 1978 (Schlichtherle 1990), Volume II deals with the archaeobotanical studies (Billamboz 1990), Volume VI discusses the botanical and pedological research that has been carried out on the site (Maier and Vogt 2001), Volume VII the lithic artefacts (Hoffstadt 2005), Volume IX the dendrochronological studies (Dieckmann/Harwath/Hoffstadt 2006), Volume X describes the ornaments and jewellery that were found on the site (Heumüller 2009) and finally, Volume XII deals with the ceramics (Matuschik 2011). It is clear that all conventional archaeological materials (ceramics, stone, ornaments) are covered, as are most archaeological methods (archaeobotany, reconstruction of the environment, dendrochronology). What is missing are reports on bones. For human bones this is easily explained, as none were found. The animal bones were published as a part of the same series but in a special edition of the *Bericht der Römisch-Germanischen Kommission* (Kokabi 1990).

The choice to include this site was not only based on the quality of its publications, also chronologically it is highly defendable. Hornstaad-Hörnle I is considered the oldest, or one of the oldest, lake dwellings at Lake Constance. Dendrochronological research has indicated 3918-3915 BC as the earliest building phase. Most of the dendrochronological dates obtained from the site are scattered between 3922 and 3902 BC, which is when the site was most probably abandoned. The very beginning of the site is unclear, as the datings are dendrochronological studies and reflect the year a tree was cut down, not when it was used to erect a building. Nevertheless, several archaeologists have agreed that the "founding date" of Hörnle I should lie around 3918 BC (Matuschik 2011). This means that it is, as far as we know, one of the first settled places in the German pre-Alpine area.

La Draga

La Draga is the third site of this study. The site was discovered in 1990, since then excavations and research have been taking place. The great advantage of working with this site is that information is often published. Primarily, there are the excavation report monographs: one about the excavations from 1990 to 1998 (Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2000), one about the wooden artefacts (Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2006), and one about the excavations from 2000 to 2005 (Bosch Lloret et al. 2011). All of these books are written in Catalán, which does not make them accessible to everyone. Regardless, to have an excavation publish their findings so consistently and extensively is a source of joy.

Apart from this the Equip Draga frequently publishes shorter articles in English, Spanish or Catalán in a variety of journals. Examples are several general articles introducing the site (Tarrús Galter 2008), articles reporting new findings (Palomo et al. 2014; Terradas et al. 2014), reports about the

bioarchaeological studies and subsistence strategies (e.g. Antolín et al. 2013; Palomo et al. 2011; Caruso Ferme/Piqué i Huerta 2014; Revelles et al. 2014), articles about the obtaining of resources (Terradas et al. 2014) or about the site within its local context (Bogdanovic et al. 2015; Terradas et al. 2013).

Around the site of La Draga an archaeological park has been built, which focuses strongly on experimental archaeology. Some focus points of the investigation that could be higlighted are the environment, resources, architecture and the usual archaeological materials such as ceramics, tools and ornaments (be that from wood, stone or bone). Remarkable, but not surprising, is the emphasis on experimental archaeology in publications too.

The site's chronology is based on radiocarbon datings. Two settlement phases have been distinguished by researchers: an older and a younger phase. The older phase has been dated between 5250 and 5150 cal BC and the younger one between 5100 and 4900 BC. The site is believed to have been inhabited for approximately 200 years (Bosch Lloret et al. 2011). It is redundant to say that that makes it the oldest lakeside settlement in Spain, as it is the only one that has been found so far. Nevertheless, as will be explained in greater detail in the case study, it does not represent the first indications of the Neolithic in this area and was surrounded by contemporaneous sites. It is neither the oldest Mediterranean pile dwelling: La Marmotta at Lake Bracciano in Italy, which was not included in this study due to the scarcity of published material, was settled from approximately 5600 to 5150 BC (Fugazzolla Delpino/Pessina/Tiné 2002). Perhaps in the future a broader project, including both regions, could contribute further knowledge.

Dispilio

Dispilio is one of the most extensively researched and well published lacustrine sites in the Greek/Balkan region, as it was discovered earlier than most other lakeside settlements in the area. Therefore it was chosen as the last case study. Again, it is not the earliest Neolithic site in this area, as a matter of fact it pertains to the Middle Neolithic, but it is one of the earliest known lakeside settlements. Several projects concerning wetland archaeology are running in Greece, Macedonia and Albania too so that in the future hopefully more sites can be studied in the same context. Thanks to the help of several colleagues, able to assist with the prevailingly Greek literature, it was possible to study this site and include this region, far east from the usually studied wetland sites. Dispilio was discovered in 1932 and was excavated systematically more or less continuously since then. The site is said to have been inhabited continuously from 5355±125 BC to 3644±118 BC (Facorellis/Sofronidou/Hourmouziadis 2014).

The main existing publication is that of "δισπιλιο. 7500 χρονια μετα" (Dispilio. 7500

years later) (Hourmouziadis 2002) which contains contributions on different aspects of the excavation, materials and interpretation. Nevertheless, an overview of all of the materials and conclusive assessment of the site are still missing. As the excavations at this site are still running this is to be expected in the future.

Apart from a recent article, offering an overview of the site and information about its radiocarbondating (Facorellis/Sofronidou/Hourmouziadis 2014), the website "Anaskamma" holds many short articles touching upon different aspects of the site and its materials. Examples of these topics are; woodworking technologies (Chatzitoulousis 2009), the subsistence system (Cosmetatou 2008), stone industry (Doulkeridou 2009; Ifantidis 2008), skeletal remains (Petroutsa 2009) or fish hooks (Stratouli 2008). To see this kind of involved collaboration between the excavation, research and university is very positive. As a matter of fact, a special blog exists on which articles and news regarding Dispilio are published (Anaskamma 2008). This active involvement of students and archaeologists from Thessaloniki University, which is responsible for the project, is an inspiring example.

Apart from this, the site of Dispilio has been the subject of dissertations, such as "Cooking, space and the formation of social identities in Neolithic Northern Greece: evidence of thermal structure assemblages from Avgi and Dispilio in Kastoria" (Kalogiropoulou 2013) or "Faunal assemblages in lakeside settlements of Neolithic Europe: the case of the lakeside settlement of Dispilio Kastorias (Greece, Western Macedonia)" (Samartzidou 2014) and several articles have been published in journals, for example about a dugout found at the site (Marangou 1999), three-dimensional clay representations (Marangou 2001) or the paleoenvironment (Karkanas et al. 2011).

Literature shows that the research approach on this site differs strongly from that found at the Alpine settlements. From the very beginning there is a strong focus on theoretical issues. For example, the finds are in some cases divided and described in categories of "time", "space", "economy" and "ideology". Nevertheless, whereas the focus on interpretative aspects is strong, some ideas are not always strongly defended, such as the division in lakeshore, shore marsh and dry land "cultural phases" that is maintained in some articles. These aspects stand in strong contrast with the research approach maintained in central Europe. In this short overview of the choice for each case study alone we can already find a strong reason in favour of carrying out this project: contrasting archaeological approaches in different regions and creating a synthesis of this.

Interdisciplinarity: including anthropology

Apart from the four mentioned case studies, which form the core of this work, also two anthropological examples have been included. The idea to do so sprung from several conversations with anthropologists and participation in workshops and discussion groups led by anthropologists. The actual implementation of case studies was preceded by general research into the possibilities and limitations of interdisciplinarity. After having a look at other examples of similar intents it was decided that the most appropriate way would be to include a couple of anthropological case studies, accompanied by an assessment of the relationship between archaeology and anthropology and interdisciplinarity in general, featured below. The case studies themselves have been included in the third chapter, alongside the archaeological core-case studies, where all "data" are grouped.

It is no surprise that an interdisciplinary approach has become a part of the current work, as it seems to be a rather fashionable topic nowadays. However, it also seems to have been elevated from a means of producing new forms of knowledge to an explicit end in itself (Garrow and Yarrow 2010).

Archaeologists have struggled for the longest of times to define their own discipline. As a matter of fact not even "their own discipline" is correctly stated. That what we now call archaeology has long played the role of an auxiliary discipline, moulded to the needs of other disciplines. Also famous figures in our history of thought have had a go at it. The most famous example might be Foucault, who appropriated archaeology by applying the term to his own writings (Foucault 1973). Archaeology became a metaphor, the description of a certain analytical method. Another example is that of Freud. Whereas Foucault still somewhat acknowledged archaeology and worked with it on a methodological level, which is still a source of joy and endless citations for many archaeologists, Freud started out flirting with archaeology and eventually pretended to rise above it. He has described the similarities of his psychoanalytical method to an archaeological excavation (Freud 1896). By removing layers (in Freud's case not of soil, but of repression) it would be possible to reach the lowest layers, which are archetypal and universal. Later, he moves beyond that. J. Thomas poignantly describes this in his article on Freud and archaeology in the following manner: "In Freud's later works psychoanalysis is increasingly identified as a means of investigating the origins and development of human culture, a task that might reasonably be seen as the responsibility of archaeology." (Thomas 2009).

Another factor in the yearning for self-definition in archaeology stems from the relationship with anthropology. These disciplines are not easily separated as they come from a very similar tradition which only started drawing up borders after the

institutionalization in the beginning of the 20th century. Not to mention the differences between what is conceived as 'Anthropology' in the North American and the British traditions (Garrow and Yarrow 2010; Gosden 1999). Until then, the framework in which researchers dealt with both past and present societies was the same. However, at some point the necessity of different frameworks arose, as we are dealing with different materials and contexts. Countless books have been dedicated to the relationship between archaeology and anthropology since; its possibilities and its limitations.

Anthropologists seem to be convinced that their discipline is of use for archaeologists, but do not find this relation to be reciprocal (Gosden 1999). Many anthropologists maintain the common concept that archaeologists are 'out of the scope' (Leach 1973). By not being able to access the same sources of information, archaeology is seen as a restricted practice. This idea has also extended to archaeologists themselves, believing that anthropological research somehow provides the possibility to get closer to a society than archaeology ever could.

In the post-processual tradition archaeologists have used anthropology, mainly 'filling the gaps' of archaeological research (Binford 1962) defining archaeology through anthropological models of society: (about ethno-archaeology) "in order to clothe the skeleton remains of the past in the flesh and blood of living, functioning, acting people" (Hodder 1982). This type of relationship stems from the previously mentioned belief there is an asymmetry due to unequal access to data. At the base of all this lies the (erroneous) assumption that anthropology, for the simple merit of being able to see and talk to its subjects has a better chance at understanding. However, this too is a flawed discourse, as the information about underlying symbolic systems one can retrieve from an excavation or from an encounter with an informant is pieced together inferentially in both cases (Thomas 2010).

It is not archaeology's deficit, but the different approach and framework which define the difference between the disciplines. What is defining is the way archaeology deals with its data. The fact that past societies can be studied archaeologically, sometimes even exclusively in the case of prehistoric sites, does not mean archaeology is only relevant for past societies. "..the difference (between material culture in an archaeological as opposed to a strictly anthropological context) lies not so much in the temporal fraction between researcher and their object, but in the temporal fracture within the object itself in archaeology: these remains exist in the present but they are also of the past." (Lucas 2010). An example to illustrate this is the Garbage Project, carried out by W. Rathje and C. Murphy. At the University of Arizona a group of researchers decided to systematically, following an archaeological approach, excavate, sift, classify and document garbage dumps. They were able to carry out an inspiring project

which projects archaeology and its relevance in modern society (Rathje/Murphy 2001).

In spite of his earlier ideas that are contradicting the image of the relationship between archaeology and anthropology presented here, Hodder expressed a long time ago the strengthening position of archaeology as a discipline, saying that it is losing its innocence, it has developed its own independent personality with distinctive qualities to contribute (Hodder 1986). There is no need to justify ourselves by using scientific methods, as researchers tend to do. A purely archaeological approach exists, too. Archaeology has changed and still is changing, this discipline is becoming increasingly 'undisciplined' and is no longer 'merely' the study of the past (Millán Pascual 2015)

An important tendency in archaeology nowadays is the ontological turn, also called the (re)turn to things or symmetrical archaeology (Witmore 2007), which will be discussed into greater detail later. A symmetrical anthropology has been on the rise for some time now. This development could be used to illustrate the dawning of a new period of research, in which archaeology and anthropology can cooperate in an unexpectedly parallel manner. Breaking through the hierarchy imposed by the object-subject relation and defying the supposedly asymmetrical relation between things (also between anthropology and archaeology) by recognizing different ontologies is a development which brings different disciplines and thoughts closer.

The very first person to turn to anthropology in pile dwelling research was also the one who stood at the cradle of this research tradition itself: Ferdinand Keller. In the first publication about *Pfahlbauten*, he already made a point of drawing direct parallels with communities living in pile dwelling structures in Guinea. The first depictions of lakeside settlements, romantic drawings of villages elevated above the water on platforms, are actually directly based on these communities. After this initial, erroneous, use of ethnographical examples in wetland research the thematic has been taken up again over time. Valuable examples are Pétrequin's now classic book "Gens de l'eau, gens de la terre" (1984) or the results of his current project assessing Jade networks with the help of ethnographical studies (Pétrequin et al. 2012; Pétrequin/Pétrequin 2012).

Anthropological Case Studies

In the past pages a general discourse has been generated regarding the relationship that archaeology and anthropology could have, now we move on to see this applied to a specific project. Both anthropological case studies elected for this work are very different in character, it could even be said that strictly speaking the second one makes more of a philosophical contribution.

Ribeirinhos

The idea to include the *ribeirinhos* as an anthropological case study came forward very quickly after the decision of expanding the work in this direction was taken. Although there are many examples of communities living in close connection to water and building pile dwellings, the *ribeirinhos* have certain advantages. Most importantly, they have been studied both for sociological ends and by anthropologists. The contributions of Mark Harris were decisive for the inclusion of the case study. He has lived on the lower Amazon floodplains for extensive periods of time, getting to know the communities and conducting research. The result are numerous articles on different aspects of the *ribeirinhos.*

Apart from this, also other instances have taken an interest in this topic. This has to do with a general interest in the ecology of the floodplains right now in Brasil, which is explained more thoroughly in the actual case study. These other studies are dedicated to for example the economy of the *ribeirinhos,* the influence of regional markets on them, people's health, their architecture or the way of integrating their lives in the present natural conditions. These valuable sources have also been included, leading to a diverse case study. Naturally, it is not comparable directly with the archaeological studies as not as much can be found on raw materials for example. Nevertheless, it is not intended to place these cases directly next to the archaeological ones on an interpretative level.

Whereas the archaeological sites represent the core of this work and are central to it, these other two are rather supporting acts which allow for new insights and different interpretative and theoretical experiments. This case study has been useful in portraying communities living in even extremer conditions with water than our prehistoric lake dwellers probably did. This allows one to push certain thoughts to a limit and get an idea of what could happen. On the other hand, the fact that the *ribeirinhos* have been affected by many external influences and regional markets, and thus come closer to our own western capitalist culture helps in not maintaining a too post-colonial vision. Would these people be all on their own, out in the "wild" as we would perceive it, it would be tricky not to see them as a society which coincidentally is alive, but might as well be one of those we find in our excavations. Due to their approximation to a culture similar to our own, however, this element is perceived differently.

Amsterdam

The initial idea was to include another example, similar to the *ribeirinhos*. Nevertheless, some time and a sudden revelation led to this second case study. It was decided to have a closer look at the modern city of Amsterdam, capital of the author's homecountry and stage to the initiation in archaeology at Amsterdam University. In this

decision it is tried to push interpretation to its limit and include a living and breathing city nearly all readers will be familiar with, many even on a personal level. After all, Amsterdam is a pile dwelling like any other that has been mentioned so far. It is not highly visible anymore, but parts of the city still rest on piles which keep it above the water. As a matter of fact, in the Netherlands a measurement exists, called "Nieuw Amsterdams Peil", or NAP for short and known in English as the Amsterdam Ordnance Datum. This indicates the sea-level. On the Dam Square in Amsterdam it should be exactly 0, but it falls as deep as 6 metres close to the Ijssel Lake as big parts of the Netherlands are theoretically "underwater".

It would be difficult to find another nation in Europe which holds such a close relationship with water. The decision to include this site expands the breadth and depth of possible thoughts and interpretations even further, and opens another dimension with the points of view it provides. As this city is familiar and something many can relate to, in making parallels with the other sites that are discussed everything is brought closer to the reader's reality. Overcoming this bridge of "us" and "them" would be the ultimate goal in this. In other words: people are people are people.

The treatment of Amsterdam as a case study is, again, different than that of the other sites and places. There is no "Amsterdam culture", it forms part of the Netherlands, which has some trouble defining its "Dutch culture" too nowadays. Therefore Amsterdam as a city is taken as a specific example of what a pile dwelling can look like, within a certain culture. Apart from this, general ideas and traditions regarding water, known amongst Dutch people, and if it applies specifically in Amsterdam, are discussed. Valuable data are also contributed by several sociological studies, both national and foreign as they are expected to provide different sides to the story.

Interdisciplinarity: including geography

Another discipline that is key to this research project, though in a much more subtle way perhaps, is geography. Geographical methods are an innate part of archaeology providing us with possibilities to map, display and project data as well as aiding with their interpretation. The relationship between archaeology and geography is very closely knit and does not struggle with the more identitarian issues all things archaeology and anthropology have. Since the 1960s "..a striking series of parallels and convergences have taken place in human geography and archaeology." (Tilley 1994). Both disciplines seem to be sufficiently separated not to stand in each other's way and any cooperation seems to be natural.

Nowadays the importance of geography is only growing as archaeology is discovering the value of geographical methods such as GIS. This is also why geography plays an important role in the present work. With the

help of geographical programmes it has been possible to include visualisations of different sites within their surroundings, their surrounding relief and to create maps depicting the distance to resources. This has helped greatly in their interpretation. All maps were elaborated with the open-source programmes QGIS, SAGA GIS and R, using data from different literature sources, open-source maps and the patient help of those more experienced with geographical information systems. The Site Exploitation Territories were mapped using the Technical Note developed by colleagues at the Collaborative Research Center 1070 (Ahlrichs/Gries/Schmidt 2017).

The approach to GIS in the current work is not as ambitious as that of archaeologists who are becoming increasingly involved with these methods. In this case the various implementations are regarded as tools, useful to visualize and prove certain points, not as a goal in itself. Nevertheless, according to an increasing number of researchers, archaeologists should move beyond working "*with* GIS *in* Archaeology" and start formulating genuinely new research and have stronger hermeneutic ambitions (Criado-Boado 2014). Examples of work that moves beyond the purely functionalist orientation regarding GIS methods are present for example in southern Spain (García Sanjuan et al. 2009; Murrieta Flores, García Sanjuan, and Wheatley 2014). In these works tools are presented to include spatial analyses on different levels in archaeological studies, pleading for the advantages of this and showing the way for future research.

Theoretical basis

The endnote of the last part builds a little bridge that takes us from the methodology, through GIS and spatial elements straight into the next part: theory, starting with the landscape.

Landscape

First of all a wild meta-quote from Beneš and Brůna, explaining the importance of landscape in archaeological studies, still relevant although it was written over two decades ago, by quoting Bělehradský, who in turned was inspired by Kafka.

„Proč se tedy ptáme, zda má krajina paměť'? Nejlépe si pomůžeme alegorií Václava Bělohradského (s poukazem na Kafku) o zvířecím doupěti: „Západní člověk se stal v pozdní době voyerem veškerenstva: na svět se dívá mikroskopem, dalekohledem, ze všech možných stran, nic neunikne jeho obscénnímu pohledu: všechny národy a všechny formy života jsou mu na dohled. Kdykoliv se Kafkovo zvíře uloží v doupěti ke spánku, aby si užilo jeho bezpečí, slyší vzdálený šramot, o kterém neví ani, odkud přichází, ale který ho děsí a pohání k horečné přestavbě doupěte...šramot je povědomí o tom, že věci nelze nikdy udržet uvnitř doupěte, že ono ‚vně' nakonec zvítězí a že je třeba mu nějak porozumět. Smysl je spíše ve vztahu k tomu ‚vně' než k nekonečném přestavování ‚vnitřku' doupěte. To ‚vně' ve svém celku totiž nelze nijak manipulovat, ale jen uctívat: neustálé zatahování věcí do doupěte nás odcizuje tomu, co je úctyhodné a co nemůže být nijak ‚pozorováno' nebo ‚vyráběno'... Jsou problémy, které nelze řešit účinnějším

viděním, ale jen tím, že se osvobodíme od pojetí pravdy jako ‚vnitřku doupěte', kde vše je neustále člověku na očích. Další věci ‚k vidění' nic neřeší. Je třeba osvobodit se od té úzkosti z onoho ‚vně' doupěte. To je rozhodující motiv postmoderného myšlení' (Bělohradský 1991, 214). Naše otázka tedy vyplývá z neochoty respektovat starý antropocentrický systém myšlení, který potlačuje právě to ‚vně' člověka. A ‚vně' je především krajina."

"*Why, then, do we ask whether the landscape has memory? We are best helped by the allegory by Václav Bělohradský (pointing to Kafka) about an animal den: "the western person has become a voyeur of the world lately: it looks at the world with a microscope, binoculars, from every possible angle, nothing escapes his obscene look: all nations and forms of life are within his sight. Whenever Kafka's animal lays itself to rest in the den, so that it can enjoy its safety, it hears a distant noise, unaware where it comes from, but frightening it and leading it to a feverish re-construction of the den…the noise is the awareness that it is never possible to keep things within the den, that the 'outside' will be triumphant after all and that it is necessary to somehow understand it. Sense lies rather in the relationship with that 'outside' than in the endless re-constructing of the den's 'inside'. This is because the 'outside' is impossible to manipulate, but can only be respected: the relentless dragging of objects into the den alienates us from that what is respectable and cannot be 'observed' or 'constructed'… There are problems that cannot be resolved by better observing, but only by liberating them from perceiving the truth as 'the inside of a den', from where people can always see everything. This is the decisive motive of postmodern thinking" (Bělohradský 1991, 214). Our question then stems from the unwillingness to respect the old anthropocentric system of thinking, which represses that ‚outside' of people. And ‚outside' is most of all the landscape.*"

(Beneš and Brůna 1994)

Landscape is a central issue to archaeology and is part of any kind of project or research that can be conducted. As John Barrett rightly states, „…the history of human life is about ways of inhabiting the world" (Barrett 1999).

Where did the discussion we are about to dive into originate? Once again, this hits close to home. In the 16th century the territory now known as the Netherlands and Belgium was not only famous for its horrible colonisations, but also for its painters. Many of these paintings depicted what people were calling landscapes. The original 13th century Dutch word for this is *lantscap*, or variations of this. According to old-Dutch and Medieval Dutch dictionaries the *lantscap* is defined as region, area or province, also „the part of a country that one can see" (Pijnenburg et al. 2000). In modern Dutch this word has changed into *landschap*, or *lânskip* in Frisian, still reminding us of the older version. In the 16th century, with the rise of landscape as a popular theme in paintings, the term gained international knowledge.

The term started becoming increasingly used in archaeology in the 1970s/80s, as researchers became more interested in describing human impact on and interaction with their surroundings. This is the time when archaeology started paying more attention to the environment, developing methodologies for ecological sciences and focusing on things such as settlement patterns. For these topics the surroundings started playing an increasingly important role. It was no longer enough to assess sites as isolated features. Nevertheless, there was still a long way to go. After this mainly biological assesment of

landscape, it slowly shifted to more social approaches, as did archaeology. This happened for example through sourcing studies, tracking change and exchange relationships or recognising the landscape in cultural heritage topics (David and Thomas 2008).

The meaning of the term „landscape" has been constructed by numerous researchers throughout time. It has come to mean more and more over time. Landscape holds much more meaning than a description of a passive environment that could be the stage for some human action. From there interpretations are taken in many directions. The range of these interpretations can be expressed with the help of the words of Max Weber, ahead of his time in his Theory of Social and Economic Organisation. Nowadays, landscape moves somewhere between being an „ecological" entity, which would define the landscape as „an object external to perception but capable of description" and a „cultural" one, meaning that the landscape itself represents the expression of an idea which should be understood and translated (Weber 1947).

In how far the landscape and people are interdependent in their definitions can vary strongly. Gosden and Head state that „landscape is both the conceptual and physical environment that has an existence independent of those who live in it" (Gosden/Head 1994). Hereby they eliminate any human influence on the landscape and isolate its meaning from any meanings that could be constructed by people, returning to the ecological reasoning. Ingold, however, does the exact opposite by stating that „landscape is the world as it is known to the ones who dwell herein" (Ingold 1993). In his view the landscape as an ecological entity does not exist, it is called into life only by its inhabitants. Ingold even developed his own concept for this, namely that of taskscape. In his view „landscape" is not an objective entity, but rather something that bears the ideas and actions of its inhabitants: a taskscape (Ingold 2000). The imprinting of this taskscape on the environment creates the meaningful landscape which we should acknowledge. In other words, as Merleau-Ponty charmingly puts it: „landscape is the homeland of our thoughts" (Merleau-Ponty 1962).

This endless discussion, of which only a few examples have been mentioned here, could be dismissed as semantics by some. Could it be solved by establishing that for example „environment" is the name for untouched surroundings, independent from people, and „landscape" would be the sum of the environment and its inhabitants and their influences? Although this dualistic division might initially seem to work, it is too simplistic to actually contribute anything to the underlying discourse. Ingold comes close to a solution by coining and defining a new term.

This reasoning seems feasible and practical to work with. As a matter of fact, it is something that is embraced in this work. Nevertheless, it is just the invention of a new

term for something that is difficult to explain, as can be seen often in theoretical archaeology. Therefore, before moving on from the semantics/non-semantics, we will dig a little bit deeper. Unsurprisingly, several postmodernist tendencies can be recognized here. This is revealed by the reasoning that the landscape is an entity that has been inferentially constructed by its inhabitants and therefore we cannot directly access its meaning. Whereas the landscape has been perceived as something quite straightforward for a long time, it is now also included in the long list of things that we cannot see as they are, but only through representations. This could partially explain the diverse approaches as intents to either discredit this interpretation, or find a way around it to regain grip on the meaning of landscape.

Naturally, we are well past the point where it can be claimed that the landscape is a static entity, void of meaning. In this work it is accepted that for our purposes the meaning is acknowledged as something that is constructed by the people who inhabit a landscape, as they are the main subject here. This does not mean that the landscape is robbed of its agency but rather indicates that this agency lies in the eyes of the beholder. As J. Barrett states: „meaning is something recognised by an observer, it is not some quality inherent to the place or the monument“ (Barrett 1999). C. Tilley too mentions that existential or lived consciousness of a place are what give it meaning (Tilley 1994). He adds that places hold strong meaning for people, introducing the terms topophilia and topophobia to explain people's feelings towards places. In this sense, self-identity, but also the collective memory are on the one hand strongly influenced and shaped by the landscape and on the other hand these meanings are only held by the landscape because they were given to it.

Another slightly different approach is the one that can be found in J. Chapman's work. He often uses agency-related thematics in his work, and also some new terms show up: „fragmentation“ and „enchainment“ become a sort of tools to adapt the meanings ascribed to the landscape by people. He acknowledges the role of landscape and recognises material networks that symbolise a collective memory and strengthen social relations in it. This is constructed by the inhabitants themselves, for example through fragmentation. This means that objects are deliberately, and non-deliberately, broken and can then be used for an „enchainment“ in meanings by being dispersed over different places (Chapman 2009).

A very exciting example of this is given by Chapman in his article: two halves of a broken Bronze Age sword are found, each placed on one of two hilltops that lie directly in each others field of vision. The idea that these fragments were deposited there on purpose to connect the places is what stands central for the fragmentation/enchainment theories. This contribution Chapman makes does not get into

the meaning or non-meaning of the landscape, but accepts it as a fact and searches for tools for the mind to deal with it. This is similar perhaps to Ingold's creation of taskscapes. It is taken a step further by F. Criado Boado, as he calls XScapes into life. An XScape is basically the name we can use for something, so long as we are defining the „model for conceptualising space that serves to arrange it". This means that apart from all kinds of landscapes, skyscapes, visualscapes, etc. we should look for spacescapes (Criado-Boado 2014). Perhaps a stronger awareness is indeed missing in many investigations, and for many GIS is no more than a tool in the same sense as that the definition of Landscape need not be discussed. It is without a doubt important to open up this discussion.

An important feature of landscapes that occupies a central position in this work is water. Water forms part of the landscape, but is at the same time its own entity. Especially in this research project it is important to take this into account. When we have a closer look at the topic of water itself it is evident that it is a very rich theme. The importance of water nowadays is as pressing as it was thousands of years ago. Therefore we can still find many proverbs and sayings relating to water. Some examples in English could be to *feel like a fish out of water, still waters run deep, to be in bad waters,* etc. In spite of the language barrier, some of many Dutch sayings will be mentioned too as they fit the topic so well. *Dat staat als een paal boven water* literally translated would be "it sticks out of the water like a pole", meaning that something is very obvious. Another one is *Water doet de palen rotten, die het drinkt dat zijn de zotten,* literally translated "water makes the piles rot, only fools drink it". This saying is said to originate from the Middle Ages, when in the big cities (in this case most probably the rotting piles of Amsterdam are meant) water was usually too polluted to drink and people preferred wine or beer.

These are just a few from countless examples. The fact that Dutch has so many proverbs and sayings about water is nothing unexpected. It would take a whole different study to assess all of these expressions in different languages. Here they are only mentioned as an example to illustrate how meaningful water has been, still is and how it impacted even language.
Also more transcendental meaning can be ascribed to water. In mythology and religion, water usually holds the symbolic meaning of life, creation, purity or wisdom. This is not surprising, imagining that water is both an absolute necessity and manifests itself in impressive ways in nature that call for strong adjectives, such as endless seas, impressive waterfalls, violent storms, mirroring lakes.

Apart from this, also on a theoretical level it can make a contribution to become more aware of water as a research topic. According to V. Strang, water itself is becoming a bigger research topic in archaeology, at the same time as an increase in water related metaphors and terms can be seen in humanities (Strang

2008). As theories are very much interconnected with the metaphors that are often used to describe and explain them, this developing research focus should not be surprising. Strang also states that "…the fluidity and transmutability of water (…) make it a perfect analogue for describing complex ideas about change, transformation, mood and movement" (Strang 2008).

The ontological turn

Another pillar on which this work rests is that of a specific theoretical framework in archaeology. We are all aware, or at least should be, of our influences in the research we carry out, but sometimes it is not so easy to describe what archaeological or theoretical „current" one flows on. Some of the most important ideas and authors that have to do with the strong landscape focus have been described above. What remains is something that happens perhaps much more unconsciously.

Nevertheless, if a label is necessary for a general understanding beforehand, that of symmetrical archaeology and ontologies should be applied here. This is not exceptional as this current is currently mentioned quite frequently in archaeology. It has also received quite some criticism, most strongly because it is deemed to be too similar to its predecessor, postmodern archaeology.

A quick overview of this situation: Postmodernism is a term to which archaeologists nowadays do not affiliate keenly, it has acquired a bad taste. However, when asked what exactly is so wrong with postmodern archaeology many archaeologists struggle coming up with an answer. As a matter of fact, many other approaches that are preferred, be it post-processualism or something more like ontological archaeology, can show similarities with postmodern archaeology.

This is mainly possible because postmodern archaeology's most characterizing feature is that it is so ill-defined and disperse. There is a wide variety of names, all describing different fractions of what basically is the same. The mere co-existence of terms such as Late Modernity, Super Modernity, Hyper Modernity, Liquid Modernity, Late Capitalism, Post Industrialism, etc. etc. indicates the confusion that rules here. It could be said that Postmodernism disagrees with nearly everything that has come along since the enlightenment, arguing that we cannot know the past due to our subjective position. It is claimed that knowledge is constructed within a certain discourse. This idea does actually not sound all that appalling, and is relied upon heavily also in the more current theoretical traditions.

The darker side of postmodernism is its existentialist tendency. That truth and knowledge are constructed is something which can be worked with. Recognising our own subjective position is useful. It is the point when postmodernists keep droning on about the impossibility of everything and anything that

has probably gained them this dark spot in our unconscious opinions. Postmodernism has been blamed for the supposed „death of theory". By stating that we know nothing and it is impossible to learn anything „pure" this theoretical current announced the end of archaeology as a science and nearly rendered humanities useless.

This existential approach does not contribute anything beyond its rightful criticism, and that is not enough. Therefore many researchers have decided that it is time to leave this blurry tradition behind, instead of linking themselves to postmodern labels, many prefer „smaller" concepts. Nevertheless, this does not mean that theory is dead, far from it. In philosophy an interesting development is simmering, in which phenomenology itself as a whole is being contrasted against speculative realism. This speculative realism should be a step towards the solution to include non-human nature in thought again. Without getting into the topic too much, it could be said that it struggles with similar problematics as archaeology does regarding the topic of agency/ontologies/object-subject dualities and hierarchies which have partially been mentioned before.

The interesting thing is that this approach is both embraced and violently slayed. The interview and quote „I agree with Deleuze's remark that ultimately the most basic task of philosophy is to impede stupidity, so I see little philosophical merit in a ‚movement' whose most signal achievement thus far is to have generated an online orgy of stupidity." (Brassier 2011) are a rather brutal example. However, it makes one think about comparable scenes in archaeology.

Moreover, as theoretical archaeology and the practical world of excavating, investigating and publishing itself are not necessarily one and the same, the scene becomes even more complicated. Many archaeologists have drifted away in disinterest from anything theoretical. The battlefield at this point counts a select number of participants, which may never actually reach the broader field (literally and figuratively speaking).

Still, for some it seems a more optimistic atmosphere is spreading, in which smaller sets of concepts are embraced little by little and theory is finding its way back into archaeologists' hearts, be this conscious or unconscious. Current „trends" tend towards concepts such as symmetrical archaeology with its ontologies or feminist archaeology, just to name a couple of examples which are also important in the present work. Many of these approaches are still strongly Kantian, in the sense that they acknowledge the impossibility of knowing anything unconditionally, and ontologies could remind one of the many different fragmented perspectives that are suggested by postmodernists. Nevertheless, it is too simple to reject anything because it sounds similar to something which is defined by its blurriness and has a bad name because most do not know what exactly it is or what to do with it.

The concept of ontologies itself has been around for a while, being addressed in the early 90s for the topic of STS research. However, it is in the last decades that it has started making a name in the world of archaeology and simultaneously anthropology (Viveiros de Castro 2003; Witmore 2007). By maintaining that there are different ontologies, different realities or truths so to say, the plurality of the world and perception and knowledge are acknowledged. In this sense the deep abyss between humanities and science is starting to be bridged. The humanities are not something inherently useless and neither is science (science could also be discredited according to postmodern reasoning, in this sense archaeology's run to science to justify itself can only be explained by the belief that theory suffered a short cardiac arrest after all). At the same time though, mutually entangled relationships are recognised. By accepting the influence that different entities exercise upon each other we are already taking a step forward. This eventually results in something what can be referred to as the „turn to things" or „new materiality". As objects and things are no longer sub-ordinated, but move on the same level we, the people we study, the landscape

between people, their surroundings, the lake and all resources. It is acknowledged that these entities influence each other mutually and create a liquid network of meaning. The cultural, regional and temporal boundaries that are mentioned in the citation are very clearly and literally transgressed in this work too. Not and absolutely everything else, we no longer only think **about** things, but also **with** them (Fahlander 2012).

Symmetrical archaeology approaches fit especially well with the present work becasue of the emphasis that is given to relationships and networks, based mainly on Latour's work on ANT (Actor Network Theory) and relations (Latour 2005). Following Latour, this concept has been integrated in the theoretical framework, saying that meaning is not relative but relational. Most importantly, these relationships are not only established between humans, but also include materialities. This feature of symmetrical archaeology, in which the authoritarian position of humans is replaced by a more equalitary functioning between any kind of entity, is especially attractive. Naturally, we are still limited by our own position in research, but the elimination of subject-object thinking, bringing topics to a symmetrical level, is very inspiring. Apart from this, it is insisted that relationships are „…not context bound, but transgress cultural, regional and temporal boundaries" (Fahlander 2012).

This has been one of the main objectives of this research project from the very beginning. What is central is the relationship
in order to create some „grand narrative" as we know it from the times of processual archaeology, but to reach beyond different ontologies and touch upon the underlying meanings.

Another key point is the recognition of multi-temporality. This is meant in the sense

that instead of fixing a single term for something we should be conscious of its development, growth and multi-facetted reality (Whitehead 2004). By anchoring the definition of something in a single term our understanding of it is limited from the very start. This is a very important thought in archaeology as it permits a broadening of the interpretation of used and re-used architectures and objects for example. Also in the beforementioned aim of this project, in not wanting to pinpoint a single reason or origin for wetlands settling, this thought is reflected.

What is also strongly embraced in this work is the notion that it is important to learn about different worlds of thought without trying to exclude ones own. This attempted objectiveness is often futile and it can be more valuable to accept the personal bias, or ontology, and make it a part of the process.

SEGUNDO MOVIMIENTO: LO DE FUERA (CASE STUDIES)

Case Study 1: Egolzwil 3 (Wauwil Bog, Luzern, Switzerland)

Research history

Egolzwil 3 has become one of the best studied lakeside settlements. This is probably mainly thanks to two facts; first of all, the site was discovered later than many other circum-Alpine sites, guaranteeing a better knowledge and technology of its research. Apart from this, a special interest fueled the research of Egolzwil 3 as it was believed that this site would hold important answers regarding the *Pfahlbauproblem*, mentioned in the previous chapters.

In 1929 Anton Graf from the nearby village Schötz noticed piles sticking out of the turf. In literature he is described as an "enthusiastic antiquities researcher", and he enthusiastically embarked on this project. In 1932 Graf carried out sample drillings with Alois Greber, trying to map both the depth and extension of the culture layer (Wyss 1994). The site was very well preserved as it was covered by a thick layer of lakemarl and about 2 meters of turf on top of this (Speck 1990). In 1933 Graf and his team carry out an excavation, opening up a trench of 7 X 1 m (Greber 1951). They recognise that there is only one layer of habitation. Not much is known from this excavation, in the published text about the excavation at the Wauwilermoos Greber expresses himself, rather emotionally:

...Das Geheimnis das die Pfähle umgab, musste entwirt werden. Immer tiefer drang die Schaufel in die Seekreide hinunter. Immer wieder hob sie sich und brachte Seekreide, nichts als Seekreide zum Tage. War alles umsonst? Da- die Schaufel dringt durch eine dunkle Masse – weit drinten in der Seekreide. Wir starrten hinab. Langsam und bedächtig hebt sie sich. Tastend greifen Antons Hände in die schwarze Erde und – was hält er in den Händen? Eine Topfscherbe mit einem schönen, gut erhaltenen Henkel. Hastig sticht die Schaufel wieder in die Tiefe und bringt, eingebettet in der dunklen Masse, feuersteinsplitter und andere Kulturreste ans Licht. Eine neue menschliche Siedlung war entdeckt – weil es die dritte in der Gemeinde Egolzwil gefundene Seesiedlung war, erhielt sie den Namen Egolzwil 3…

(The secret, surrounding the piles, had to be unraveled. The shovel dug deeper and deeper into the lake marl. Time and time again it brought up lake marl, nothing but lake marl. Had everything been in vain? There, the shovel pierces through a dark mass – deep within the lake marl. We gazed. Slowly and cautiously it comes up. Antons hands search through the dark soil and – what is that in his hands? A pot sherd with a beautiful, well preserved handle. Hastily the shovel digs back into the depths and brings us flint debris and other remains, embedded in the dark mass. A new human settlement had been discovered – as it was the third lake settlement found in the Gemeinde Egolzwil it was named Egolzwil 3...)

(Greber 1951)

Later that same year Hans Reinerth gets involved and carries out another series of sample drillings. He also finds the extension of the culture layer and maps it (Wyss 1994). The first two bigger excavations in Egolzwil 3 took place in 1950 and 1952, led by Emil Vogt (Vogt 1951).

The site was used as an example of a dry-land lakeside settlement as the layers of birch underneath the houses and several hearths give reliable evidence of houses that were built on dry soil. In 1952 dendrochronological studies were carried out, making Egolzwil one of the first Swiss sites to have dendrodatings. After this campaign Vogt decided to focus on the Egolzwil 4 site as this seemed to show even more convincing evidence of ground-level houses (Wyss 1994). It was not until 1985 – 1988 that the next excavation took place by the Schweizerische Landsmuseum, led by René Wyss. He relied upon a false (too early) dating of the site and hoped to be able to explain the transition from the Mesolithic to the Neolithic in the area (Wyss 1989).

In 2007/2008 the site enjoyed a new surge of interest when the Kantonsarchäologie Luzern carried out drillings to find the 50s and 80s excavations. In 2009 several test trenches were dug and more samples for dendrochronology were taken in a project carried out by A. De Capitani, who later published the so-far unedited ceramic material from Egolzwil 3 and added the latest findings and state of research to this volume (Capitani 2013).

Evidently, the site has been thoroughly studied over time. However, the partially disparate data resulting from different research questions and approaches by individuals is clearly noted.

Site

Location

The site of Egolzwil 3 is located at the Neolithic shore of the *Wauwilermoos* (Wauwil Bog) (Figure 4). This lake no longer exists nowadays due to draining activities from 1856 onwards and the exploitation of peat. It was never a big body of water, with an estimated surface of 5.5 km² in the Neolithic and no deeper than 10 – 15 m (Böllinger 1994). The lake was fed by the Ron river, now a straight river flowing from east to west, but which used to make its way through the landscape meandering towards the Wigger, often causing floods. The surrounding landscape is characterised by the Santenberg (690 m) looming over the settlement from the north. On the southern side, however, the landscape opens up and provides a view of the high plain between the Jura and the Alps on which the Wauwil Bog is located (Böllinger 1994).

The area was undoubtedly of a very humid nature because of the presence of the

lake and the frequently flooding river. It has been characterised as advantageous in terms of soil fertility and natural resourcres (Böllinger 1992), this could also be deducted from the presence of 30 Mesolithic sites and 10 other Neolithic sites in the same area (Stampfli 1992).

Set-up

The settlement of Egolzwil 3 assumedly had only one short phase of occupation. This is not very uncommon for lakeside settlements, as they tend to be occupied during short periods. To explain this, it has been suggested that they were perhaps used as seasonal settlements. However, this has never been proven. Even the evidence from Egolzwil 3, which seems a viable candidate, is not conclusive and rather suggests a short-lived but continuous occupation (Böllinger 1992) (see Figure 5).

One of the most important features of Egolzwil 3 is the fact that it is a ground-settlement, and not a pile dwelling in the traditional sense of the word, elevated above the water. Thanks to this researchers took an interest in this site in the times when the

Figure 4: Location Egolzwil 3 (Kanton Luzern, Switzerland) Data layers: OpenLayers - Google Physical; Natural Earth II by Tom Patterson. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña.

Pfahlbauproblem was one of the main propellors of the scientific discourse surrounding pile dwellings. Egolzwil 3's houses are thought to have been situated on dry ground because hearths and layers of tree bark, used as floor isolation, are placed directly on top of the lake marl, without any evidences of a platform in between (Böllinger 1994) (Figure 6).

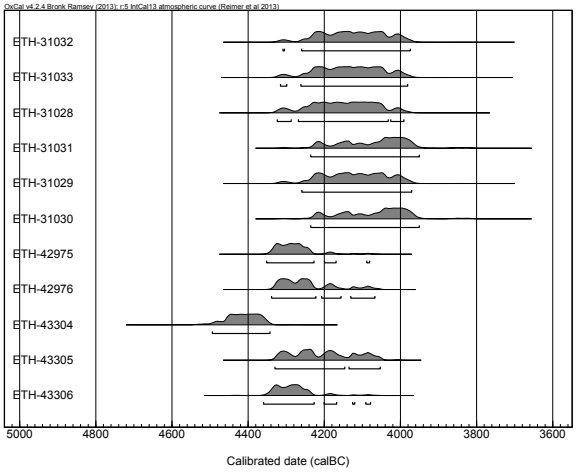

Figure 5: Radiocarbondating of Egolzwil 3. Data: de Capitani 2013, programme: OxCal v4.2.4 (for more information see Annex 4)

The lay-out of the village has been traced through the several excavation campaigns. So far it is assumed that the houses of the settlement were aligned in parallel lines, along streets. This has been deducted mainly by the positioning of the fireplaces and piles. Approximately 34 structures have been found, although some of these were probably part of the same building. This is possible because it is thought that some of the houses apart from a "living area" also had an economical area, attached to the house and facing the lakeside (Wyss 1994). These combined houses were longer than the rest. The 9 buildings presenting these traits measure between 16 and 21 metres, as opposed to the general approximately 8 to 10 metres.

In one of the working spaces several fishing harpoons were found, indicating that perhaps this specific unit was dedicated to fishing. The floors of the houses were isolated from cold and humidity by treebark. The walls were made using wattle and daub techniques and possibly an extra layer of planks isolated the houses. The pile field is rather chaotic as houses were often repaired and additional piles were added (Wyss 1994).

The sort of wood that was used for these piles is not bound to a specific tree. The settlement was surrounded by a wooden fence, found by Vogt during his excavations in the 50s. This fence did not seem to serve any defensive purposes as it was rather low and not at all robust. Its main function seems to that of delimiting the settlement and perhaps preventing wild animals from wandering in

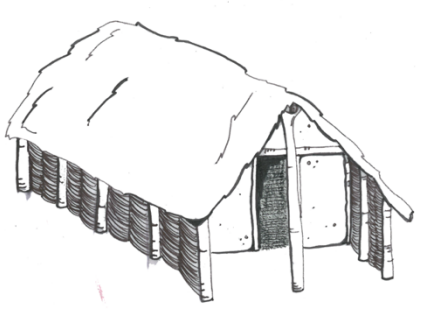

Figure 6 Sketched impression of architecture at Egolzwil 3 (drawing by author)

(Wyss 1996; Vogt 1951). As far as we know from excavations, Egolzwil 3 does not have a central gathering space or any remarkable

buildings that could be interpreted as ritually or socially significant locations.

"Direct" resources

Nutrition

The diet of Egolzwil 3's inhabitants seems to have been quite varied. The record of animal bones contains domesticated animals and wild animals to an nearly equal extent. R. Wyss calculates a 55,5 % - 44,5 % ratio (domesticated – wild) for the inhabitants' diet (Wyss 1994) (Figure 7 and 8).

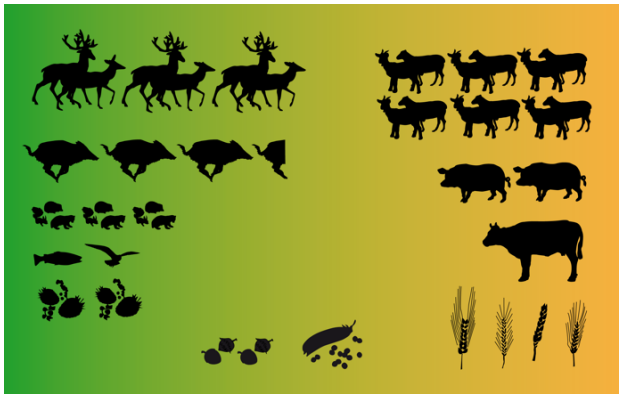

Figure 7: Different elements of the diet at Egolzwil 3 (image by author)

The consumption of animals at this site has been a topic of discussion in both older and more recent literature due to the implications this can have regarding the Mesolithic-Neolithic transition in the area. Egolzwil 3 has been referred to as a key-site representing a Mesolithic lifestyle with Neolithic influences due to the supposed "blend of mesolithic hunting and intrusive methods of stock rearing and agriculture" (Higham 1967).

However, in later literature researchers disagree with this (Stampfli 1992), stating that these statements are based on very weak material evidences, adapting data to fit into a certain point of view. A recent contribution to this discussion has been the discovery of a fluctuation in the importance of game animals in lakeside settlements throughout the Neolithic. This would apparently be determined less by cultural differences than has been assumed so far, and more by the effects of climatic factors. Worse climatic periods might have forced people to search for alternatives to unsuccessful agricultural activities (Schibler 2006).

The prevalent animals at this site are both red deer (*Cervus elaphus*) and roe deer (*Capreolus capreolus*), wild boar (*Sus scrofa*) and several smaller mammals. The domesticated animals were represented mainly by ovicaprides, some pigs (*Sus domesticus/Sus scrofa*; of mixed wild and domesticated features, possibly due to a rather free keeping which possibly even allowed for them to mate with wild pigs) and very few cattle (*Bos taurus*).

At a site like Egolzwil 3, located in a hilly environment and with supposed Mediterranean influences, the keeping of small ruminants such as ovicaprides would be a favourable decision. Authors have mentioned the abundance of ovicaprides and the presence of imported goods such as Mediterranean seashells and free threshing wheat (*Triticum durum*) as possible proof for Mediterranean contact, if not influences (Schibler 2006). Cattle, on the other hand, are

problematic as the foddering capacity of the densely forested area would not be very compatible. This is indeed reflected in the bone record, showing that cattle are underrepresented.

Also in the consumption of plants a mixed subsistence pattern can be distinguished. The collection of several plants, nuts and fruits such as weeds, hazelnuts or strawberries is very important (for all an overview of all plants consumed at Egolzwil 3 see Annex 5). Several models have been used

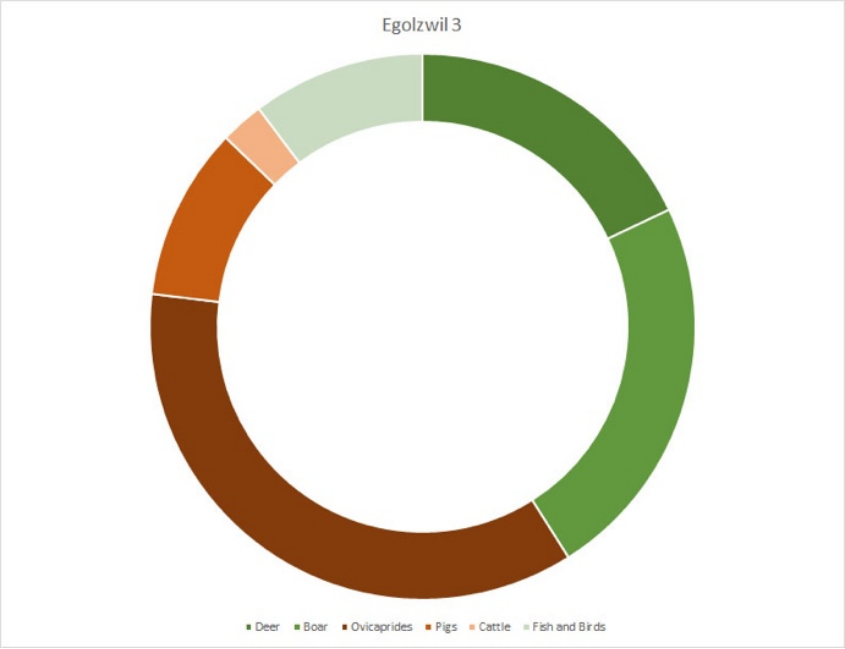

Figure 8: Approximate animal consumption at Egolzwil 3 (image by author)

to calculate the percentage of cultivated and collected plants that were consumed, but never in a fully satisfactory manner.

It is suggested that 17 % of the total archaeobotanical spectrum is made up of cultivated plants. Nevertheless, 89 % of these 17% would be poppy (*Papaver somniferum)* (Böllinger 1994), indicating that there is a disparity in remains that needs to be taken into account. Other important cultivated crops are the different cereals. Four types of cereal are well represented at this site; free threshing wheat (*Triticum durum*), einkorn wheat (*Triticum monococcum*), hulled wheat (*Triticum dicoccum*) and barley (*Hordeum vulgare*).

What is remarkable is the low amount of fish and waterbird remains that have been found, considering the vicinity of water and the otherwise intensive use of available nutritive resources. A possible explanation for this could be that the fragile fish and bird remains were not noticed in early excavations. This argument gains credibility also because of the finding of several types of bone harpoons and wooden netweights (Wyss 1994). Even in the absence of fish remains these artefacts are evidence of fishing activities. Nevertheless, it remains hard to say what role these activities played or what their importance was. Nevertheless, it is generally maintained by authors that fishing did not play an important role in the lakeside settlements in this region.

It is evident that Egolzwil 3's inhabitants enjoyed a diverse diet and maintained a reciprocal sphere of influence with their environment. According to analyses, approximately 20% of the area surrounding the

site could have been used for agricultural purposes, from the low amount of meadow plants and pollen analyses we could deduce that the area was covered by mixed oak woods, with some beginning clearances. The soil nearby the lakeshore would have been some of the only scarcely available open terrain. Nonetheless, the area around the site would have been good to provide food for a minimum of 40 – 50 people all year long (Böllinger 1994).

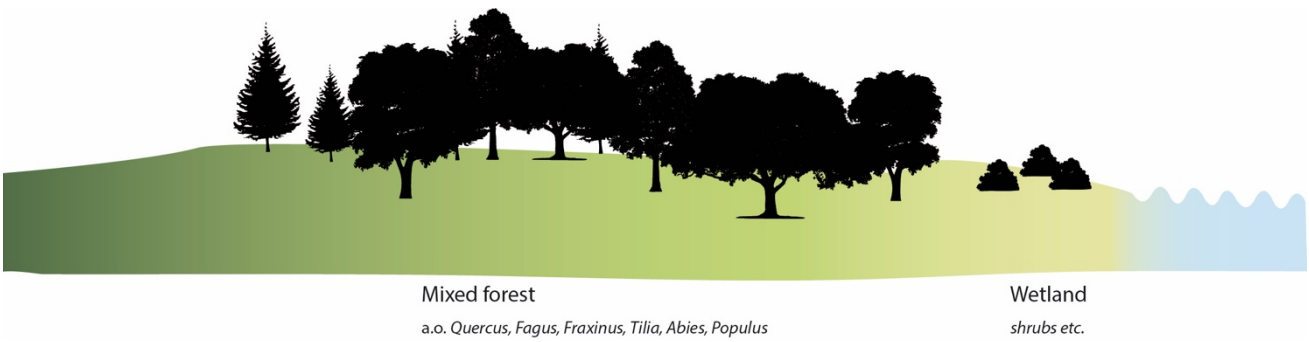

Figure 9: Surroundings of Egolzwil 3 (image by author)

Ceramics

Most of the vessels that have been found on the site are very similar in shape and decoration, which is why the site is eponymous for the so-called "Egolzwil Culture". This "Egolzwil Culture" is characterised by spherical pottery, scarcely decorated with knubs or bands of incised lines. Specific studies regarding the composition are lacking, but it is commonly assumed that the mud used for the ceramics was local and probably provenient from one and the same source (Capitani 2013).

The only vessels that do not form part of the Egolzwil ensemble would be a handful of *Schulterbandbecher*. Nevertheless, due to lacking petrographical analyses it is not clear whether these items were imported or whether they are local reproductions. The only mineral-petrographical analysis that has been carried out on Egolzwil 3 ceramic was published in P. J. Suter's publication about Zürich Kleiner Hafner (Suter 1987).

The ceramic ensemble of Zürich Kleiner Hafner was studied entirely, and 15 sherds from Egolzwil 3 were included as a comparative study. Thus we know that almost all of the studied Egolzwil sherds were made of a rather fine clay with a coarse, mainly granite, meagering. Some sherds included quarzite and mica schist meagering too. The ceramic vessels characterising the Egolzwil Culture, are usually of a gray to darkygray colour and of coarse meagering. The bottom is rounded and below the rim often two small, round handles are present. The decoration is limited to round lugs in the upper part of the vessels or decorative bands with incisions below the rim. Although vessels can differ slightly in shape,

size and function, they all visually pertain to the same group. Other sites that contain Egolzwil ceramic are for example Zürich Kleiner Hafner, although there it appears mixed with other types of pottery too. The style is described as West and North oriented, often drawing parallels with the "Cortaillod Culture" pottery.

Wood

As mentioned earlier, most of the area surrounding Egolzwil 3 consisted of woodland. These woods were mainly made up of oak (*Quercus*), mixed with beech (*Fagus*), ash (*Fraxinus*), linden (*Tilia*), fir (*Abies*) and poplar (*Populus*) (Böllinger 1994) (Figure 9).

It is evident then that the inhabitants of Egolzwil 3 had a wide variety of different woods to their disposal, without having to travel too far to obtain them. This is also reflected in the wooden artefacts, which are strongly represented at Egolzwil 3. The main categories into which the artefacts could be divided are; shafts for axes and other agricultural tools, a plow, shafts for blades, tools such as clubs or splitting wedges, containers such as beakers, planks that were perhaps used to eat off, net floats, spoons, bows and arrows and several artefacts which were unfinished or undeterminable (Wyss 1994).

Many different wood species, though all from trees that would be very common in the site's surroundings, were used for the artifacts. Elm (*Ulmus*), linden, willow (*Salix*) and cherry tree (*Prunus avium*) were the most frequently found species, to a slightly lesser extent also yew (*Taxus baccata*), pine (*Pinus*) and honeysuckle (*Lonicera*) were found. Some of the wood species seem to have been chosen based on their characteristics. Such is the case of several elm and linden containers, as these woods are easy to work, or a yew bow as this wood is highly flexible.

Moreover, also from other lakeside settlements in the European Neolithic yew bows are known (Hornstaad-Hörnle and La Draga for example, both discussed later), proving that a certain know-how was definitely involved in the manufacture of items. For other artefacts, however, the choice of wood does not seem to have been given much thought. For architectural purposes mainly ash wood is popular. However not the wood type but rather the dimensions of the tree were of importance in the selection for wood for architectural purposes (Wyss 1994; Seifert 1996).

Stone

It was of great help that for a Master's thesis all of the lithic material of Egolzwil 3 was studied petrographically, with the help of J. Affolter (Kienholz 2011). This makes it possible to work with very detailed information regarding the lithic resources, which is often missing at other sites. A surprising first fact is that local materials (Kienholz 2011) only make for a 0.7% of the total stones used at Egolzwil 3 (Figure 10).

This could very well be attributed to the very bad quality of the available material.

Locally mainly quartz, radiolarite and glauconite quartzite could be found, all materials that are difficult to knap and probably come from the surrounding moraine deposits.

archaeological research. According to a basic study, women would be able to travel approximately 4.4 km per hour and men 4.9 km per hour on a flat landscape without carrying

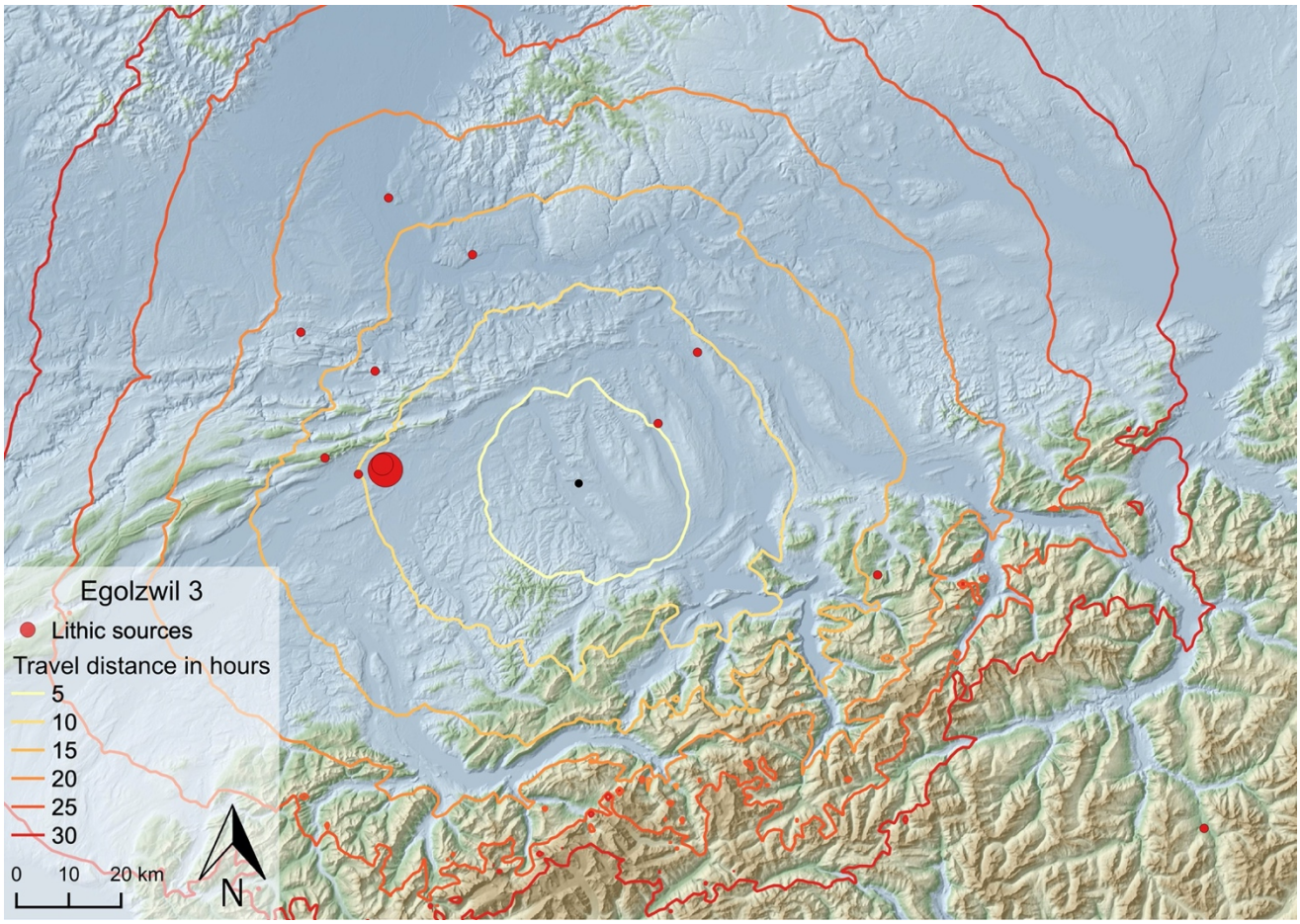

Figure 10: Distribution of lithic sources of Egolzwil 3. Data layers: SRTM model from CGIAR-CSI; ISO-lines elaborated after Ahrlichs/Gries/Schmidt 2017; lithic data after Kienholz 2011. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña. Gis; R. (for more information see Annex 2)

All known and suspected or probable sources are plotted on a relief map of the area, the size of the points accordingly to the percentage that these sources represent within the site. Additionally, lines are added to the map, representing the time people would need to reach various points in the landscape. This is based on the relief of the landscape and average walking speeds that are used in

any load. When carrying a load, this speed would be reduced to 3.9 km per hour (Murrieta-Flores 2010).

As is visible on the map, the primary flint deposit exploited by the Egolzwilians can be found in the Olten Region, easily accessible over the plain Egolzwil 3 is located in but at a distance that must have required some 10 hours walking. 47.1% of the material comes

from the Olten-Aarau region, nearby this main source also some other smaller ones can be recognised. The next bigger deposit visible on the map is the one nearby Olten/Chalchofen, accounting for another 29.6% of the total lithics.

All other deposits, although wide-spread and varied, make for significantly smaller percentages. Within a 5 hour walking radius around the settlement no lithic sources can be found, the majority of them is placed between 5 and 10 hours of walking or beyond. This means that any expedition in order to obtain material, if these were organised from the settlement, must have taken several days. This is a very intensive strategy, which can only partially be explained by the bad quality of local material. Additionally, as also other sources even further away can be identified, the idea that much of the material which comes from further away was acquired through contacts with other people is strenghtened.

Bone and shell

Many bone artefacts were found at the site. The different objects and styles will not be discussed into detail here as this is not of direct relevance for the specific research question posed in this work. Spatulas and chisels form the biggest category, occupying 31,8% of the total record. Next are awls and points with 31,8%. The share of any next object type is considerably lower. 9,3% are amulets, 4,7% harpoons, 2,5% are handles and the rest (14,8%) consists of broken artefacts, lithic retouchers and miscellaneous items (Schibler 2006). Only the artefacts of the two largest mentioned categories have been analysed, showing that deer antlers were by far the favourite worked material, making up 45,6% of the total. Small ruminant bones follow with 22%, then deer bones with 14%, ovicapride bones with 10,7%, big ruminant bones with 7% and finally a feeble single item made of wild boar bone, making for 0,7%.

Although red deer make up by far the largest category, this does not necessarily mean that they were the most frequently hunted animals, as many of the antlers artefacts are made of shed antlers which could have easily and pacifically been collected in the forest (Schibler 2006). The bones used for the elaboration of various materials correspond to the species that were also consumed at the site.

As for the use of shells at this site, several sea molluscs and artefacts made of these were found at the site. All of these objects come from the context of a textile bag, which was found filled with triton pendants, river molluscs, stone and marble pendants and limestone pearls (Wyss 1994). The discovery of this bag is very interesting as it might show the inventory of a travelling bag, including items that were involved in long distance exchange or trading. In this case, the triton shells indicate contacts with the Mediterranean area.

"Indirect" resources

Landscape/environment

As H. Schlichtherle put it: "*technische, strategische, ökonomische und ökologische Begründungen allein können das Phänomen der Pfahlbauten vielleicht nicht zu fassen vermögen*" (Schlichtherle 1997b). In other words, in order to understand the pile dwellers' motives we have to look beyond technical, strategical, economical and ecological explanations. First of all, a closer look is taken at the landscape. This topic has already been discussed in the previous part, contemplating the geography and natural surroundings. This should now be complemented with a more transcendental view.

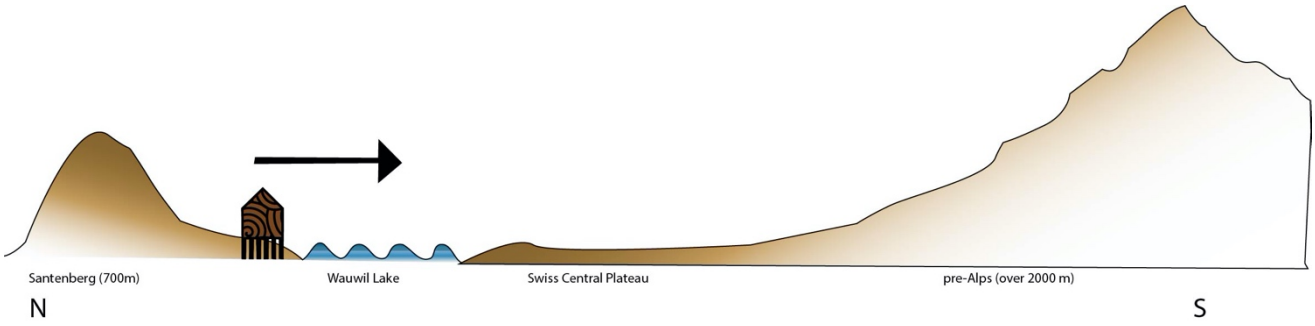

Figure 11: Landscape at Egolzwil 3 (image by author)

Arguably the most influential factor at a pile dwelling is the presence of water in its vicinity. Generally this is seen as a positive feature; there is enough water for drinking and bathing, the surrounding lands are fertile, catching fish is a possibility, and the list goes on. However, there are also downsides. Due to the effects of humidity the wooden structures constantly need to be renovated, floods are always threatening to wipe out the site and residing in a constantly humid environment is very probable to increase the risk of diseases. In the case of our first case study, Egolzwil 3, these factors gain even more importance as the Wiggertal (Wigger Valley), where the site is located, lies right at the Alpine foothills, making it one of the coolest climates of the suboceanic zone (Troll and Paffen 1964). Moreover, the broad and open Wigger Valley, which is also overshadowed by the Santenberg, works as a windtunnel between the Swiss mid-lands and the pre-Alps (Böllinger 1994) (Figure 11).

Therefore it seems to be slightly disadvantageous in comparison with the surrounding area. If current observations bear similarities to the past, which according to several authors is the case, the lakeside dwellers did not choose the easiest area. According to Bollinger (Böllinger 1994) there are, for example, certain flowers in this area which bloom 14 days later than they do in the surrounding areas and the tree leaves show

their Autumn colours 10 days sooner. Apart from this, current inhabitants of the area are said to still fear the *Napfgewitter*, strong storms occurring in summer which lead to floods. Therefore, apart from the mentioned problematics of life in wetland areas, Egolzil 3 seems to have an added disadvantage. This presents us both with a problem and a step in the right direction.

Ritual

The contribution regarding ritual practices in Egolzwil 3 shall be very brief. As a matter of fact, no evidence that could idicate ritual activities has been found at the site. The settlement was constructed in a very straightforward manner; square houses, all of very similar dimensions, were aligned in rows. Although among the found materials also artefacts that could have held a "special" meaning were present, such as the imported lithics, nothing seems to fulfil a ritual function.

Judging from literature and excavation reports it seems that nothing struck a ritual chord with the archaeologists. Apart from this, also the artistic expression of the Egolzwilers seems to have been limited to the simple decorations on pottery. It is true that other pile dwelling sites in this region too represent few artistic or decorative elements, except for some unique cases where decorated houses were found, such as in Bodman-Ludwigshafen (Germany). If we judge them on the material they left behind, the lakeside dwellers here seem to have been an especially uninspired people in this regard. Nevertheless, it cannot be ruled out that, in spite of the favourable preservation of organic materials, we are still missing part of the material record that could have held more information in this regards.

As is the case at (nearly) any other pile dwelling site, no indications of burials or funerary rites have been found, robbing archaeologists of one of the most commonly interpreted ritual contexts. This could mean that the inhabitants of Egolzwil 3 disposed of their deceased in a manner which does not leave behind any traces. Any other or more specific interpretation is not possible due to a lack of evidences. As the archaeological campaigns at the site were carried out in a time when research focused very strongly on the settlement and not the Hinterland it is possible that any structures, such as burials, outside of the settlement were overlooked.

Apart from this, modern methods increasing survey possibilities such as LiDar or aerial photographs were not taken into consideration as much as they are nowadays, or partially did not exist. Also more recent research activity at the site was centred around several test trenches within the settled area. Nevertheless, it is not possible to dismiss the presence of ritual activities from this site because of a lack of evidences. It does mean, however, that the possibility to assess this archaeologically is highly complicated, if not impossible.

Regional overview

Not much is known about the periods previous to the pile dwellings or the transition from the Mesolithic to the Neolithic in the circum-Alpine area. Studies from the past years seem to indicate that the glaciers were making place for vegetation and a diverse fauna from the beginning of the Holocene. It is thought that these favourable conditions could have attracted people. Some Mesolithic "camping places" have been found around the Alps, and from the middle of the 6th millennium BC the first evidences of sedentary people start appearing. However, the exact development of this transition remains a bit of a questionmark (Hafner 2015).

Although it has been emphasised that Egolzwil 3 is the oldest known lakeside settlement in this area, this does not mean it was isolated. Around the French lakes and just south of the Alps, in northern Italy, archaeological sites of similar datings or older have been found, the oldest dating back to around 5000 BC. The regional situation of Egolzwil 3, as far as has been traced archaeologically, has been depicted in Figure 12.

The sites that were included in this map existed in the period of time from 4300 BC to

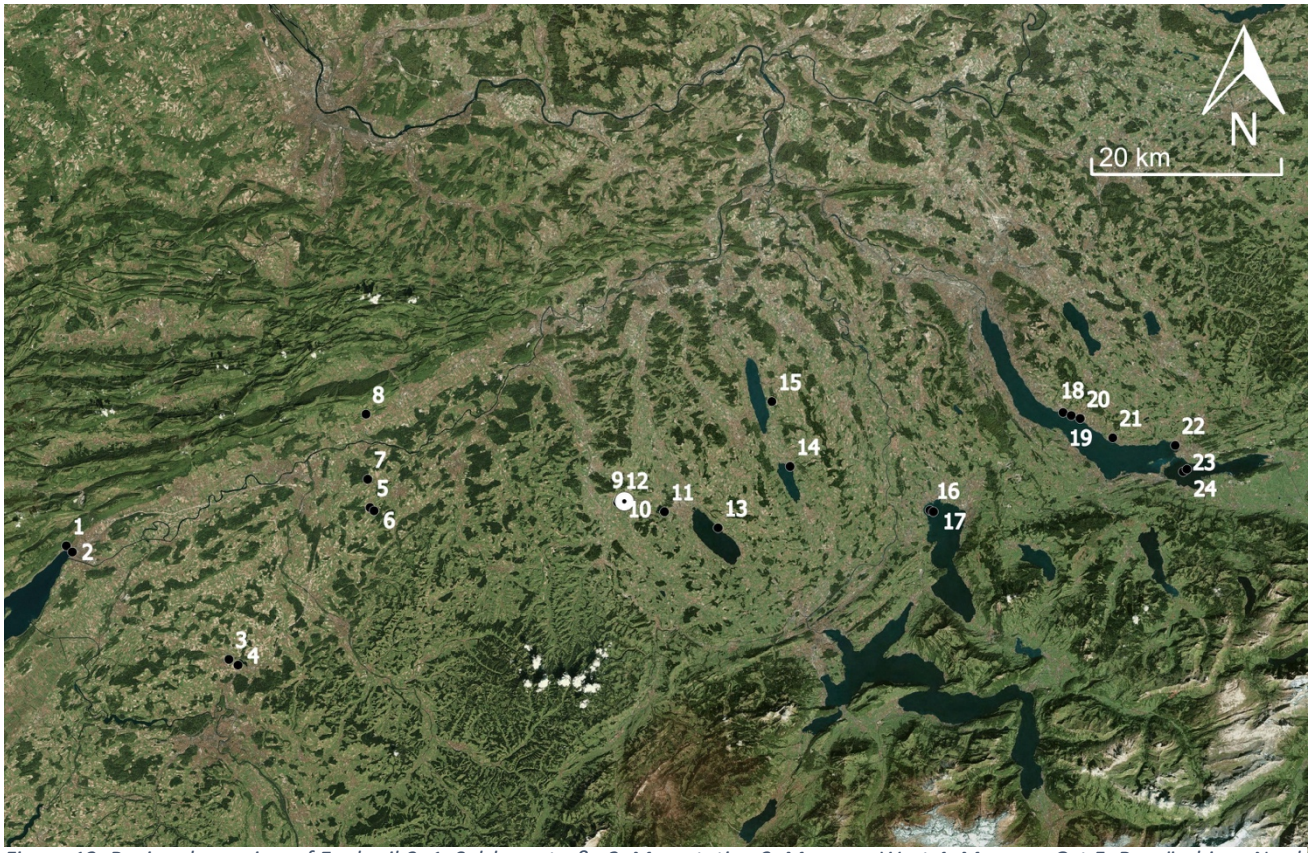

Figure 12: Regional overview of Egolzwil 3. 1: Salzhausstraße 2: Moosstation 3: Moossee-West 4: Moossee-Ost 5: Burgäschisee-Nord 6: Burgäschisee-Ost 7: Inkwilersee Insel 8: Oberbipp 9: Egolzwil 2 10: Egolzwil 4 11: Bognau Halbinsel 12: Egolzwil 5 13: Spiesmoessli 14: Seematte 15: Erlenhölzli 16: Wildenbach 17: Eslen 18: Im Grund 19: Schellen 20: Rorenhaab 21: Strandbad 22: Feldbach West 23: Hurden Kapelle 24: Hurden Untiefe West. Data layers: OpenLayers – Google Physical. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña. (for more information see Annex 3)

the ending of the 4th millennium BC, though not all contemporaneously or this whole period. Generally it is claimed that all of the sites that are included in this area, usually lakeside settlements, show very similar subsistence patterns (Hafner 2010). All present a mixed diet of domesticated and hunted animals in which the hunted animals are usually prevalent. The settlements are built in a very similar manner and the pottery traditions are very similar, if not nearly identical.

Egolzwil 3 is the oldest known lakeside settlement in this area, and is the eponymous site of a "culture" corresponding to its pottery. This kind of pottery was also found at other sites, such as Eslen (Cham), Wildenbach (Hünenberg), Weieren (Männedorf) or Bognau (Mauensee) (Palafittes 2010). As has been mentioned before, there is a strong inequality in research in this area as it strongly focused on lakeshores for a long time. In the last years more projects have been initiated to investigate the Hinterland too, which has led to several new discoveries, though not as many archaeological sites have been found as one could have expected. It seems that it is not only the lack of research which causes the Hinterland to appear emptier than the densely settled wetlands. Several noteworthy discoveries would be the Oberbipp dolmen and the Snidejoch glacier. The Oberbipp dolmen, some 35 kilometres removed from Egolzwil 3, holds approximately 30 burials and material finds such as arrowheads and animal tooth ornaments that are very similar to those found in lakeside settlements. It has been dated to the mid-4th millennium BC (Ramstein/Schimmelpfennig/Lösch 2014).

The discovery of this funerary monument, nearly contemporaneous with Egolzwil 3 and other Swiss early lakeside settlements, is very important as it could reveal information about burial rituals in this epoch, which are mainly absent from pile dwellings.Another important discovery was the site of Snidejoch in the western Bern Alps. In this melting glacier a wide variety of archaeological objects was found, spanning a total chronology of over 6000 years. In the middle of the impressive Alp barrier artefacts were found, the oldeset ones dated between 4800 and 4300 BC were found (Hafner 2015). These research projects, that are still in process, show that the area still holds a lot of research potential.

Case Study 2: Hornstaad-Hörnle I (Constance Lake, Germany)

Research history

The site of Hornstaad-Hörnle was discovered in 1856/7 by M. Koch and is mentioned in some of Ferdinand Keller's earliest publications which came out around the same time (1858). Nevertheless, it was not until much later that the first excavation took place on this site. Nowadays Hornstaad-Hörnle is located at the very shore of Lake Constance, it is flooded every summer and work on the site is mainly possible during wintertime, when the lake retreats and the area dries up.

The first excavation was carried out long after the discovery of the site, by H. Schlichtherle, who was responsible for several test probings, opening small trenches in the winters between 1973 and 1978 (Schlichtherle 1990). In 1983 Hornstaad-Hörnle became the focus point for a project of the German Research Council (DFG) called *Siedlungsarchäologie im Alpenvorland*. With the financial help from this programme excavations were carried out by B. Dieckmann until 1993 (Dieckmann/Harwath/Hoffstadt 2006). All data and results were scrutinously analysed and interpreted. The result of this is a unified body of publications treating different aspects of the site. These exhaustive investigations and publications make Hornstaad-Hörnle one of the best studied and interpreted prehistoric lacustrine sites in Germany. Nowadays the area around the site is protected and the unexcavated occupation layers are well preserved under lake marl and a reed meadow (Palafittes 2010).

Site

Location

Hornstaad-Hörnle can be found on the tip of the Höri Peninsula, at the western part of Lake Constance (Figure 13). This Peninsula is surrounded by water from every side except the west, where the modest Schiener hill rises approximately 715 metres above sea level. This settlement is not the only one in this area, as the surroundings bear many evidences of other contemporaneous and later occupations. Some of these sites have been investigated, though not all. The area seems to have been relatively densely, and perhaps even continuously, settled. Hornstaad-Hörnle IA (± 3917-3905 BC) is one of the oldest known lakeside settlements of Lake Constance. Other sites from similar chronologies are Hörnle II towards the northeast (3869 BC), a bit further Hörnle III which would have been a contemporaneous settlement and Hörnle IV, V and VI, which are all posterior.

Figure 13: Location Hörnle I (Lake Constance, Germany) Data layers: OpenLayers – Google Physical; Natural Earth II by Tom Patterson. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña

Set-up

The settlement of Hörnle I consists of several phases. Stratigraphy shows that the oldest phase of the settlement, AH1 (3917-3905BC), was interrupted by a fire. The burned layer, AH2, provides a very vivid image of an interrupted settlement phase. It is especially interesting as the house inventories and stored food have been preserved in-situ, as they were used and distributed. After the fire, the inhabitants did not take too long before restoring the settlement. This is evidenced by the next layer, AH3, which was formed even before lake sediments had the time to sink in steadily after the destructive fire in 3909 BC (Matuschik 2011) (see Figure 14 and Annex 4 for all datings).

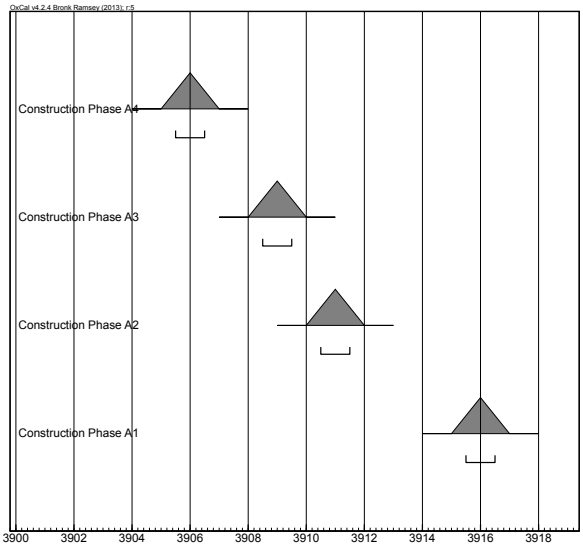

Figure 14: Mean datings (dendrochronology) of each distinguished construction phase at Hörnle I. Data: Dieckmann/Harwath/Hoffstadt 2006, programme: OxCal v 4.2.4 (for more information see Annex 4)

The archaeological horizont AH3 is separated from the most recent remains (AH4) by a layer of lake marl. This most recent horizont is so close to the current surface that not much archaeological evidence is left. Otherwise what remains of the site and has not yet been excavated is well preserved under the lake marl and a reed meadow.

The settlement extended over a total area of at least 100 x 80 metres, its size varying strongly in different chronological moments. The oldest houses, built during the first construction phase, were generally approximately 3,5 metres wide and 8 to 9 metres long (Figure 15).

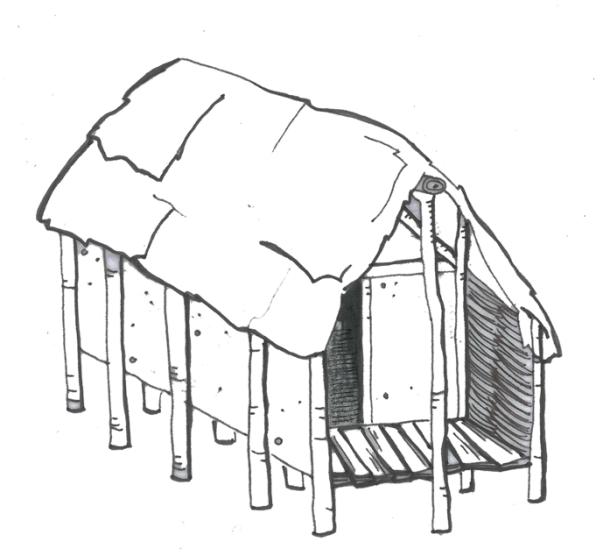

Figure 15: Sketched impression of architecture at Hörnle I (drawing by author)

From the excavated areas it seems that these first houses were built in lines, parallel to the shore, looking over the lake. Also in the following phases, after the fire, houses were of similar dimensions. What did change was their orientation. The image of Hörnle I that is provided by reconstructions in publications seems rather messy, with houses in many different orientations, and lacking a systematic order. Nevertheless, a valuable observation made by R. Ebersbach (Ebersbach 2013) is that often sites are only partially excavated and the lay-out is imagined by "copy-pasting" the found structures onto the whole extension of the settlement. In this case, of the estimated 3900 m2 only 1262 m2 were excavated by 1993 (Dieckmann/Harwath/Hoffstadt 2006).

The lack of evidences for ground-level hearths or floors suggests that the houses had a raised floor level. For the construction *Pfahlschuhe*, little wooden "boots" were used to fasten the piles in the lake marl and clay. The house-floor was probably raised 2-3 metres from the ground and there are hypotheses stating that the front could have been used for working purposes and the back part was used for resting and sleeping (Matuschik 2011). The houses consisted of paired posts. The walls were usually made with wattle and daub techniques or filled with brushwood. The floors were covered with loam and lake marl, for the hearth areas clay was used (Maier/Vogt 2001).

As for the roofs, these are more difficult to reconstruct as none or very little evidences of them are left. According to reconstructions, the houses were approximately 7 metres high. It is possible that the part under the roof provided a second floor, something like a little attic. The roofs could have been covered with

straw, tree bark or even something else. We do not have enough data to make firm claims to any of these possibilities. As the houses themselves were not very big, it has been estimated that they were inhabited by small family units of five to six individuals. With a probable presence of about 40 houses, this means that there would be a maximum population of 300 to 350 individuals.

Although so far no evidences for specific stables, barns or workshops have been found in most circum-Alpine pile dwelling settlements (Ebersbach 2014), it has been suggested that specialized areas, for example, bead production or fishing, could be recognized within the settlement of Hörnle I (Dieckmann/Harwath/Hoffstadt 2006). Apart from this, according to Dieckmann's findings each house constituted its own *Wirtschaftseinheit*, something like an economic entity, with its own food storage and private tools (Maier/Vogt 2001).

"Direct" resources

Nutrition

The archaeo-botanical remains of the site were studied meticulously by sampling the soil systematically with small tubes, and also by sampling samples of culture layers and big profiles. As the Hörnle I settlement consists of three different layers which were possible to separate, also the data know this division. Therefore we know that there were slight differences in each layer. From the burned layer (AH2) the evidence is slightly different as it represents a "snapshot" of the situation at a very specific moment in time, probably September 3909 BC (Matuschik 2011). Due to the season in which the fire occurred most fruits and peas are missing and mainly cereals were found.

Generally, the biggest amount of found seeds belongs to gathered fruits such as raspberries, etc. This prevalence of fruits can partially be explained by the fact that they contain many seeds that are likely to be preserved and found in great quantities, whereas other types of plants are less traceable. The next most important category would be that of field weeds. However, these are probably part of the inventory because of their presence among the harvested cereals, not because they were actually used or eaten (for an overview of all edible plants found at Hörnle I see Annex 5). All in all, a great variety of different food remains is shown (Figure 16).

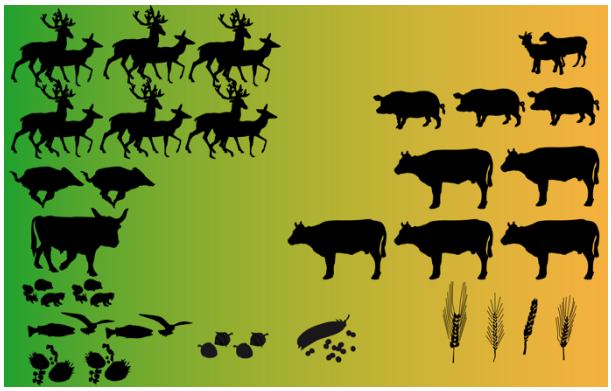

Figure 16: Different elements of the diet at Hörnle I (image by author)

The cereal remains that were found come from storage contexts or were processed to make bread or porridge. Mainly free threshing wheat (*Triticum durum*), barley (*Hordeum vulgare*), einkorn wheat (*Triticum monococcum*) and hulled wheat (*Triticum dicoccim*) were found. Apart from this, considerable quantities of flax (*Linum usitatissimum*), poppy *(Papaver somniferum*) and peas (*Pisum sativum*) seem to have been grown. It is important to point out the high amount of poppy and other cultivated plants such as free threshing wheat, as these are being linked to possible Mediterranean influences (Maier/Vogt 2001).

According to calculations the inhabitants of Hörnle I would have needed approximately 15 to 20 ha of land for their cultivating activities (Maier/Vogt 2001). Most of the land surrounding the settlement would have been suitable for cultivation, were it not covered by a dense forest. The two leading hypotheses are that either people cleared one or several big fields, or that they used small clearances in the forest. Both of these possibilities have advantages and disadvantages, and it is still not completely clear which one would prevail. Thanks to the detailed study of fieldweeds it seems more probable that we are looking at the cultivation of small forest clearances, as many species typical for forest-edges, not so much open-field, were found (Maier/Vogt 2001).

Nevertheless, the way people cultivated their crops in the Neolithic in this area is still subject to ongoing discussions. Recent approaches tackle this topic with the help of modelling (Baum 2014). In a further stage of research, authors have even suggested the possibility that different ways of cultivation existed side by side (Baum et al. 2016). As was indicated earlier, the houses of Hörnle I have been described as independent "economic units", which could speak for this interpretation. An important part of the diet was provided by collected food such as wild plants, fruits, berries and nuts. Mainly strawberry, blackberry, raspberry, dewberry, wild apples, blackthorn, rosehip and hazelnuts were collected (Maier/Vogt 2001).

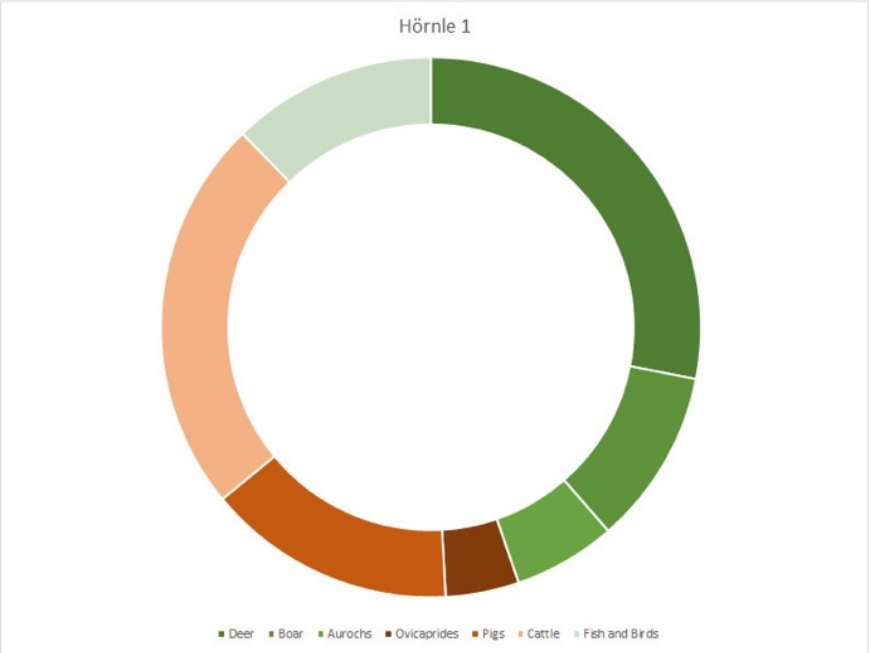

Figure 17: Approximate animal consumption at Hörnle I (image by author)

As for the animals, the amount of domesticated and wild animal bones that were found are quite balanced with 33,5% domesticated animals, 50,5% wild animals and 14,8% birds and fish (Kokabi 1990) (Figure 17).

It has to be noted that these percentages are distorted because of the high amount of deer antlers and antler artefacts that were found. Therefore, these percentages do not necessarily reflect Hörnle I's inhabitants' diet. Among the domesticated animals, over two third of the record is dominated by cattle (*Bos Taurus*). Very few ovicaprides (*Ovis aries* and *Capra hircus*) were found and pigs (*Sus domesticus*) make for approximately one fifth of the record. As was mentioned before, red deer (*Cervus elaphus*) has by far the strongest presence in the archaeological record, although this does not mean it was consumed most frequently. Apart from this, also some roe deer (*Cervus elaphus*), elk (*Cervus canadensis*), wild boar (*Sus scrofa*) and various small forest mammals were found. Fish and birds complete the spectrum. The presence of fish has been mentioned as an important point in the choice of settlement by some authors (Dieckmann/Harwath/Hoffstadt 2006). Apart from the grates and jaws also artefacts evidencing fishing activities have been found, such as fish hooks, nets and stone netweights (Schlichtherle 1990).

Ceramics

The ceramic ware found at Hörnle I has been described thoroughly in the 12th book of the *Siedlungsarchäologie im Alpenvorland* series (Matuschik 2011). Hörnle I, as opposed to the previous case study, does not present a highly uniform pottery ensemble, but rather one that reflects many influences and diverse vessels. The site presents a varied pottery ensemble, including vessels that according to their shape and decoration could be interpreted as pertaining to or imitating the ware of nearby Neolithic "cultures" such as Großgartach, Michelsberg, Schussenried, Lutzengüetle, Pfyn, Stichbandkeramik, Rössen or Schulterband.

Nevertheless, most of the vessels that were subjected to microscopic petrographic analyses turned out to be local. Low calcium carbonate levels indicate that the clay that was used was not from the lacustrine environment (Matuschik 2011) although the immediate surroundings of the site provide high quality clay too. The ceramic objects are usually gray-black or a dark gray-brown and the shapes could be divided into a few main categories; high vessels (e.g. bottles and jars), broad and high vessels (e.g. beakers and pots), broad vessels (e.g. bowls) and hanging vessels (Matuschik 2011).

Characterizing for the Hörnle I pottery, as diversely influenced as the register might seem when compared to the multitude of Neolithic "cultures" defined for this area, is that the vessels are rather thin-walled and often

Figure 18: Surroundings of Hörnle I (image by author)

covered by slip painting. The local pottery is tempered with granite and recycled ceramic temper. More seldom are meagerings with quartz, calcite and sand. Silk-matt shiny surfaces are prevalent, polished or roughly smoothed surfaces are rare and only 19% of the vessels is decorated. The exact techniques used to decorate pottery seem to correlate with the type of vessel. For example, objects that could be linked to the Schussenried culture are decorated with incision when still soft, before burning. The Lutzengüetle pieces bear incisions that were applied on hardened surfaces.

Another important type of decoration is the one used for the so-called gynaecomorphic vessels, pottery that is supposed to represent feminine shapes. These vessels are usually high pots or jars decorated with pairs of lubs representing breasts, the curving of these shapes can be reminiscent of hips. This kind of pottery is frequently found in the area of Lake Constance and appears often in Pfyn assemblages. It is thought that the gynaecomorphic tradition is inspired by similar pottery found in for example the Czech Republic or Hungary (Matuschik 2011). Moreover, this eastern direction also provides us with similarly themed evidences such as the well-known female figurines that are very common in the eastern European and Near Eastern Neolithic.

Wood

As is to be expected for a central European area in the mid-Holocene, still relatively unaffected by settling people, the surroundings of Hornstaad-Hörnle were very rich in trees. This changed once the area started being settled. As was explained in the previous case study and as will be the case in the following ones, people affected the forests by cutting large amounts of trees for building or heating purposes and probably exploited the clearances that were created by this for agricultural purposes. According to palynological studies the immediate surrounding of the settlement were covered mainly by oaks (*Quercus*), elders (*Sambucus*) and ash (*Fraxinus*) trees. A bit further away, in

drier conditions, also beech (*Fagus*) trees were frequent (Figure 18).

It is superfluous to say that wood was a very important resource for pile dwellers, using it for architectural purposes, heating, animal foddering or the elaboration of artefacts. As is the case at many other known lakeside dwellings, also here oak wood was preferred for building purposes Several wooden vessels were found too. Four small bowls, made of ash and maple (*Acer*) wood, have been found in different contexts, one of them was probably used to scoop cereal grains from their storage place. Another bowl is decorated with circular motives that know no parallel in either wooden or ceramic artefacts in the circum-Alpine Middle Neolithic.

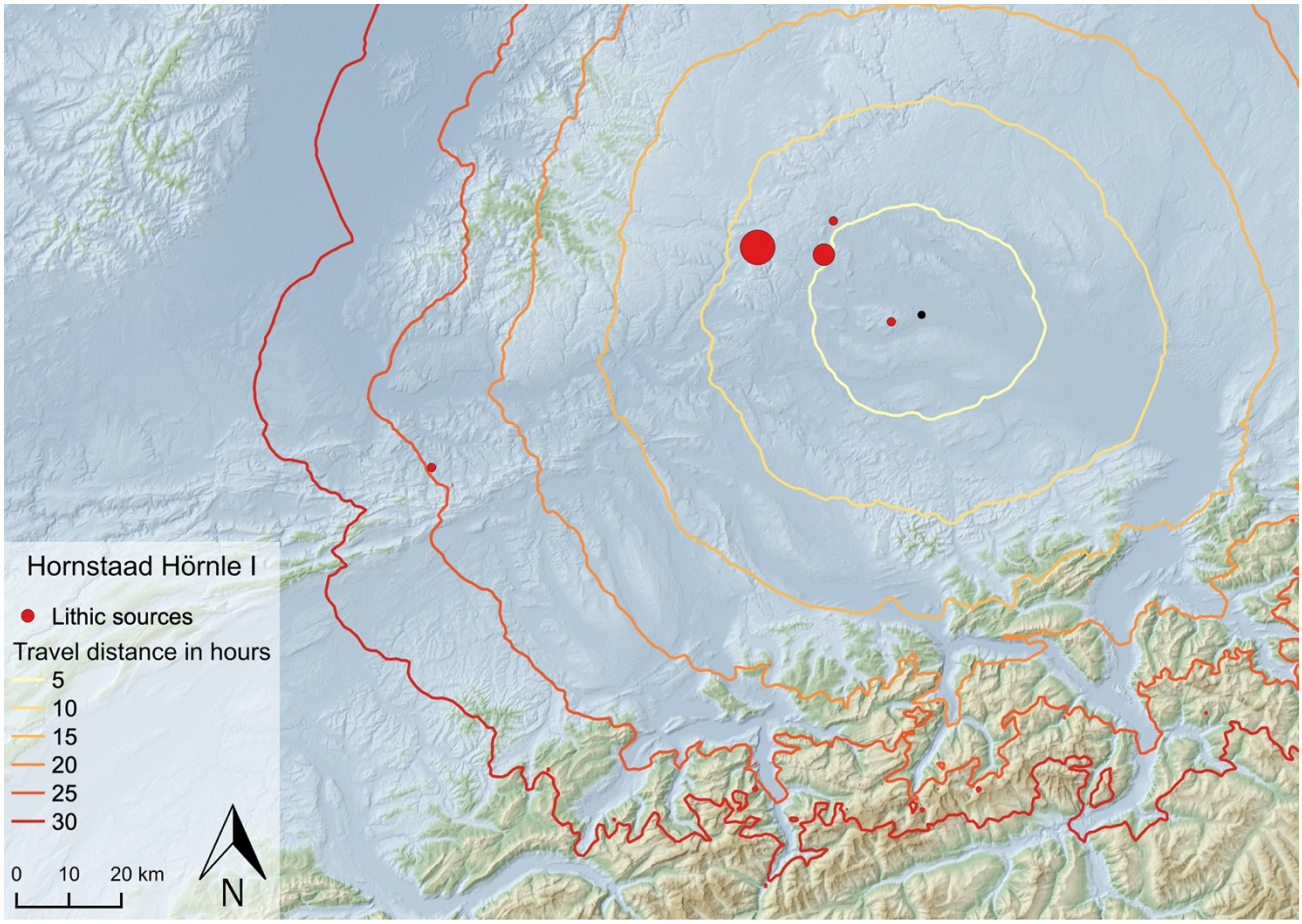

Figure 19: Distribution of lithic sources of Hörnle I. Data layers: SRTM model from CGIAR-CSI; ISO-lines elaborated after Ahrlichs/Gries/Schmidt 2017; lithic data after Hoffstadt 2005. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña. Gis; R. (for more information see Annex 2)

Stone

The distribution of stone resources throughout the settlement suggests house-bound preferences for specific materials. Nonetheless, general patterns can be deduced, in spite of fluctuations between houses and different habitation layers. The stone artefacts that were found were mainly

tools such as sickles, arrowheads, blades or axes, but also some beads and pendants.

It is remarkable, especially in comparison with the last case study, that almost all of the processed stones at Hörnle I were of regional provenance. The most important materials would be *Jurahornstein*, material found around the Alb and Jaspis, from residual deposits in Hegau. The third most important material is *Hornstein* from the glacial terraces of Mühlhausen-Ehingen. This material was very typical in the Neolithic Lake Constance area. To conclude the list of local materials only the *Plattenhornstein* from the nearby Schiener Berg is missing and also local limestone was used, mainly for the elaboration of beads. (Hoffstadt 2005). The two biggest sources, providing almost all of the lithic material found at Hörnle I, can be found at approximately 5 to 8 hours walking northwest from the site (Figure 19).

A third site can be found close to the first two. Close to the site, within a 5 hour walking radius, only one source can be identified. Striking is a source located at 25 hours walking distance. It is possible that this last location was not a place Hörnle I's inhabitants travelled to, but rather a place from where material was imported over the regional networks, as is the case with earlier discussed materials. Therefore, the provisioning of lithic materials of Hörnle was carried out mainly in the area northwest of the site, where several sources have been identified. Probably these sources were slightly too far away in order to for people to be able to collect the stones in a single day. Possibly small expeditions were organized, perhaps visiting several sources on the same occasion.

It is necessary to mention that the percentages that are used in the table and the map are not exact, but approximate estimations. In the publication of the Hornstaad lithic material (Hoffstadt 2005) the author uses many different percentages, reflecting the ratio of lithic types within different houses and layers. However, as the settlement has not been excavated as a whole it is possible that the found material does not offer an accurate reflection of the site. This being said, for the current dataset a general mean percentage of the materials was used. This, although it might not reflect the exact nuances, does bring us close enough to the information we need to assess the vicinity and exploitation of lithic deposits.

In the light of lithic exchange in this area the work carried out in the JADE project by P. Pétrequin and others on Alpine jadeitite is highly interesting. It has been mentioned in publications that some of the stone axes found at Hörnle I would be influenced by ideas provenient from French Brittany, known also for its Neolithic jade axes (Pétrequin et al. 2012). This connection between the alpine area and Brittany is even more complex (and interesting) than this.

After the extensive JADE project, implementing ethnoarchaeological

approaches with high success rates in the Vosges mountains, the research team turned towards the Italian alps, which until then had been the subject of a very different kind of research. Here they were able to identify a jadeitite source, shedding light on the circulation of Alpine jade axe-heads between the Atlantic Ocean and the Black Sea (Pétrequin/Pétrequin 2012). This connection is one of many indirect indications mentioned in this work, connecting alpine lakeside settlements and megalithic expressions.

Bone and shell

As the soil conditions are not optimal for the preservation of bones, less bone artefacts have been found in comparison to for example stone or ceramic artefacts. The artefacts that were found were often damaged or not recognizable. Apart from these fragments also a few chisels, awls, points and other tools were found. Most of these were made from red deer bones, though also some ovicapride bones were recognized too. Several worked antlers were found, which is also reflected in the earlier discussed quantities of animal remains. Antlers were usually used as tool handles.

Not only animal bones were used, also their teeth could play an important role. Boar tusks, other carnivore teeth or deer teeth were used as pendants. This is very common in central European ornaments, that generally present a very uniform image.

As for the shells, these too were popular for the elaboration of ornaments such as buttons and pendants. The shells were retrieved from distant places such as the northern European coast (where amber too was imported from), the western and southern French coast and Sardinia. Though the settlement coincides with the general Central European trends in matters of its own elaborated ornaments, the imported ware reflects a very dynamic and diverse landscape of contacts (Heumüller 2009).

"Indirect" resources

Landscape/environment

The settlement, as has been mentioned before, is located on a small triangular "peninsula" protruding into the water at the western part of Lake Constance. This part is also called *Untersee*. Hörnle I was placed near the lakeshore in an area that flooded during summer and remained dry in winter. Nowadays this situation is no different (Heumüller 2009). As the area was flooded frequently, it is not surprising that the houses were elevated approximately 2/3 metre above the soil. Underneath the houses, directly on the soil, most probably no activities took place as it was either flooded or too humid.

No evidences of plants, for example, were found beneath the houses (Schlichtherle 1990). Behind the settlement the Schienerberg rises 715 metres above sea level. The settlement itself was set at approximately 394/395 metres above sea

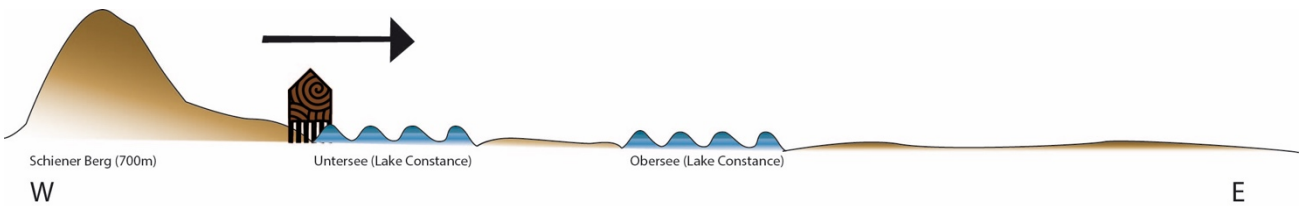

Figure 20: Landscape at Hörnle I (image by author)

level. Those more than 300 additional metres, sheltering the settlement from the landside, consisted mainly of molasses (Figure 20).

Ritual

Similar to Egolzwil 3 and most other circum-Alpine pile dwellings, barely any ritual evidences were found. The lack of burials or significant structures severely limits our interpretations of this aspect. The one feature that could perhaps be assigned a more ritual interpretation is "House 1" from the oldest settlement phase. In this house a small copper disc was found (Hoffstadt 2005). Evidently, this is a unique find as the disc, dated to 3917 BC by radiocarbondating, far preceeds the generally accepted starting mark of metal production in this area around 3800 BC. No further remarks have been made about this structure, so it remains a question why the copper disc was deposited in the house, whether it held a special meaning and how it ended up there.

Several theories exist regarding the provenance of this disc, some pointing towards typologically similar finds from the Carpathian basin (Matuschik 1997). However, according to metal analyses the disc finds it origin in the Lessinian Alps, having been produced in the context of the earliest Lagozza culture (Klassen 2010). This interpretation seems acceptable even moreso because of the well-known existing contacts between the southern Alps and the Lake Constance area.

Another interesting feature are the gynaecomorphic vessels that were found on the site. Although, much like the disc, they cannot be interpreted in a greater scheme of things, they do represent one of the few imaginative features at the site. The figurines could perhaps even be linked to the gynaecomorphic vessels and figurines that are well-known from the Eastern European Neolithic (Matuschik 2011). This thematic is repeated in another lakeside settlement not far away. At the site of Sipplingen a “culthouse” is described by researchers (Schlichtherle 2016) as its outside walls are decorated with schematical drawings of anthropomorphic figures and threedimensional breasts were added to these.

Regional overview

Hörnle I is one of many sites at Lake Constance. Some Mesolithic evidences have been found as well as a directly neighbouring contemporary settlement (Hörnle III), other sites around the lake and several posterior sites. In this sense, Hörnle I was no exceptional site, but rather another expression of many people who considered this area to be a favourable place to settle. In the maps it becomes visible that Lake Constance was very densely settled (Figure 21). Most of the depicted sites contain pottery that is similar to the artefacts found at Hörnle I; Horgen, Pfyn, Cortaillod and some Egolzwil material here and

there. Also the subsistence patterns are similar, still with a certain balance between domesticated and wild animals and plants/crops.

The northwestern Lake Constance area is no exception to the general trend of inequality between lakeshore and hinterland research and material. However, also here, after intensive searches in the last years, only very limited amounts of archaeological remains were found. This seems to show that although the Hinterland was not as vastly empty as was suggested so far, it does not seem to brim with life either. In the Hegau region, attached to Lake Constance, some archaeological material was found and also several graves close to Engen-Welschingen. Coincidentally, close to Engen there is also an important source of lithic raw material that appears on the site of Hörnle I.

To place Hörnle I within a broader context, outside of the different cultural groups assigned to central European pile dwelling settlements, special attention has been paid to

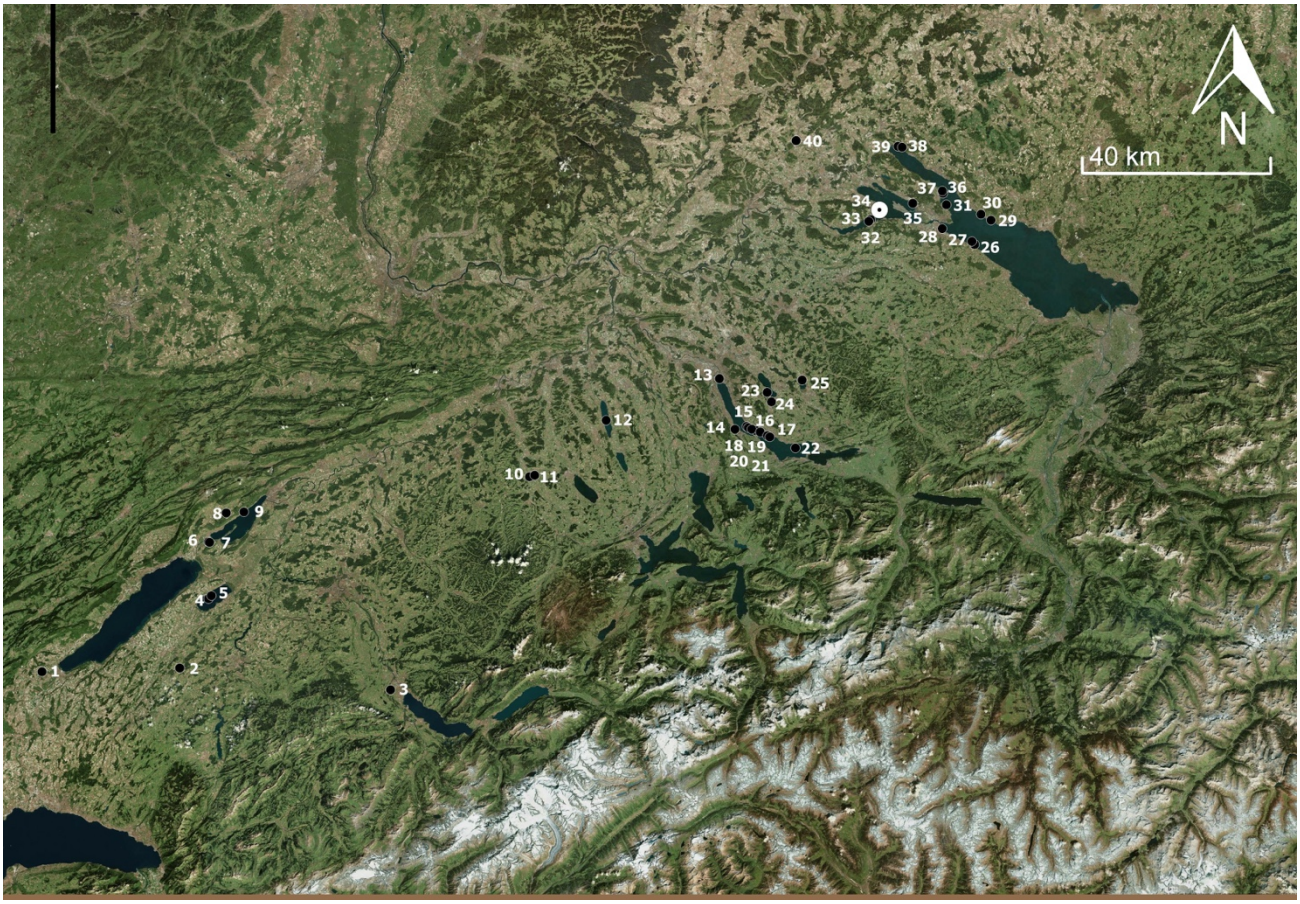

Figure 21: Regional overview of Hörnle I. 1: Transformateur 2: Praz des Gueux 3: Marktgasse 4: Segelboothafen 5: Pantschau 6: Strandboden 7: Ländti 8: Bahnhof 9: Hauptstation 10: Schötz 1 11: Wauwil 1 12: Seerose 13: Große Stadt Kleiner Hafner 14: Scheller 15: Feldmeilen Vorderfeld 16: Plätzli 17: Schellen 18: Im Grund 19: Rorenhaab 20: Weieren 21: Langacher 22: Uerikon Im Länder 23: Schifflände 24: Uessikon 25: Burg 26: Ruderbaum 27: Landschlacht 28: Konstanz-Hafenstraße 29: Hagnau-Burg 30: Haltnau-Oberhof 31: Egg-Obere Güll II 32: Hemmenhofen-Im Bohl 33: Hemmenhofen-Im Leh 34: Hornstaad Hörnle (various) 35: Hegne-Nachtwaid 36: Litzelstetten-Krähenhorn 37: Litzelstetten-Staudershag 38: Ludwigshafen-Holzplatz 39: Ludwigshafen-Seehalde 40: Engen 41: Hartöschle. Data layers: OpenLayers - Google Maps. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña (for more information see Annex 3)

long-distance trading and contacts. This leads to a very dynamic image of imported stone artefacts from Monte Lessini and Monte Gargano in Italy, the central Alps, northern and eastern France and the southern Netherlands. Apart from this, influences of axe types are linked to Hungary, for the Aichbühl axes which are similar to the local Lengyel ones or Brittany in France, for the Zug axes which are similar to the Jade examples found further towards the West.

Also the shells seem to have come a long way, Sardinia is mentioned as a source with certainty, but also southern France, the Northsea coast and the Baltic Sea are possibly linked to Hörnle I through the import of shell objects. Finally, the copper disc found in one of the houses is clearly not a local product. As was described before, several ideas regarding its exact provenance are currently still maintained. Nevertheless, based on the copper analyses and the knowledge that contacts existed between the southern Alps and the Lake Constance area, it seems very probable that the disc indeed stemmed from the Lessinian Alps. All in all, Hörnle I is linked to all corners of Europe through the trade and/or exchange of objects and ideas (Dieckmann et al. 2016).

It is important to keep this in mind, as in literature it can sometimes seem that the central European lakeside settlements are locked in their own reality, dominating the Neolithic and Bronze Age around the Alps. Nevertheless, these evidences of very varied long-distance contacts prove that the settlement held not only a central position geographically, but also in the Neolithic on a larger scale.

Case Study 3: La Draga (Lake Banyoles, Spain)

Research history

The prehistoric site of La Draga was discovered in 1990, which is relatively late for a lakeside settlement as the real discovery boost took place in the mid-19th century. Nevertheless, this difference can be explained by the fact that La Draga is not located in the typical finding area. This site is the only lakeside settlement that has been found, so far, in the Iberian Peninsula. As there were no precedents or "*Pfahlbaufieber*" nobody was explicitly looking for this type of archaeological sites. It was found in 1989 rather by accident, when building activities were taking place to prepare the area to host the rowing events of the 1992 Olympic Games, held in Barcelona. Right after its discovery a team of archaeologists started the excavations.

Led by A. Bosch, J. Chinchilla and J. Tarrús of the Regional Archaeological Museum Banyoles, excavations took place until 2005. In 2010 excavations were started again and they are being carried out to date, led by the Spanish National Research Council (CSIC-IMF, Barcelona), Universitat Autònoma de Barcelona (UAB) and the Archaeological Museum of Catalonia (MAC). Initially, three different sectors of the settlement were excavated: Sector A is located on dry land and does not present the favourable conservation of organic remains which is typical for lakeside settlements; Sector B is located very close to the modern lakeshore and contains waterlogged evidences. Finally, Sector C was excavated in collaboration with the Underwater Archaeology Centre of Catalonia (CASC), as it is underwater.

In recent excavation campaigns a new sector was opened. This Sector, D, was excavated between 2010-2013, and is also situated on the lakeshore (Palomo et al. 2014a; Terradas et al. 2014).

Typologically the site could be dated to the last third of the sixth millennium BC, based on the Cardial Ware pottery. This is confirmed by C14 datings from both short-lived and long-lived samples (Palomo et al. 2014; Bogdanovic et al. 2015; Terradas et al. 2014). The obtained calibrated dates span the whole occupation period of the site. Taking only the short-lived examples into account, the dates obtained for Phase I have a range of 5320–4980 cal BC, while for Phase II this is 5210–4800 cal BC. The 14C dates do not show a chronological interruption that might indicate a period of abandonment of the settlement. It seems that the settlement existed continuously for over 100 years (Bosch Lloret et al. 2011).

Between 2008 and 2009 many surveys were carried out around the lake (Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2000a; Terradas et al. 2013). As a result of this evidence of occupation, or visits, from the Middle Neolithic until the Bronze Age were found. Moreover, occupation is known from the

Upper Paleolithic (Aurignacian of Prats Comuns, under Can Morgat, Porqueres), younger Bell Beaker (Pyrenaic Bell Beaker) and Iron Age I near the Banyoles lakeshore.

Circum-Alpine research, having developed and consolidated much of wetland and pile dwelling related research methods, has influenced the research team at La Draga too. Some similarities among materials or palynological remains have been mentioned, despite the considerable chronological differences. There have been cooperations with S. Jacomet (Antolín et al. 2013) who has studied the Swiss settlements' archaeobotanical results extensively, and the methodology used in investigations of the Swiss Arbon-Bleiche 3 site is also mentioned. Since the very beginning of the excavation the team has collaborated with Dr. Gassmann, a researcher from the Dendrochronology Laboratory Neuchâtel, who advised the Draga team about dendrochronological sampling, analyses and preservation (Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2000; Bosch Lloret et al. 2011). This is a useful factor in the literature, and strengthens the idea that much more could and should still be done in this respect.

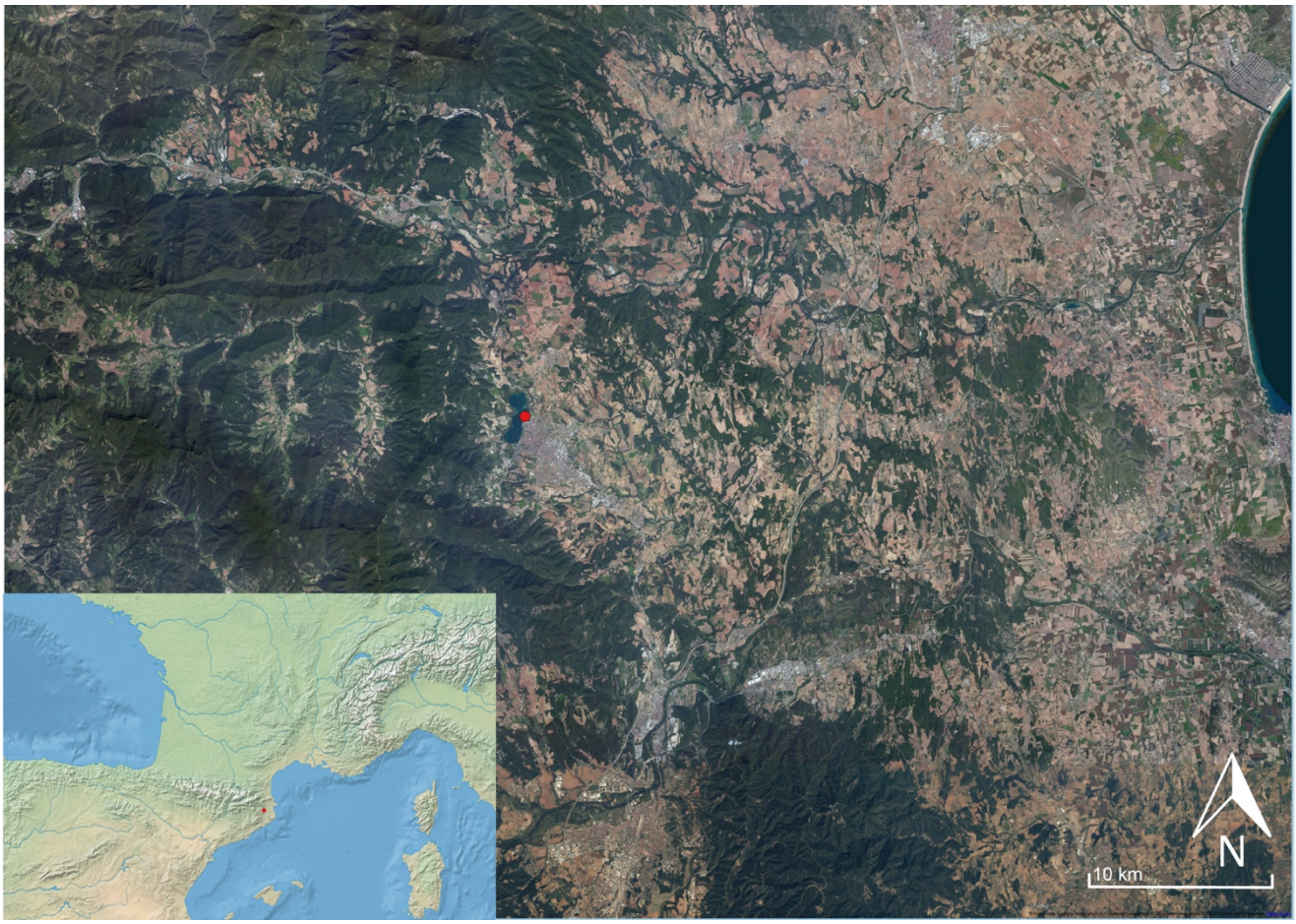

Figure 22: Location La Draga (Lake Banyoles, Spain). Data layers: OpenLayers – Bing Natural. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña

Site

Location

The settlement, which is thought to span over 8000 m2 in total, lies on a central part of the eastern lakeshore of Lake Banyoles (Figure 22). This lake can be found in Catalonia, northeastern Spain. Banyoles is located in a relatively flat area 173 metres above sea level. This area knows several significant borders, namely the Garrotxa volcanic area immediately to the northwest, the Mediterranean sea, approximately 40 km to the east and the Pyrenees, approximately 30 km to the north.

The difference in research traditions shows a strong contrast with the Alpine settlements, with the seemingly empty hinterland. In the northeast of Catalonia many archaeological sites have been found, evidencing settlements from the Middle and Upper Paleolithic, Mesolithic, Early Neolithic and onward, making La Draga part of a dynamic habitational area.

Set-up

As was mentioned before, it is estimated that the site stretched over 8000 m2; 100 metres along the lakeshore and protruding 80 metres into the inland. During excavations, two different phases of building traditions have been recognised. In the more recent one, named Phase II (5210 – 4800 cal BC), large areas paved with travertine slabs were found. On these paved area daily activities were carried out. Apart from this, also evidences of what seem to be oval or sub-rectangular structures of 3 x 4 metres were found. These structure might have served as granaries (Tarrús Galter 2008).

This phase, however, is poorer in finds than the preceding phase. Phase I is dated between 5320–4980 BC. Interestingly, the older phase presents rectangular houses of greater dimensions, possibly as much as 12 x 4 metres. These structures were slightly elevated in order to avoid floodings. It is assumed that the settlement consisted of parallel lines of buildings, at least in the first phase, running from the lakeshore to the east (Bosch Lloret et al. 2011). The datings and the archaeological evidence indicate that the site

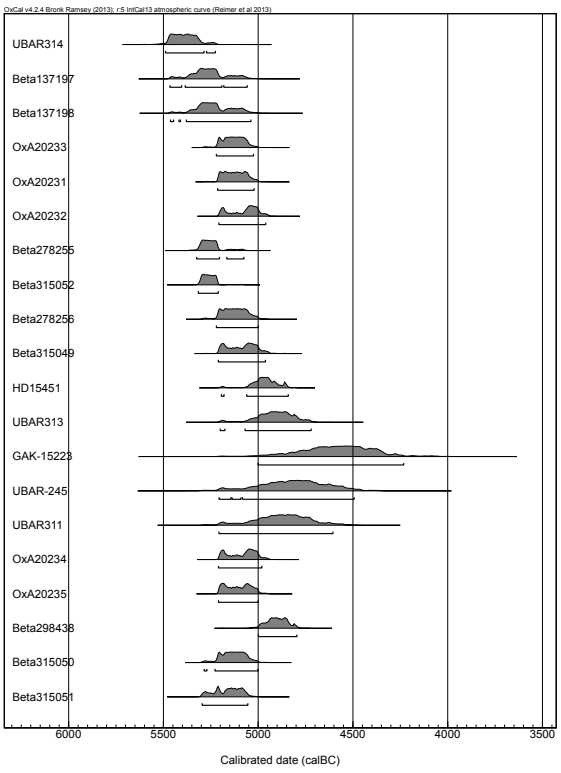

Figure 23: Radiocarbondating of La Draga. Data from Palomo et al. 2014; programme: OxCal v 4.2.4 (for more information see Annex 4)

was more or less continuously inhabited for approximately 200 years. Although researchers have suggested, based on the C14 datings and the important changes observed between the two phases, that there might have been a disruption of approximately 50 years (Bosch Lloret et al. 2011), new studies show no obvious interruption within the series of calibrated intervals (Palomo et al 2014, Terradas et al 2014, Bogdanovic et al 2015) (Figure 23, for all C14 dates see 4).

The older Phase (I) presented the archaeologists with great amounts of collapsed wood and wickerwork. In the following phase the inhabitants of La Draga paved the surfaces with travertine slabs and blocks, perhaps to level the ground after the previous phase (Palomo et al. 2014). It is also suggested that the paving with stones in the second phase was used as protection from the water and mud floodings, which during the first phase was assured by elevated buildings (Bosch Lloret et al. 2011).

Further studies are being carried out regarding the architectonical specifics of these houses, but as of yet not much is known, except for the fact that in the first phase houses were elevated above the ground by means of platforms (Figure 24). Another important difference between the two described phases is that in the later phase, the hearths are placed outside the houses. Moreover, as cooking and eating remains have been found buried in pits nearby these open-air hearths, it is thought that these activities became communal ones, practiced by the members of the community in the common outside space.

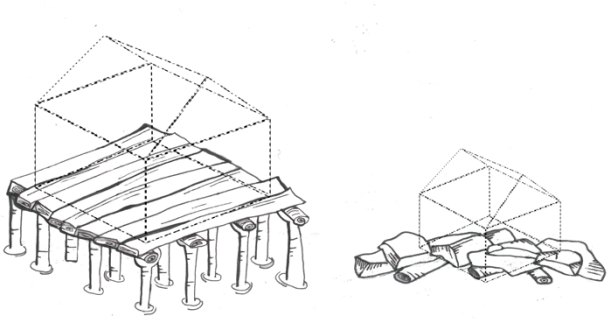

Figure 24: Sketched impression of architecture at La Draga (drawing by author)

The excavation site is divided into several areas: A, B, C and D. So far no specific studies regarding the lay-out of the settlement have been published. The area belonging to sector C is submerged under the water and is considerably lower than section A, which is placed further inland and barely presents wetland preservation. However, these sections are not only divided by the excavation. It seems that a wooden palisade used to run between the two, oriented from east to west. This palisade was made of small treetrunks and visualized a separation within the settlement (Tarrús Galter 2008).

Section B and C have been interpreted as the “living” areas, with houses, whereas section A would house practical activities, storage and workshops (Bosch Lloret et al. 2011).

"Direct" resources

Nutrition

As for the nutrition of La Draga's inhabitants, studies have shown that their diet was based mainly on agriculture and livestock (Saña 2011; Antolín and Buxó 2011) (Figure 25). 22% of the bone remains are ascribed to cattle (*Bos Taurus*), 45% to ovicaprids and 15% to pigs (*Sus domestica*). From these percentages it might seem like ovicaprids were most commonly eaten. Nevertheless, studies show that when the potential meat provided by each taxon is considered, cattle would be good for a total of 60% of the consumed meat (Antolín et al. 2014).

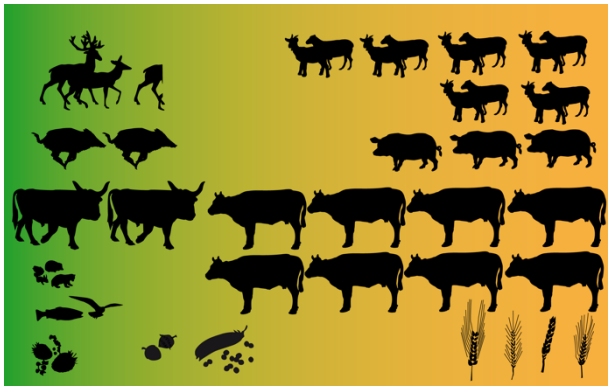

Figure 25: Different elements of the diet at La Draga (image by author)

Some cattle bones also showed several pathologies that would be the result of repeated mechanical stress, indicating their possible use for agricultural labour or transporting wood (Antolín et al. 2014).

Perhaps the farming strategies were even more diversified than previously assumed for this chronological period. This time period is not usually linked to the Secondary Products Revolution, as described by Andrew Sherratt. Sherratt's model of animals being exploited for more than their meat alone, leading to more diversified and specific strategies, are usually focused on the 4th millennium BC. Nevertheless, researchers have stated that similar activities could have taken place in La Draga, though on a small scale (Debono Spiteri et al. 2016).

Zooarchaeological studies show that most animals were killed for their meat, deducing from their slaughtering age. Still, also some remains of young cattle and goats were found, possibly indicating a milk exploitation of these taxa. Apart from this, some older sheep remains, beyond the regular optimal killing age, were found. This could also indicate that these sheep were exploited for wool and/or milk (Saña 2011). As for the management of these resources, researchers assume that each housing unit had its own animals (Bosch Lloret et al. 2011). Wild animals are not of big importance, percentually, taking up no more than 14.58% of the total meat (Bosch Lloret et al. 2011).

The animals that were hunted, however, are very diverse. Remains of aurochs (*Bos primigenius*), wild boar (*Sus scrofa*), red deer (*Cervus elaphus*), wild goat (*Capra pyrenaica*) and roe deer (*Capreolus capreolus*) have been found. Also different birds and some small carnivores such as fox (*Vulpes vulpes*), badger (*Meles meles*), marten (*Martes sp*) and wild cat (*Felis sylvestris*) were found.

The osteological remains indicate that hunting was not necessary. The main meat consumption depended on domesticated animals. Nevertheless, we still find some wild animals, and also many hunting accessories, exceeding the amount that would be necessary, strictly speaking. These tools can be very elaborated, such as the famous yew bow that was found in the 2012 campaign. It has therefore been suggested that hunting was rather a social activity, carried out by the inhabitants of La Draga (Piqué et al. 2015).

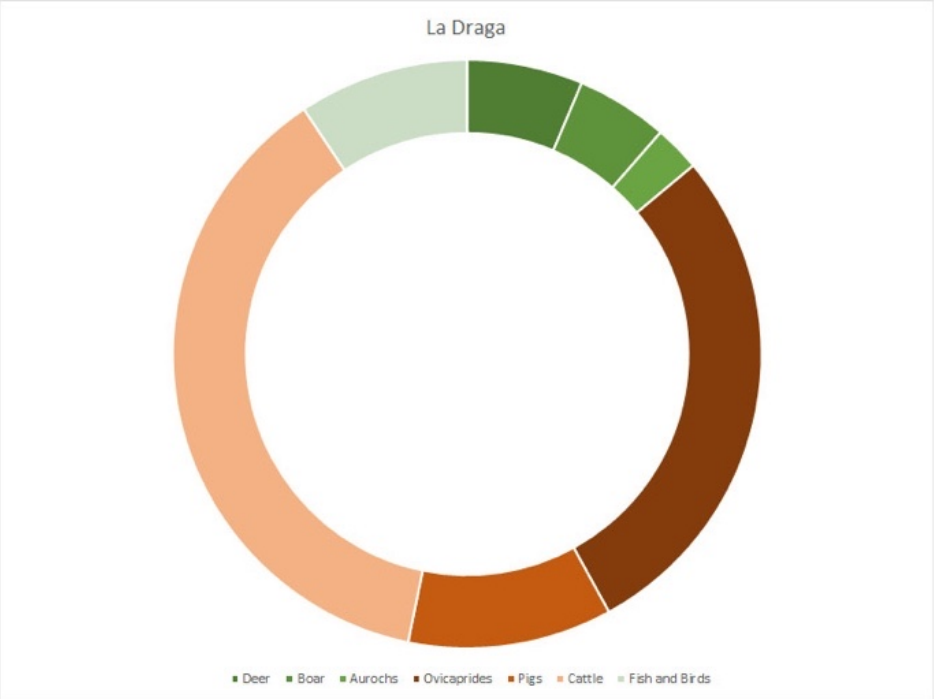

Figure 26: Approximate animal consumption at La Draga (image by author)

Other food sources were fish and shells. Fish do not make up a significant part of the diet, in spite of what might be expected because of the settlement's position next to a lake (Figure 26). Few local fish species were found, such as eels or barbels and also some mussels and freshwater turtle remains. Nevertheless, the ensemble of nutritious remains from the lake is not noteworthy according to authors (Tarrús Galter 2008).

All shells that were found come from the seashore, about 35 km to the east. These were not only destined for consumption, but were also used as cutting tools or for ornaments (Cuenca Solana et al. 2014). Also birds were present at the site. These remains show that people exploited both the immediate surroundings of the lake, as 56% of the birds are aquatic, but also some areas further away. It has been suggested that these other species could have been found at the sites of cultivation (Bosch-Lloret et al. 2011). Most species are only found once, leading to the conclusion that birds were not exploited as an important source of food, but were complementary.

The agricultural activities practiced at La Draga were fully consolidated. The main cultivated crops are cereals, with free threshing wheat making up 99% of all grains (*Triticum durum*). Apart from this, some barley, naked barley (*Hordeum vulgare* and *Hordeum vulgare* var. *Nudum*),

hulled wheat (*Triticum dicoccum*) and einkorn wheat are found too (*Triticum monococcum*). In recent studies it was stated that straw fragment sizes correspond to the ones found at Hornstaad-Hörnle IA and confirm ear harvesting (Antolín et al. 2014). Also the fact that the cultivation of the fields was permanent, indicated by most identified taxa were annuals, is seen to be as in accordance with Neolithic lakeshore settlements around the Alps.

It is assumed that within the densely forested area around the settlement small plots would have been exploited, rather than larger areas. It is not entirely clear whether livestock could feed around the site or were taken elsewhere. It has been suggested that the method of harvesting would leave stubble for the animals to graze on, thus also providing the fields with manure. Further studies are required concerning this topic (Antolín et al. 2014). Other crops that were cultivated, though to a lesser extent, were legumes such as broad beans (*Vicia faba*) and peas (*Pisum sativum*). Also some poppy seeds (*Papaver somniferum*) have been found, as at most prehistoric sites (both lakeside settlements and dry-land settlements) in the Iberian Early Neolithic or Neolithic central Europe.

Although the domesticated resources, cultivated and bred, are obviously prevalent for La Draga's inhabitants, hunting and gathering has not been completely abandoned. Wild animal remains found at the site were mentioned previously. Also some remains of collected plants, fruits and nuts such as wild grapes, blackberries, pine kernels or hazelnuts have been found (for a full overview of the plants consumed at La Draga see Annex 5). According to studies reconstructing the Neolithic environment, these resources were collected within a radius of 10 km around the site (Palomo et al. 2014).

Ceramics

Three different raw materials used for the elaboration of ceramics have been found. All three sources are very similar and possibly come from the same geological context. For the meagering augita was used, which normally comes from volcanic rocks. Nevertheless, there are reasons to believe that the raw material could come from the Pliocene conglomerates outcropping near the eastern lakeshore (Terradas et al. 2012). Petroarchaeological studies show that the ceramic resources should come from no further away than 1 km distance from the settlement (Bosch i Lloret/Chinchilla i Sánchez/Tarrús i Galter 2000).

Therefore, we are looking at a highly local production of ceramic. Also in their shape and decoration, La Draga's vessels represent a uniform ensemble. The vessels have mainly globular profiles, with a rounded base and with or without neck. The decoration they present is mainly cardial, with some impressed/incised ware and relief decoration. It is said that the Cardial Ware pottery gets gradually simpler in time. Judging from the complexity and diversity of motives used in La Draga, this site

represents an early stage of this ceramic type (Bosch-Lloret et al. 2011; Bosch Lloret/Tarrus Galter 2015). Motives are arranged in horizontal bands below the rim, or multiple bands. These ceramics and this type of decoration is shared with many of the first agricultural societies in the Western Mediterranean. Therefore, the ceramic record found at La Draga represents the broader area, in which contemporaneous settlements also produce Cardial Ware.

(*Ulmus*), alder (*Alnus*) and elder (*Sambucus*) and further towards the mountains fir (*Abies alba*) and pine (*Pinus sp.*) (Figure 27).

Pollen records show a fall of oak values coinciding with the occupation of La Draga (Revelles et al. 2014), indicating a heavy tree felling exploitation of these trees. Studies have shown that this indeed cannot be due to climatic changes alone but that it indicates human influence. Oak wood was, in fact, the most commonly used wood at the site, mainly

Figure 27: Surroundings of La Draga (image by author)

Wood

Not many riparian trees could be found in the immediate vicinity of the lake in the Neolithic, despite the wet conditions. Probably this is because of the swamp-like consistency of the area, not permitting trees to grow there (Revelles et al. 2015). From palynological studies we know that the surroundings of the site were covered by a dense forest, consisting of oak (*Quercus*), hazel (*C. avellana*), and kermes oak (*Quercus coccifera*). Other trees growing there would be ash (*Fraxinus*), elm for architectural purposes and firewood (Revelles et al. 2014). However, the inhabitants practiced a very varied exploitation.

Different types of wood were not used randomly, but chosen for different ends according to their characteristics (Bosch i Lloret/Chinchilla i Sánchez/Tarrús i Galter 2000; Palomo et al. 2013). For example, projectiles were usually made of willow (*Salix sp*), buxus (*Buxus sempervirens*) and dogwood (*Cornus sp.*) This coincides with wood used at other sites for the same purpose (Palomo et al. 2003). Other important wooden objects are the bows used for hunting. These

possibly ritual objects were made of yew (Piqué et al. 2015), which is the same material very similar bows were made of at the Chalain and Clairvaux lakes in the French Jura. The bows found at La Draga are the oldest known examples of bows factured in yew wood. This technical tradition still exists nowadays.

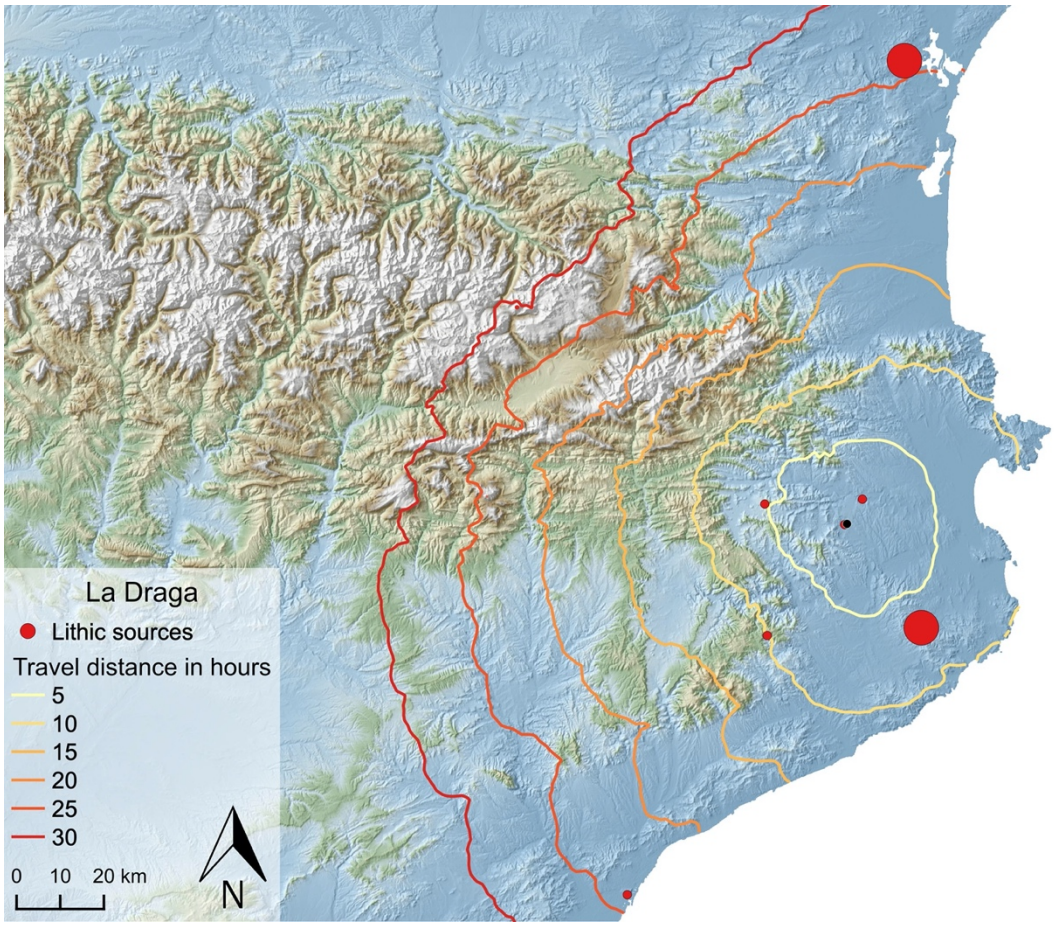

Figure 28: Distribution of lithic sources of La Draga. Data layers: SRTM model from CGIAR-CSI; ISO-lines elaborated after Ahrlichs/Gries/Schmidt 2017; lithic data after Terradas 2012. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña. Gis; R. (for more information see Annex 2)

Stone

For the manufacturing of stone tools, mainly flint was used. This most common resource was not locally found but brought in from Oligo-Miocene formations outcropping in the Narbonne-Sigean basin in France. This main source was imported as it is located at a walking distance of a bit over 25 hours from the site (Figure 28) (Terradas et al. 2012). Also used, though in lesser quantities, was jasper, found at Montjuïc, also nearly 25 hours away from the site but in the opposite direction. These siliceous rocks were used as raw materials for the production of blades and bladelets by means of an indirect percussion technique (Palomo et al. 2011).

It is thought that in order to reduce the volume of raw material that needed to be transported, and also to increase productivity, cores were probably prepared nearby the outcrops and transported to La Draga like this, ready to be knapped. Nevertheless, though the map indicates the respective walking distances to these sites, it needs to be taken into account too that the extreme vicinity to the sea of these sources could have offered a more beneficial form of transport.

Some local materials used at La Draga can be found too, within a radius of approximately 5 hours walking. Quartz and hyaline quartz, found locally and processed on-site completely, were used for knapping flakes and some bladelets. Some of the macrolites were made of materials that could have been found near the lakeshore too, such as sandstone or limestone (Terradas et al. 2012). Other macrolites could come from secondary fluvial deposits of the Ser or Fluviá rivers north of the site.

Another source is found at the Guilleries Massif (10 hours towards the southwest). From here metamorphic rocks (amphibole schists and hornfels) were obtained for the elaboration of polished adze blades, used for carpentry tasks. This material could have been found in some Pyrenean ranges too. The ensemble found at La Draga constitutes one of the most numerous ones in Early Neolithic dwelling contexts in northeastern Iberia (Terradas et al. 2012). Some grinding tools are made of volcanic materials, from the Garrotxa volcanic area, but most are manufactured on intrusive igneous rocks like granite, coming from the Guilleries Massif too or coastal ranges located at approximately 7 hours in a southeastern direction. Objects from both foreign and local material were retouched, producing geometric elements, scrapers and drills. Radiolarite as well as quartzite and other metamorphic rocks are also found, but these materials are very rare.

These data paint the picture of a very varied exploitation, as can be attested by the intensity of the use of different raw materials, with different materials and sources located at different distances and in different directions. Stretching from 110 km to the north, spreading out beyond the Pyrenees, to 120 km to the south of Banyoles, and covering the Mediterranean on the west until the volcanic area of La Garrotxa and the Guilleries Massif to the east and southeast respectively.

Bone and shell

Animal bones, especially metapodial bones, antler and teeth, were used for the production of a variety of objects such as awls, projectiles, spoons, needles etc. The technical tradition of some of these artefacts is linked to the franco-iberian Cardial tradition (Terradas et al. 2012). The animals whose bones were used for these objects correspond to the animals that were also consumed at the site. Meaning that they were most probably not specifically kept or hunted in order to use their bones, but

that the most was made of slaughtered animals.

As the seaside is not so far away from La Draga it is no surprise to find that also various sea molluscs were used for both consumption and the elaboration of ornaments (Clemente/Cuenca 2011), Terradas et al. 2012).

"Indirect" resources

Landscape/environment

The lake is a karst lake, placed in a tectonic depression. It is not fed by a river, like the cases we have seen so far, but mainly by groundwater. The lake is connected to the northern Alta Garrotxa Massif underground and the Llierca and Burró rivers. It is also fed by the Lió, Can Morgat and Castellana streams. It extends over a surface of 2150 x 775 metres, and its depth varies from 15 to 46 metres. This location is not very distant from the seaside; the shore of the Mediterranean sea can be found at a distance of 35 kilometres.

Another prominent landscape feature are the Pyrenees and pre-Pyrenees, starting approximately 30 kilometres to the north of the site. Embedded between these landmarks is La Draga, at 173 metres above sea level and looking out over a relatively flat landscape in its immediate surroundings and towards the east (Figure 29). Several studies have shown that the climate at La Draga was colder and more humid in the Neolithic than it is now (Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2000), with higher amounts of precipitation (Aguilera et al. 2011). The site was flooded by the lake right after its abandonment, afterwards a layer formed on the remains, protecting it for the following thousands of years, right until 1992 (Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2000).

Ritual

Although most ritual indications are absent from this site, like at the other discussed

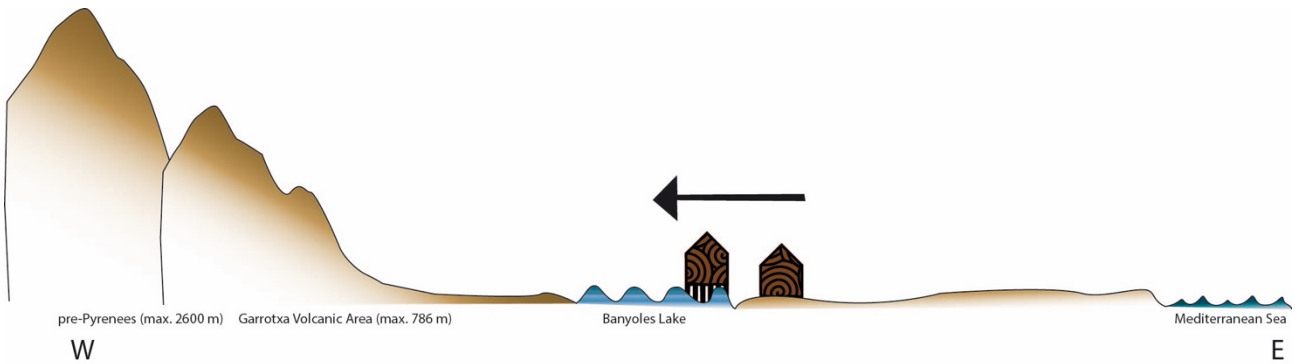

Figure 29: Landscape at La Draga (image by author)

lakeside settlements, there is an interesting find to remark here. During the 2005 excavating campaign a negative structure was found, containing the possibly complete remains of a goat. As this structure was situated in Sector C, at the original lakeshore and the first line of houses, it has been interpreted as a possible founding rite (Bosch Lloret et al. 2011). For the rest, burials or ritual contexts have not been found.

What has been mentioned as a "special" activity at the settlement is hunting. It has been discussed previously that the combination of the high quality and diversity of hunting tools and the lack of a practical hunting necessity has led researchers to believe that hunting was more of a social activity at La Draga (Palomo et al. 2003; Piqué et al. 2015). This is not necessarily a ritual activity, but the fact that it is not necessary but carried out for other reasons makes this an interesting topic. One could imagine, for example, that apart from the social element of working together and engaging in a leisure activity, it is also a form of ancestral worshipping. If the ancestors were hunter-gatherers, which to a greater or lesser extent must be true, this could be a way to relate to them.

During the most recent campaign of excavations (2016) some very interesting discoveries were made at the site, indicating that in the future the topic of ritual activities at La Draga will be vastly expanded. Although it is not published yet, it seems that one of the excavated pits was filled with significant material such as several skulls of horned animals such as goat, cattle and roe deer polished adze blades and several outstanding rings (Els Arqueòlegs Atribueixen a Rituals Les Banyes de La Draga 2016).

Regional overview

La Draga was part of a dynamic habitational mosaic in the northeast of Catalonia. It forms part of the Cardial Early Neolithic tradition, which is the first Neolithic in the area, characterized by Cardial Ware and represented mainly by open-air and cave habitation (Figure 30). The earliest evidences for this come from Guixeres Vilonbi, radiocarbondated to the mid 7th millennium BC (Oms et al. 2016). Not only at La Draga are evidences of burials absent, but also at most of the other Early Cardial sites.

From the beginning/first half of the 6th millennium BC two different traditions seem to co-exist, as sites are assigned to an Epicardial Early Neolithic too. Representative for this second period are sites such as Cova Avellaner, Plansallosa or Codella (found in close vicinity to La Draga). Here evidences of burials seem slightly more common. Finally, in the period called Postcardial Neolithic, people seem to move towards valleys and lowlands. The material culture is characterized by Molinot and Montboló Group styles and radiocarbondatings situate this period mainly in

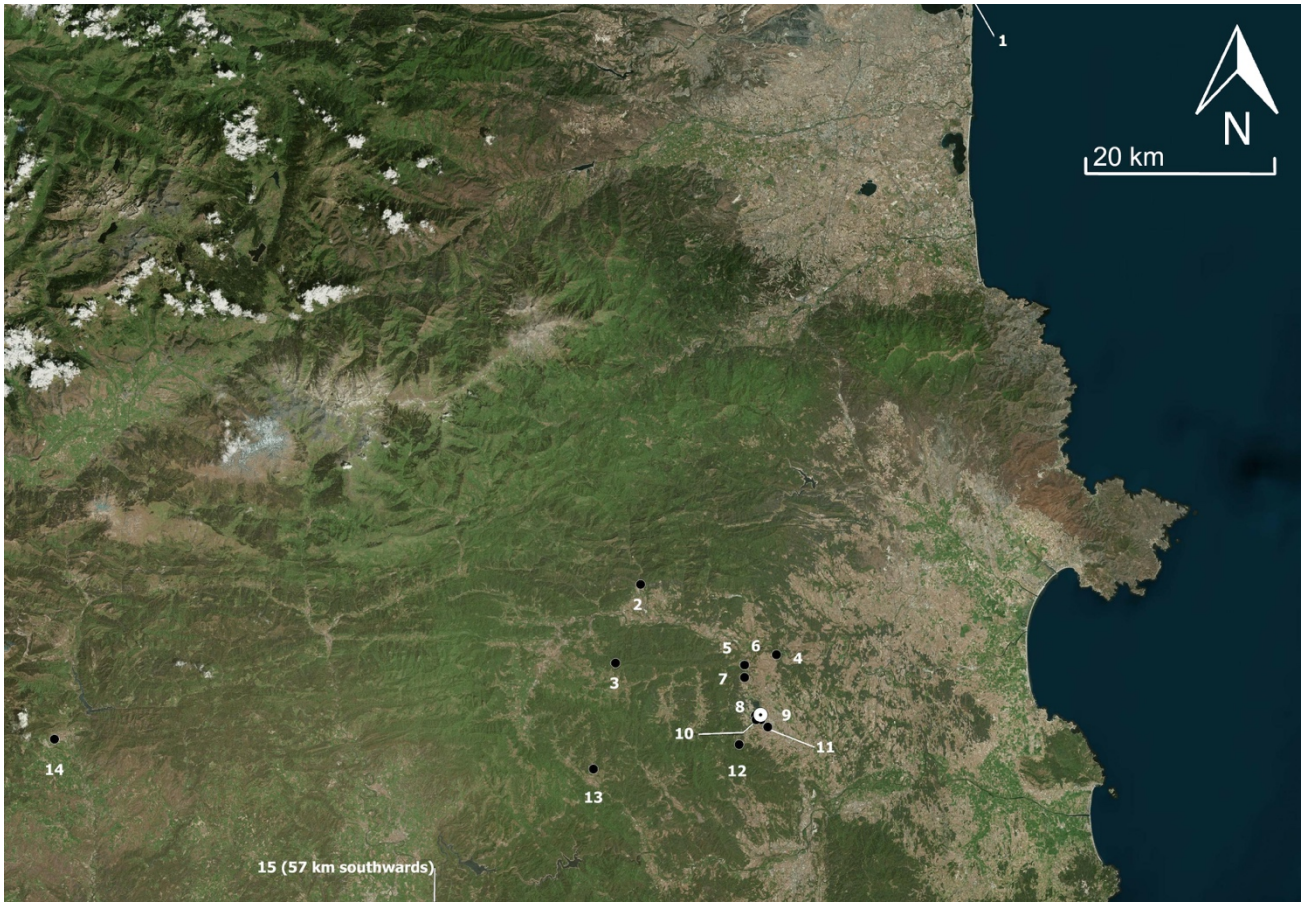

Figure 30: Regional overview of La Draga. 1: Leucate 2: Plansallosa 3: Cova dels Encantats 4: Mariver and Encantades de Martís 5: Cova de l'Arbreda 6: Cova de Molet III 7: Cova del Reclau Viver 8: Porqueres 9: 200 m south of La Draga 10: Punta Freixenet 11: Fàbrica Agustí 12: Closes a Pujarnol 13: Cova de l'Avellaner 14: Font del Ros 15: Cova d'en Pau. Data layers: Openlayers – Bing Natural. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña (for more information see Annex 3)

the second half of the 6th millennium (Oms et al. 2016).

The area is rich in Neolithic evidences and even harbours several Mesolithic sites. Researchers have even recognized seemingly different cultural traditions, leading them to suggest that there might have been both external and autochtonous development at play in this regions. La Draga also plays an important role in this debate as it has been taken as an example for maritime colonization theories by J. Zilhao (Zilhao 2001). It is generally argued that La Draga's inhabitants might have been foreign to the region (Palomo et al. 2014).

An example of these contrasting traditions researchers have recognized is provided by a comparison of La Draga with the nearby site of Plansallosa. This site is located between the Llierca and Fluviá river. This Epi-Cardial site, dated around the ending of the 6th/beginning of the 5th millennium (Palomo/Gibaja 2001), could have existed contemporaneously with La Draga, which makes a direct comparison all the more interesting. Studies comparing the lithics between La Draga and Plansallosa show that at the latter mainly local material, even of low quality was used, whereas La Draga presents many imported material and artefacts. It is

suggested that this specific strategy, observed in Plansallosa is similar to that of other Epi-cardial sites in northeastern Catalonia, such as Sota Palou, Roc del Migdia or Font del Ros.

Another contrasting point is the presence of ornaments made of shells, bone and stone or other bone and antler artefacts at La Draga. Whereas this site presents these items, similarly to the nearby Cardial site of Leucate, at the Epicardial site of Plansallosa these materials are absent. Based on similar differences researchers carefully suggest that we might be dealing with two different peoples (Palomo/Gibaja 2001). This dichotomy between Cardial and Epicardial groups has also been mentioned in contexts of the neolithisation of Mediterranean France. We will not get further into these discussions now, but state that according to this research La Draga would be representative for an accommodated Neolithic society, with a consolidated productive strategy and representative Neolithic objects. On the contrary, Plansallosa, though also pertaining to the Neolithic tradition, would maintain a significantly stronger emphasis on traits that are also present in the Mesolithic, visible in material culture or hunting-gathering strategies.

In the immediate surroundings of Lake Banyoles both Epicardial and Postcardial sites can be found (Bosch Lloret 1994; González Alcalde 2006). Some of the oldest evidences come from the Serinyá caves, 4 km from La Draga we can find the Cova de L'Arbreda, Cova d'en Pau, Cova de Reclau Viver and Molet III (Maroto/Soler/Tarrús 2000). These caves produced materials ranging from the Paleolithic to the Epi-Paleolithic and Mesolithic, although they were not precisely datable (Bogdanovic et al. 2015).

To the north of these caves there is the sepulchral cave of Encantats a Serinyà (Early Middle Neolithic). Also a collective burial cave, Mariver (Martís, Esponellá), was found, containing final Epi-Cardial material (beginning 5th millennium BC). This site is located next to the river Fluviá, where assumedly lithic raw materials were collected nearby. Slightly south of La Draga a burial pit was found at Fàbrica Augustí (Middle Neolithic). Also, on the southwestern lakeshore, on a point called Punta Freixenet some worked wood was found and dated to 1417–1276 cal BC (Terradas et al. 2013). Although this is much later, it is noteworthy as it illustrates an extended settling of the lakeshore. Other prehistoric wetland evidences, although without conclusive datings, can be found 200 metres south of La Draga. Wooden tools and ceramics were found at a depth of about 8 metres, which is deeper than the La Draga site.

Further to the south the Chalcolithic dolmen of Closes a Pujarnol (Porqueres) can be found. Finally, on the Western shore, isolated regional Porqueres Bell Beaker finds have been found (Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2000). Everything seems to indicate a continuous and extended occupation of the lakeshore and its surroundings during prehistory (Bogdanovic et

al. 2015). La Draga is said to show strong affinities with the geographical area of the Mediterranean coast, Pyrenean and pre-Pyrenean area and southeastern France, based on technical traditions and decorative features (Terradas et al. 2012). Especially the Languedoc-Roussillon area, the site of Leucate-Corrège is said to show links. The zone in between was exploited by La Draga's inhabitants. According to researchers the mineral resource management points to a broad territory with regular contact with similar communities, which would also be indicated by the large number of shared technical traditions (Palomo et al. 2014).

Case Study 4: Dispilio (Lake Orestias, Greece)

Research history

As early as 1913, during the Balkan Wars, N.G. Papadakis described a wall nearby the Orestias Lake in Kastoria, northern Greece. Later it would become clear that this wall, also prehistoric but posterior, surrounds the prehistoric settlement of Dispilio. The settlement itself, however, was not discovered until 1932 by Professor A. Keramopoulos from Athens University. He published the results of the excavations he undertook in 1932, 1938 and 1940. These excavations were initiated when the lake level dropped.

Due to fluctuations in the lake environment the water drops during dry seasons. As the pile field became visible and the conditions for excavating became easier, work on this site benefitted from this. Nowadays research is still being carried out. From 1992 onwards Professor G. Hourmouziadis, from the Aristotle University of Thessaloniki, led the investigations on this site until his death in 2013. Nevertheless, systematic excavations are still taking place,

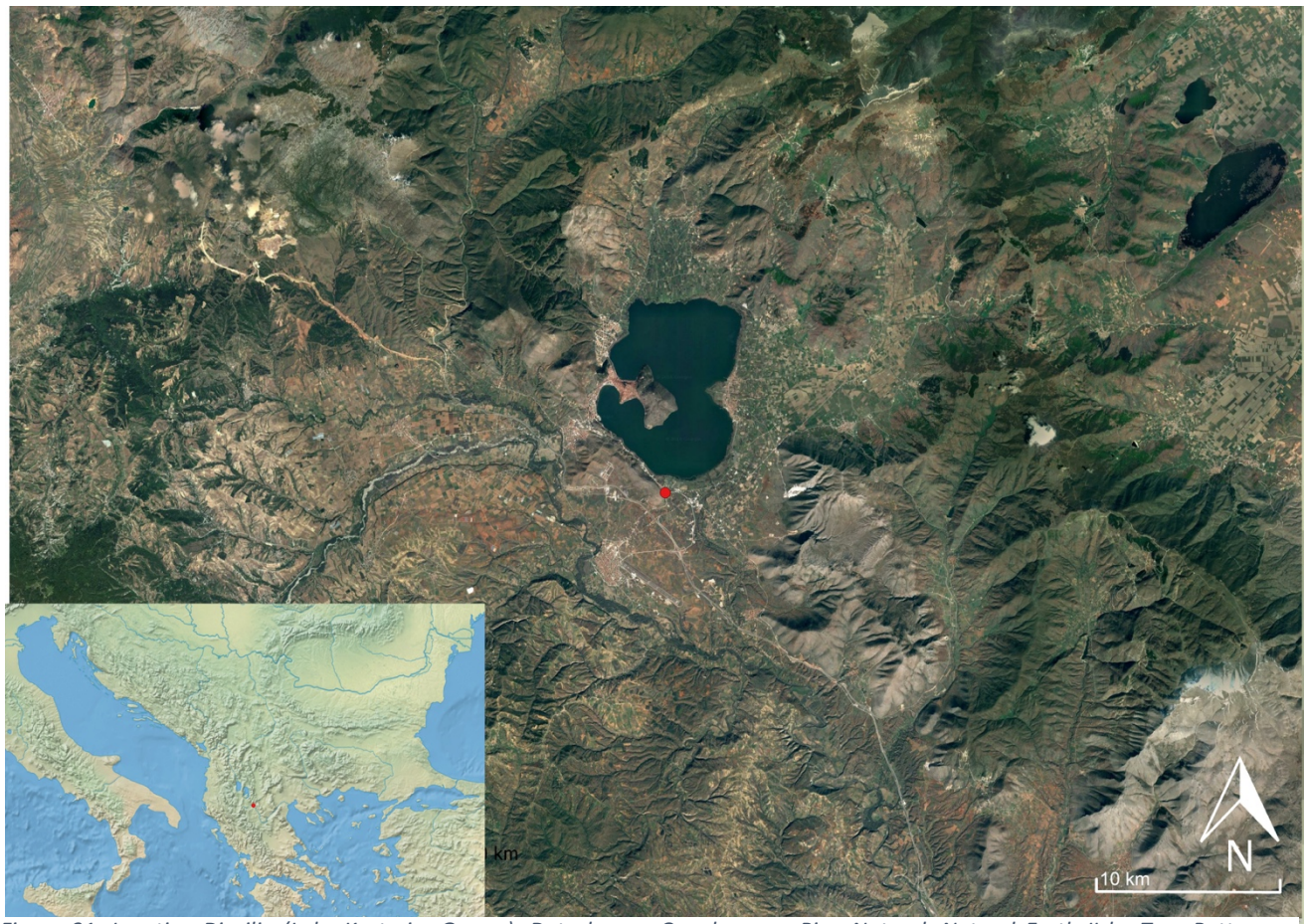

Figure 31: Location Dispilio (Lake Kastoria, Greece). Data layers: Openlayers – Bing Natural; Natural Earth II by Tom Patterson. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña

led by Professor K. Kotsakis from the Aristotle University of Thessaloniki. So far 5250 m2 have been excavated. In the stratigraphies of different excavated areas researchers distinguished several phases, which they described as “lakeshore”, “shore marsh” and “dry land”.

Site

Location

The site of Dispilio is located in northern Greece, 7 km south of the regional capital Kastoria, at the lakeshore of Orestias Lake (Figure 31). Activities from the Greek Middle Neolithic until the Late Bronze Age have been recognized here (for more specific chronologies in this region see Andreou/Fotiadis/Kotsakis 1996. However, no more than a few scattered Bronze Age finds were found. The current case study does assess the settlement as a whole, but for the purpose of this study special attention is paid to the earliest phases of the site. According to the archaeological material no abandonment phase could be recognized in the Neolithic period of the site (Facorellis/Sofronidou/Hourmouziadis 2014).

Radiocarbon dating shows that the settlement’s occupation starts at the end of the regional Middle Neolithic period (5355±125 BC) and it was continuously inhabited until 3644±118 BC. Reconstructions show that the

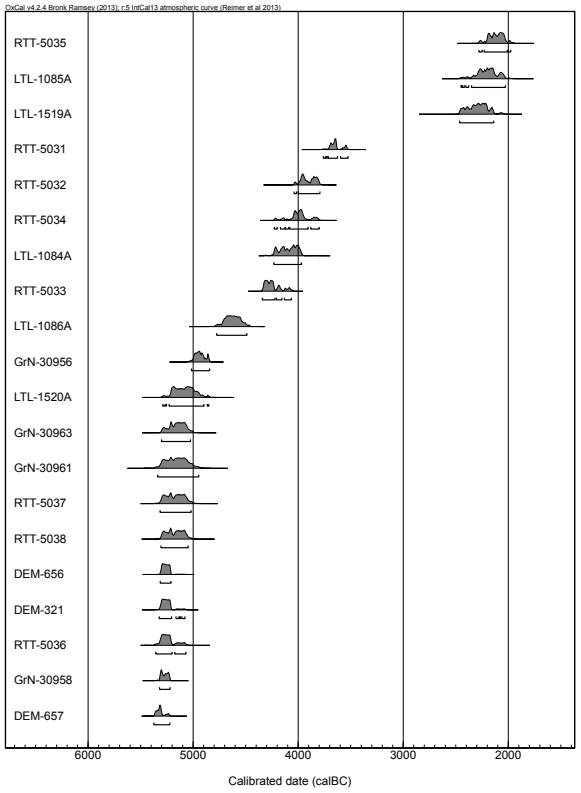

Figure 32: Radiocarbondating of Dispilio. Data from Facorellis/Sofronidou/Hourmouziadis 2014, programme: OxCal v 4.2.4 (For more information see Annex 4)

lake level rose in the Bronze Age, which is also around the time when the settlement was finally abandoned. Nevertheless, some scattered activity is registered again in the Bronze Age from 2300±160 until 2129±152 BC (Figure 32, for all C14 datings see Annex 4).

Set-up

The leading interpretation is that the houses were built on a platform in the lake. This idea is based on the great amounts of piles that were found in the lake. Dispilio’s set-up is very interesting as it evolves over time. In the earliest phases of the settlement all structures seem to be elevated on piles. At a certain point in the Neolithic the lake dynamics changed. A conflagration is said to have

destroyed the settlement and caused many micro-environments to appear.

As a result some parts of the settlement dried up, whereas others continued to be flooded. Therefore people built both ground-level houses and structures on piles (Karkanas et al. 2011). The piles that were found during excavations were up to 2.85 m long (Amendas/McConnachie/Pournou 2013). These structural changes were also visible in the stratigraphies of the excavations and permitted researchers to divide the lifespan of the site in three main phases, as was referred to briefly previously.

In the youngest construction phase, dated to the Final Neolithic, around 3000 BC, not only piles appear, but also mud bricks on solid surfaces. This is indicative of the co-existence of structures both in the water and on dry land. Structures such as postholes, clay floors or storage bins confirm this (Touloumis/Hourmouziadi 2003). The two preceding phases, dated to the final stages of the Middle Neolithic, around 5500–5000 BC, are characterized by piles and horizontal elements, appearing only in the first phase (Touloumis/Hourmouziadi 2003). This indicates that the structures were elevated, either because they were standing in the lake or on humid and muddy soil (Figure 33).

Especially in the earliest phase of the settlements, the house floors seem to have been constructed meticulously of pebbles, sand, twigs and clay reinforced with straw

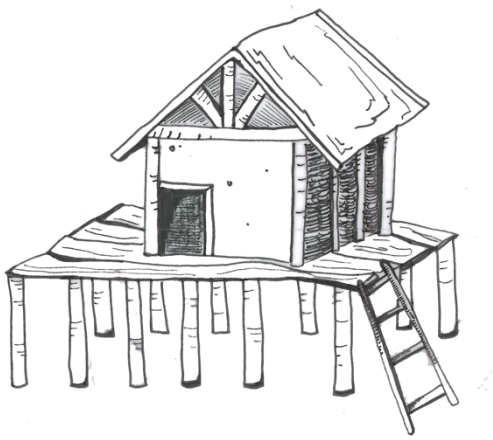

Figure 33: Sketched impression of architecture at Dispilio (drawing by author)

(Hourmouziadi 2002). One of the main problems indicated by the archaeologists excavating the site was that it is difficult to distinguish between open and closed spaces. Therefore the orientation and lay-out of the site is as of yet largely unknown to us. Nevertheless, some structures have been identified.

From the interpretation of these structures researchers have concluded that most domestic activities, such as cooking, took place inside of the houses and daily working activities, an example of which could be the mending of fishing nets, were usually carried out outside (Kalogiropoulou 2013). As most of the time the buildings were not built directly on the soil this creates a multi-dimensional depositional dynamic which is difficult to trace. Nevertheless, researchers are confident that the houses were constructed in rectangular and curvilinear shapes (Hourmouziadi 2002).

"Direct" resources

Nutrition

Palynological studies have showed that when people started settling this landscape forests became less dense and clearances occurred. Over time the landscape became much more open. As is confirmed by paleobotanical studies, the cultivation of cereal and other crops at the Dispilio settlement occurred mainly at "garden-like" fields within the settlement or in close vicinity (Kouli/Dermitzakis 2008; Hourmouziadis 2002).

These "gardens", most probably often situated in forest clearances, would organically follow the pattern described above. Meadows just outside the settlement would have been very suitable grazing grounds for the livestock. The presence of these grazing grounds is also confirmed by the presence of particular weeds and coprophilous fungae. It is also mentioned in literature that "The same bushy lands, partly covered by shallow water are, even today, used for stockbreeding." (Touloumis/Hourmouziadi 2003; 76).

Based on the presence of many artefacts that are linked to agriculture and livestock breeding, such as sickles, digging tools, animal bones or millstones, it is suggested that the inhabitants of Dispilio relied strongly on these activities (Touloumis/Hourmouziadi 2003). Studies show the presence of einkorn wheat (*Triticum monococcum*), hulled wheat (*Triticum diococcum*), and some barley (*Hordeum vulgare*). Free threshing wheat (*Triticum durum*), always present at the other sites discussed in this work, was not mentioned in the literature concerning Dispilio. Perhaps it was present, but generally it is very irregularly found in this region in the Early Neolithic, as is barley (Kalogiropoulou 2013).

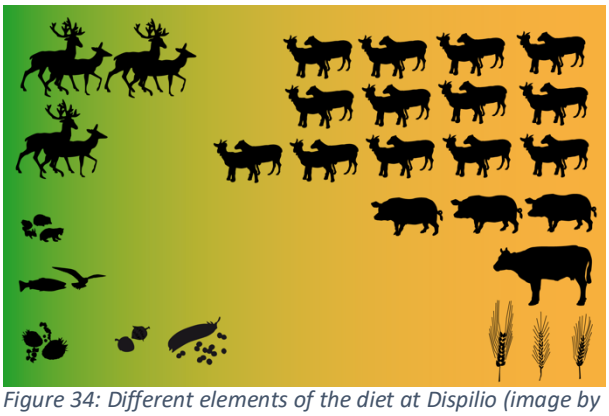

Figure 34: Different elements of the diet at Dispilio (image by author)

Also lentils were found. It was not possible to document storage pits very well, but many storage vessels and some pithoi were found. Therefore it is assumed that a certain surplus of production existed, meaning that these activities were well managed. Collecting also contributed to the inhabitants' diet, as is proven by remains of for example apples, roots, walnuts or acorns (Figure 34. For a full overview of the consumed plants at Dispilio see Annex 3). The economy of the settlement is described as highly land-oriented (Cosmetatou 2008), citing F. Menotti on his theory that settling on the lake was a way of freeing up land for cultivation.

In the earliest stages of the Dispilio settlement people relied mainly on domesticated animals (86 % in phase C and 98

% in phase B3b), especially ovicaprides (*Ovis aries* and *Capra hircus*). These animals make up between 60 and 83 % of the total number of domesticated animals found at the site in the early days. Other domestic animals were some pigs (*Sus scrofa*, 19-22%) and even less cattle (*Bos domesticus*, 4-5%) (Figure 35).

Although it is thought that animals were primarily kept for their meat, slaughtering profiles of cattle and goat indicate that these animals were possibly used for milk too (Samartzidou 2014).

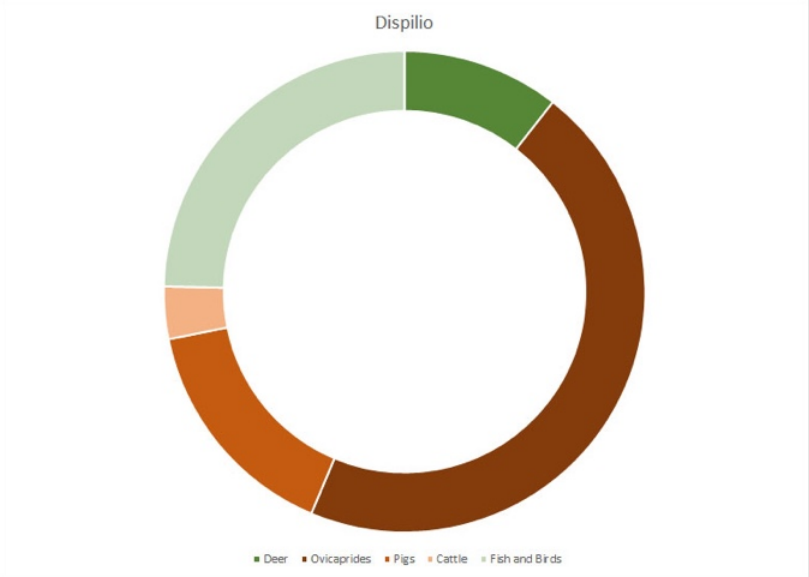

Figure 35: Approximate animal consumption at Dispilio (image by author)

An interesting addition to this passage is the fact that the presence and use of animals was also expressed through clay figurines. Several zoomorphic figurines were found, some of them depicted carrying big vessels (Touloumis/Hourmouziadi 2003). Therefore it could be possible to assume that animals were also used as carrying animals. The main strategy when it comes to food production at the site seems to be to aim for maximum food quantity, rather than quality. This would be revealed by the presence of animal body parts corresponding to all classes of nutritional value.

People hunted too, as is evidenced by wild animal bones, antlers and hunting missiles (Hourmouziadi 2002), but the consumption of wild animals seems to have been merely complementary (Cosmetatou 2008). Wild species that were found at the site are red deer (*Cervus elaphus*), roe deer (*Cervus capreolus*), a single boar tooth and small amounts of fish, birds and small wild mammals. Although it has been suggested that most of the deer remains that have been found on the site are the result of the exploitation of deer antlers for artefacts.

Also, a considerable amount of fish remains and shells were found at the site, indicating that the exploitation of the lake was also an important source for obtaining food (Mylona 2014). People used nets, hooks and lines for their fishing activities. It is assumed that also harpoons, projectiles and fishtraps were used (Theodoropoulou/Stratouli 2009). Many fish grates and artefacts made of fish vertebrae and lake shells were found. The most frequently exploited species were catfish (*silirus glanis*), carp (*cyprinus carpio*) and other

cyprinids. Over time fishing techniques changed at the settlement as people optimized the fishing methods and tools, catching a greater variety of fish and becoming more productive (Theodoropoulou/Stratouli 2009a).

Ceramics

In the Early Neolithic at Dispilio, and the surrounding area, a preference existed for fine black burnished surfaces, in the Middle Neolithic this shifts to red or red-brown medium burnished ones and in the Late Neolithic fine burnished surfaces make a comeback. The decoration techniques are generally the same, variations occurring only in combinations and abundance. These techniques would be painting, incision, grooves, channels, *pointillé*, *barbotine* and applied wares such as anthropomorphical features (Hourmouziadi 2002).

Approximately 13% of the ware is decorated (Sofronidou 2002). As for the clay used to make the vessels, three different sources have been identified. First of all, clay from the narrow flat land zone northeast of the lake was used for the production of big jars and pithoi. Big open vessels were usually made from clay that was retrieved from a source a few kilometres northwest of Dispilio. Finally, clay for the fine pottery, polished ware, blacktipped ware, vessels with four legs and small size jars, was retrieved from the flat land east of the lake (Dimitriadis 2002). This very specialized exploitation of various clay sources indicates intentional choices of the raw material.

As for the shape of the pottery, the vessels tend to be spherical or hemi-spherical in the earlier stages of the settlement, later shifting to biconical shapes. A high level of specialization is visible in the pottery, especially the finer ware. Interesting shapes that were found here are the four-legged cooking vessels, for example. The pottery typology throughout the different phases of the settlement follows the Greek Neolithic standard (Sofronidou 2002).

Highlighted in this segment are two object types that, though they are ceramics, do not have a clear practical function and are therefore of interest also for the later “ritual” segment. First of all, there are the boat-shaped pots, which could be linked to the presence of the lake (Hourmouziadi 2002) and perhaps the existence of real-life boats. Secondly, a special position is held by the figurines. This kind of object is common in the Neolithic of the Balkans and beyond towards the East. At Dispilio a great variety has been found, including some outstanding examples such as a representation of a crippled man, an oversized figurine or another seated female which shows characteristics similar to those figurines found in the Middle East (Hourmouziadi 2002).

Wood

The area was densely forested in the Neolithic, although in time human impact has become more and more visible. The immediate surrounding of the lake was covered by herb

vegetation. On the slopes that gradually transform into mountains, mixed deciduous forests with a prevalence of oak (*Quercus*) can be found (also *Abies*, *Carpinus*, *Ulmus* and *Juniperus*) and, finally, the mountains are covered by coniferous forests of pine (*Pinus*) and fir (*Abies*) and some beech (*Fagus*) patches (Figure 36). Later, mainly due to human impact the forests became less dense, showing more clearings, meadows and pastures. Pine and fir trees, were most commonly used for architectural purposes (Kouli/Dermitzakis 2008), therefore the impact of these human activities is clearly noticeable in the pollen records. In time alder (*Alnus*) disappears from the pollen spectrum, probably due to its intensive use in buildings.

An interesting category of wooden artefacts are boats. The presence of ceramic boat models, indicating the existence of boats, was mentioned earlier. Now it is confirmed that the people of Dispilio had boats to their disposition. Interestingly, the boat is described as being identical to those used by fishers nowadays (Facorellis/Sofronidou/Hourmouziadis 2014).

Several dugouts were found in the upper strata of the settlement. It has been suggested that these boats could have been used both for fishing and travelling in order to sustain communication networks, perhaps with other lakeside settlements on the lake (Hourmouziadi 2002).

Within the settlement both natural wood and wood chips were found. This indicates that woodworking activities took place not in the forest but in the settlement area itself (Chatzitoulousis 2009). No specific working area could be attributed to these activities. The most common wood species for posts was black pinewood. Oak was preferred for other wooden parts of houses and hazel branches to construct the walls. Roofs were probably covered with reeds or rye straw (Hourmouziadi 2002).

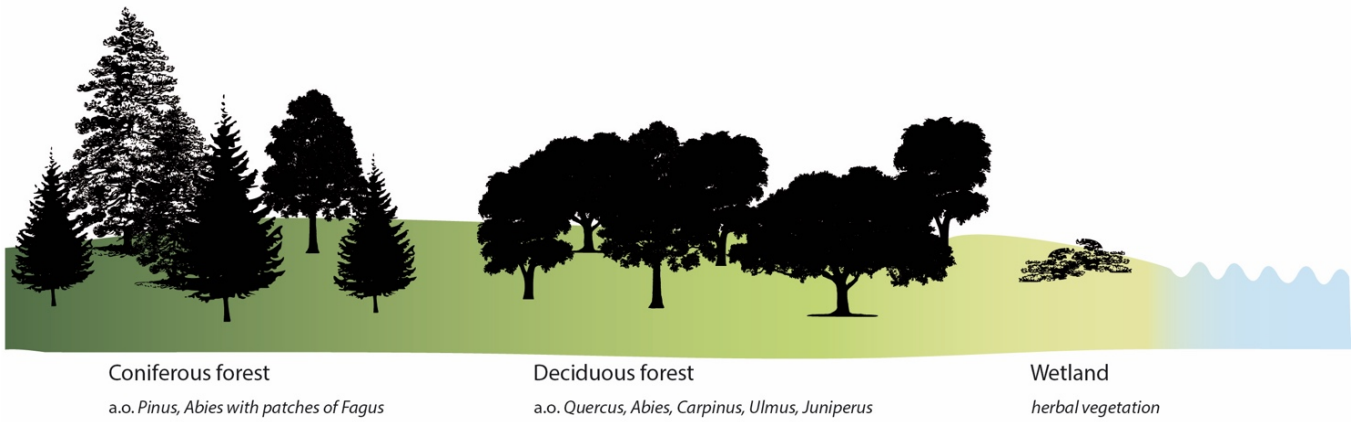

Figure 36: Surroundings of Dispilio (image by author)

Stone

From the beginning of the excavations until 2008 approximately 1000 objects were found. The petrographical analyses that were carried out have focused mainly on the material from phase A, found in the W-Sector. It has to be said that no quarries have been found as of yet. So far there have been no successful attempts in localizing them. Nevertheless, it is possible to say what area the materials were probably provenient from. Even if the available information on this topic is rather limited so far, it can still provide some insight into the effort that was required to collect different materials.

Petrographical analyses carried out on 49 artefacts in 2001 showed that 44% of the objects was made of cherts, and 56% of silicified carbonate (Doulkeridou 2009). Both of these materials can be found in the Northwest near the Pindos Mountains. The part of this mountain range where these stones were possibly acquired can be reached by walking approximately 20–25 hours in a southern direction.

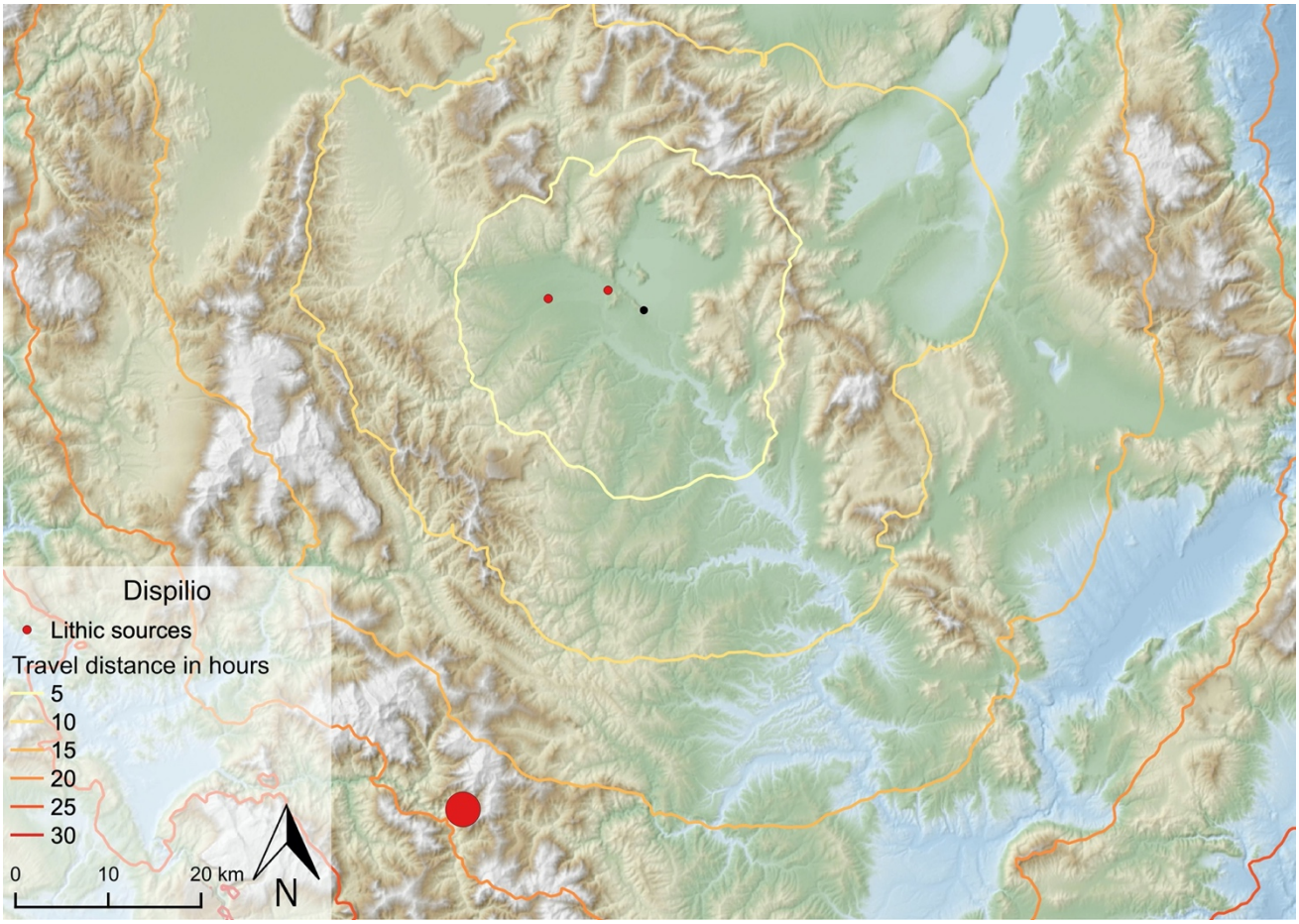

Figure 37: Distribution of lithic sources of Dispilio. Data layers: SRTM model from CGIAR-CSI; ISO-lines elaborated after Ahrlichs/Gries/Schmidt 2017; lithic data after Doulkeridou 2009. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña. Gis; R. (for more information see Annex 2)

As is visible on the map (Figure 37) the area in which Dispilio is located is rich in relief. The plain "corridor" stretching in south/southwestern direction from Dispilio

might have provided an easy passage to the Pindos Mountains. Nevertheless, this material was either imported or obtained through expeditions lasting several days. Interestingly, in this mountainous area also quartz and silicified limonite are present in this area. These were not found at the site, possibly due to their inferior quality they were not exploited.

Another study showed that the rocks used for ground stone tools were mainly local granite and sandstone from the Aliakmon River. Stone axes and adzes were mainly made of serpentine, coming from Maniaki (Toulouomis 2002). These two sources are depicted just west of the site, comfortably within the 5 hour walking radius.

Bone and shell

Animal bones, both wild and domesticated, are usually used for the elaboration of tools. Important are also the bone hooks (Theodoropoulou/Stratouli 2009) that were found at the settlement, emphasizing the role of fishing.

All kinds of ornaments have been found at the site, such as pendants, necklaces, rings, belt buckles, etc. Most commonly used is the Spondylus shell, which can be found at the seaside and is very common in the Aegean. In the Aegean Neolithic, the presence of Spondylus has often been interpreted as evidence of "specialized workshops" (Veropoulidou/Ifantidis 2004). These shell ornaments are said to be very similar to those of other Aegean sites. As a matter of fact, an interesting future prospective is that by analyses researchers could find out where exactly the artefacts, or shells as raw material, came from (Veropoulidou/Ifantidis 2004).

"Indirect" resources

Landscape/environment

Dispilio can be found at the shore of Lake Orestias. Its exact location is also named "Nisi tis Analipsis". "Analipsis" refers to the Ascension, which was also the name of a church that stood on this hill. This place in the landscape used to be a little mound, surrounded by the water of the lake. Nowadays one cannot appreciate this anymore, as it changed in the early 20th century, but this and the fact that a church was built here too could be indicative of a special meaning of this particular place in the landscape.

The Orestias Lake is 9.1 metres deep at its deepest point and has an average depth of 4.45 m. The Kastoria basin in which holds it lies at an altitude of 625 m, surrounded by the Trikalario (1749 m), Verno (2128 m) and Askion (1703 m) Mountains (Figure 38). Towards the south the basin is drained by the Aliakmon river. The geology of this region which is intermediary between the Mediterranean and European Continental climatic region consists of igneous and metamorphic rocks, topped by Mesozoic sediments such as limestones and dolomites. The upper layer is made up of Neogene to

Quaternary lacustrine sediments (Kouli/Dermitzakis 2008).

The climate nowadays has a mean temperature of 12.46 °C, with mean minima of 2.39 °C in January and maxima in July, of 22.81 °C. The annual precipitation is of 750-1000 mm, with maxima in December and May (Kouli/Dermitzakis 2008). Orestias lake is an open lake, which means that is does not tend to fluctuate strongly (Karkanas et al. 2011). This is important as it diminishes the risk of floods.

Ritual

The discussion of "ritual" matters for the site of Dispilio is especially interesting as it can count on specific efforts from the site's researchers. The distinction that is made between different material groups, as described in the article by Facorellis et al. (Facorellis/Sofronidou/Hourmouziadis 2014), lends itself well. Thus the category of "ideological" materials is formed by for example a piece of engraved cedar wood, interpreted as a tablet with some of the earliest writing. Apart from this, a series of ceramic items such as a cup, a sherd or a tablet are also significant as they bear signs that do not seem to be decoration. In fact, it has been suggested that these might be evidences of some of the earliest writing. The engravings are said to show similarities with Linear A signs and Vincan symbols on Paleoeuropean clay tablets (Facorellis/Sofronidou/Hourmouziadis 2014).

Generally, this settlement is richer in symbolical and/or decorative elements than the other case studies. As is common for the Greek Neolithic, both zoomorphic and anthropomorphic clay figurines have been found. Also the earlier mentioned boat models are of great interest, as we also know them from the Italian lakeside settlement La Marmotta for example (Fugazzolla Delpino/D'Eugenio/Pessina 1993).

An interesting reflection regarding the site's various representative objects is made by C. Marangou (Marangou 2001). In her article on the three-dimensional clay representations found at Dispilio she states that the depictions that were found at the site were mainly humans

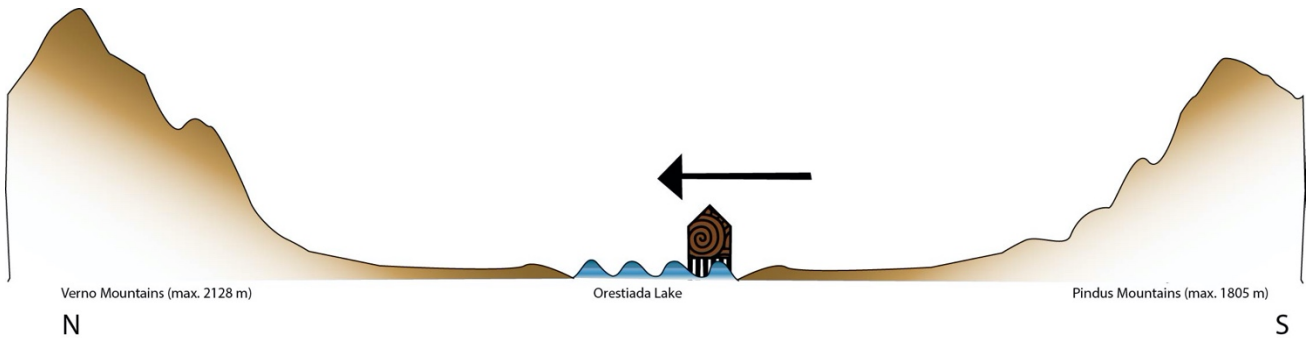

Figure 38: Landscape at Dispilio (image by author)

and domestic animals, such as those usually found at Greek sites. Although multiple boat representations were found, she insists that a stronger representation of water-bound thematic could have been expected.

Touloumis and Hourmouziadi in their article present their own interpretation of the high amount of non-functional or possibly ritual elements: "Since the Neolithic settlers of Dispilio have successfully solved their survival problems, it is not astonishing that numerous non-functional elements and artifacts were found, corresponding to the level of the ideological development" (Touloumis/Hourmouziadi 2003). Whether this means that the inhabitants of Dispilio were better adapted than the pile dwellers in central Europe, or whether we can ascribe the difference simply to differing traditions remains to be seen, but it is an interesting idea to keep in mind.

Almost unique for a Neolithic lakeside settlement is the fact that at this site also burials were found (Hourmouziadi 2002). A double burial of two adults, skeletons A and B, a burial consisting of two infants and some burnt and scattered bones (Petroutsa 2009). These remains were found in different layers or vessels in the Western sector of the excavation (Hourmouziadis 2002). The problematic with these burials is that it cannot be determined with certainty whether they were prehistoric as they were found in the upper strata. Adult A was a male of 40–55 years old who suffered from carrying heavy loads and heavy work in his lifetime, B is a slightly younger male of 35–45 years old. Both were healthy adults. The infants were respectively approximately six months and 3–5 years old. The older child had suffered from the so-called Cribra Orbitalia disease, which is related with iron deficiency. As for the scattered and burnt bones, these belonged to 14 adults and 2 children. It was possible to determine the sex only for 1 female and 4 males (Petroutsa 2009). Nevertheless, as the context of these remains is highly uncertain these burials can not be taken into account in any conclusive observations.

Regional overview

Other lakeside settlements are known from northern and central Greece too, although Dispilio was the first to be excavated systematically (Hourmouziadi 2002). Nowadays, another big project is running not too far away from the Orestias Lake, at Amindeon, Florina. Here many sites have been discovered and are being excavated because of the threat that large-scale mining activities in the area represent for the preservation of the site.

This large-scale project, though not free of complications, has offered archaeologists a unique window into the Neolithic and later times, studying settlement patterns and dynamics in an extensive area (Chrysostomou/Jagoulis/Mäder 2015). In this area, also referred to as the area of the four

lakes, several sites were excavated partially or completely, nowadays Anarghiri IXb being one of the sites of most interest.

Apart from these neighbouring sites, also in Albania, only 50 km west of Dispilio, lakeside settlements have been found (Cabanes 2008). Best known is the site of Maliq, in the Korca basin. It has been stated that the constructions that were found, of rectangular timber houses, are very similar to those at Dispilio. On the other hand, due to practical reasons most lakeside architecture is. Nevertheless, also the pottery is said to show similarities and even indicates contact between the sites (Hourmouziadi 2002).

Also in the neighbouring country of Macedonia (FYROM), at Lake Ohrid similar sites have been found (Naumov 2016). This cluster of contemporaneous lakeside settlements reminds one of the situation of the circum-Alpine region in central Europe. The research in the Balkan area is not yet at such an advanced stage as it is there, but the sites offer many possibilities. Research initiatives are appearing, as we have just seen, but also for example in Bulgaria archaeologists are

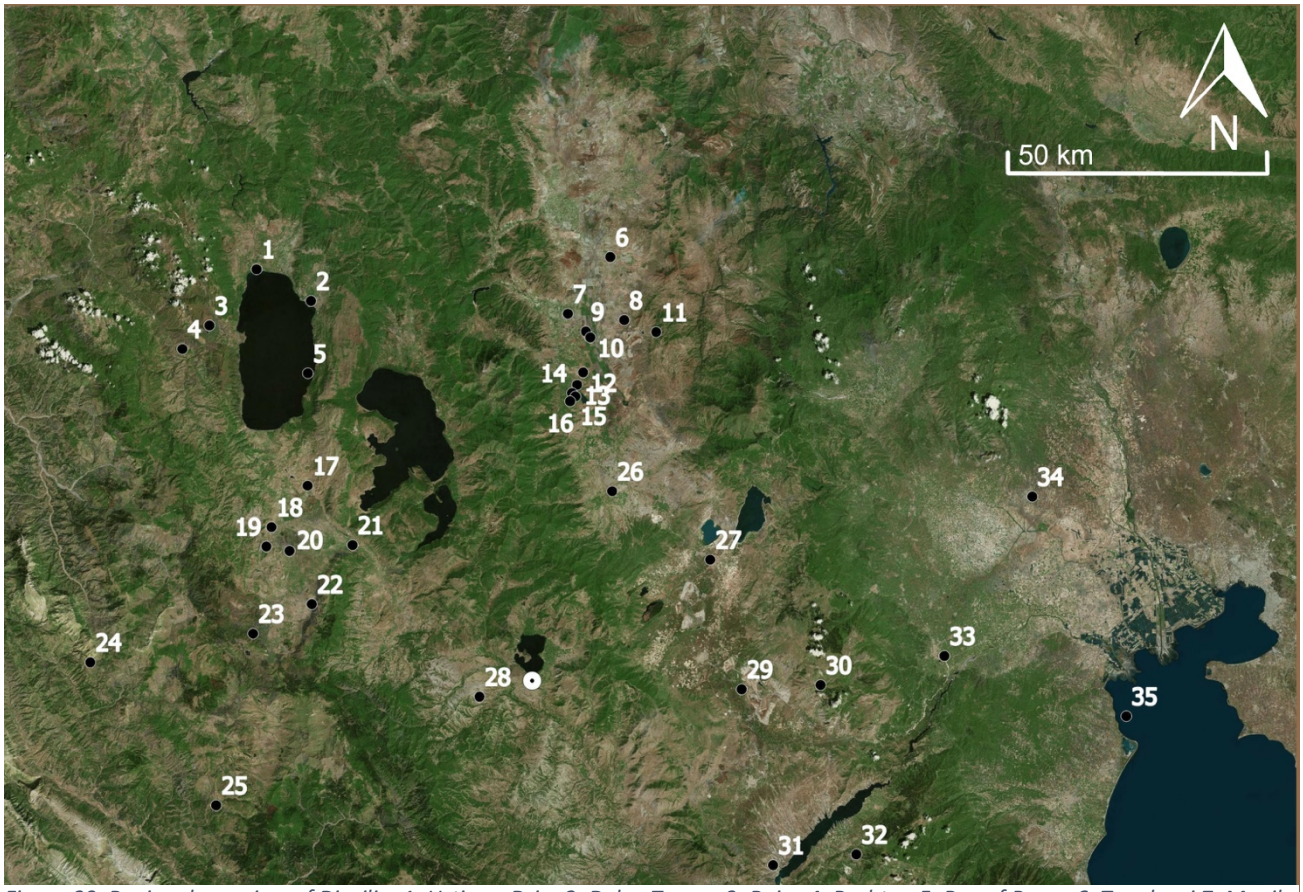

Figure 39: Regional overview of Dispilio. 1: Ustie za Drim 2: Dolne Trnovo 3: Rajce 4: Rashtan 5: Bay of Bones 6: Topolcani 7: Mogila 8: Dobromiti 9: Golema Tumba Trn 10: Mala Tumba Trn 11: Suvodol 12: Gurgur Tumba 13: Opticari 14: Tumba Bara 15: Porodin 16: Veluska Tumba 17: Podgori 18: Sovjan 19: Maliq 20: Dunavec 21: Burimas 22: Barc 23: Dersnik 24: Vlushe 25: Kamnik 26: Armenohori 27: Anarghiti IXb 28: Avgi 29: Megalo Nisi Galanis 30: Megali Toumba Ayiou Dimitriou 31: Aiani 32: Servia 33: N. Nikomedeia 34: Yannitsa B 35: Makriyalos. Data layers: OpenLayers – Bing Natural. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña (for more information see Annex 3)

considering the possibility lakeside settlements existed (see for example literature on sites on the Bulgarian Black Sea coast around Sozopol (Angelova/Draganov 2003).

A great advantage in comparison with the Alpine area, however, is that this zone also has a longstanding history of "regular" research. It was not off to the best start, as for a long period of time northern Greece was regarded as no more than a passageway between important areas such as Europe and Old Greece or Anatolia. Later, it became the "Other" in Greek history, a fact that was underlined by the identity and nation conflicts of the 19th and 20th century (Andreou/Fotiadis/Kotsakis 1996).

Nevertheless, more recent investigations have been showing that this zone was, in fact, very dynamic and densely settled (Figure 39). The riverine zone of the middle Aliakmon has been extensively settled since the Early Neolithic. People used to think that the main and most common settlement was that of *toumba* (tells, or mounds) in which settlement remains are accumulated until a mound is formed. Nevertheless, later research has shown that there are also, or mainly, flat-surfaced settlements, stretching out in the landscape. The formation of mounds is now attributed to erosion or later human activities (Grammenos 1996). The Neolithic sites found now show a wide variety of structures and features, from mounds to pits, ditches and lakeside settlements.

Two waves of Neolithisation have been suggested: first the arrival of agricultural communities between 6300 and 6100 BC. These would be coming from Thessaly along the coast of the Aegean Sea and following the Vardar River to the north. The second wave would also come from Thessaly, but moved into the Pelagonia and Ohrid Lake valley. The identities of these two "waves" differ, and it is said that these communities would have preserved their autochtonous cultural features until the end of the Neolithic (Naumov 2015).

Archaeological contemporary sites are found as close as 0.5–1 km from Dispilio. One of the most noteworthy sites is Avgi, located 10 km southwest of Lake Orestiada. Radiocarbondating situates the site from the Middle Neolithic to the Late Neolithic II, spanning a period from 5650 cal BC to the first half of the 5th millennium cal BC (Stratouli et al. 2010). This site pertains to the same cultural tradition, found in northwestern Greece in the Late Middle to Late II Neolithic Period, as does Dispilio. This is based on traditions in lithic technology, ceramics, decorations and architectural features. Other sites that are said to pertain to this tradition could be Kolokynthou or Kleitos (Kalogiropoulou 2013).

Other nearby Neolithic sites can be found in Kitrini Limni, where basin floor settlements start at 5600 BC. Neolithic phases were also found at the sites of Megali Toumba, Megalo Nisi Galanis, on the northern side of the Macedonian plain between the Loudias and Axios rivers, at Mandalo and Makriyalos. The

site can be placed within Late Neolithic exchange networks in Greece, thanks to the finds of foreign obsidian and pottery, and a stone ring idol pendant (Facorellis/Sofronidou/Hourmouziadis 2014). Moreover, objects made from *Spondylus Gaederopus*, other sea shells and certain aforementioned pottery characteristics also situate Dispilio within relationships all over the Balkan Peninsula and the Aegean (Touloumis/Hourmouziadi 2003).

Anthropological Case Study 1: Ribeirinhos (Amazon Floodplains, Brazil)

Research history

Other than in the archaeological cases, this research history is not exclusively the story of how a site was found and investigated, but more the development and the start of academic interest for a specific group of people. This "group of people" consists of many isolated communities spread over the vast territory of the Amazon region (De Paula/Tenorio 2010). The population is a mix of Indigenous, European and African members, given the common name of *ribeirinhos* or *caboclos* that is used to describe the rural population. Among the communities there are differences, and it has been noted that it is tricky to attach a specific identity to all identified by the name of *ribeirinho* or *caboclo*.

It is not sure what life on the Amazonian floodplains looked like before the European colonization, it has been suggested that perhaps it was more seasonally bound (Harris 1998). In the 17th century the Portuguese crown intervened in the area, trying to make people Christian vassals. By the end of the 18th century the Portuguese started to invest in the area, hoping for tax revenues. This affected the structure of society. Even more so when the rubber industry grew in the 19th century and Northeastern Brazilians moved to the region. This meltingpot of influences and different people was extended by Italian farmers and traders from the 20th century (Harris 2005).

Interestingly, the same discourse that has been used in some cases for the prehistoric wetlands in Europe is also used to describe the advantages of the Amazon *várzea* (floodplain); the WWF website claims that "The fertile soils and abundant fish of the *várzea* have sustained local people for generations…" (Amazon Floodplain Forests 2015). This website is part of an initiative of the WWF to help "..supporting floodplain communities to manage their natural resources – including fisheries, grasslands and forests – in a shared, sustainable way." It seems that these communities are strongly affected by increasing market pressure, struggling to live off traditional practices such as the keeping of cattle or fishing."

This attention for the floodplains and the initiatives to develop sustainable models for its people comes after centuries of different external influences, that have left the region trampled. However, this recent awareness can be linked to an increase in research in the region since the 1980s. This is when the development and conservation of floodplains became a common topic, to which the anthropological research of the people living in this area could contribute. What is signalled strongly in most reports and articles is that the *ribeirinhos* manage specific skills and have a history of relentless adaptation, which could be of great interest for these research purposes (Harris 2005a). Different studies from many

fields have been dedicated to the way the *ribeirinhos* live in accordance with their environment, and how increasing external influences, such as regional markets and offers for wage working (Piperata 2007), influence them.

Site

No specific site was selected for this case study, but rather a general overview that focuses mainly on the research done by M. Harris on the lower Amazon Plains (Harris 2013a; Harris 2005b; Harris 1998) and other ecological, nutritionary, physical anthropological, architectural and psychological research based on these communities. These floodplains are a very dynamic and versatile landscape that cannot be delimited exactly. The forest environment, filled with streams, lakes and rivers, runs from the mouth of the Amazon River in Brazil to Peru (Figure 40).

There are over 4600 isolated communities, most of them inhabited by no more than 150 people (De Paula/Tenorio 2010). The houses reflect a clearly vernacular

Figure 40: Location Amazon floodplains. Data layers: OpenLayers – Google Physical; Natural Earth II by Tom Patterson. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña

architecture, as de Paula and Tenorio describe it: "..in which the technique involved manipulates the environmental resources available, satisfying all the requirements for cultural experiences to flourish and to actually rule the daily lives of its people." (De Paula/Tenorio 2010).

The houses are always elevated from the ground on piles, ready for the flood season, and measure approximately 50 m2. The internal part can be one single room or it can be divided into several parts. Generally house plans could be described as simple, compact spaces that could adapt to various basic needs. Often hammocks are arranged in the houses for sleeping, during the day these could be removed, creating a spacious floorplan that is suitable for various activities. Other buildings are often connected to these, in this space working activities such as food processing take place. The houses used to be built from wood and other natural materials. Nevertheless, the past years have seen some changes in architectural traditions, as people prefer industrial building materials.

This is partially because of the disadvantages that organic materials have, such as fungae forming under the palm roofs, or the medium-short lifespan of wood as a building material in this humid and everchanging environment. On the other hand, an important motivation for people to abandon more traditional architectonical styles is because these are regarded to be primitive or backward (De Paula/Tenorio 2010).

However, the transport and production of industrial materials is not as ecologically sustainable as the traditional and skillful exploitation of local resources. Another remarkable example of this "modernization" of architecture can be found in the special item by a news broadcast from Noticias R 7 which showed how in one settlement people had invented a system how to transfer a dwelling to a new set of piles. Another type of structure that can be found in the pile dwelling settlements are platforms. These platforms, also elevated on piles, serve as a refuge for cattle during the flood season, when they are kept up there safe from the high water.

Resources and aspects of daily life

It is not possible to apply the same format used for the archaeological sites in this work to this ethnographical study. An important difference is the distance in time, the fact that the *ribeirinhos* are living now, and we know about their political and social subtleties in detail. The chronological break between an archaeological subject and its researchers, when it is discarded or in any other way removed from daily life, so common for us, is absent here. But perhaps even more importantly, as a trained archaeologist one cannot help but notice that in all texts objects are barely mentioned, showing a very different perspective.

Nutrition

The *ribeirinhos* strongly exploit the plants of the surrounding forest, using about 86 of the 140 identified species for one or more purposes (Couly/Sist 2013), such as consumption, medical purposes, the construction of houses or tools, etc. Also many animals from the forest are exploited, with a high emphasis on fishing. Some animals are specifically not hunted and eaten, this can differ for each isolated society and depends on personal preferences as well as economic, social, cultural and ecological factors (Leme da Silva 2007). Also myths and symbology can influence certain taboos. For example, hybrid animals are not eaten, neither are animals that are difficult to characterise, such as scaleless fish or omnivores such as piranhas (Leme da Silva 2007). As for the cultivated crops, manioc and acai are the most important species. These are consumed within the communities, but also used to trade for things like sugar, coffee, cooking oil, salt, soap and motor oil (Piperata 2007).

Cattle is also held very frequently and, together with fishing, makes for the most important source of income. In times of high water, the cattle is held on platforms and grass is brought to them (Harris 2005). A mixed subsistence system can thus be observed. People hunt, fish and strongly rely on collecting plants from the surrounding forest. Apart from this they also cultivate specific crops that are well adapted to the extremely humid circumstances. In this image of people who live in harmony with their environment and are so well adapted to it, the keeping of cattle is the only dissonant. The keeping of these animals on platforms is an interesting activity. This mixed exploitation and diet is enriched by the trading and selling of various local products in order to obtain specific other products that are not locally available. Generally, it can be said that the *ribeirinhos* are completely adapted to life on the floodplains, with a highly specific and adapted diet.

Ceramic/vessels/tools

From literature, not much is known about other material culture, such as vessels. Nevertheless, one can assume that these materials, like any category of material culture and also the architectonical featuers, would also represent a mixture of local materials and traditions and influences from the regional markets.

Ornaments

Also this category, of personal ornaments, is subject to the same problematics as the previous one. Namely, that not much attention has been paid to the aspect of material culture in the various studies of the *ribeirinhos*.

What is noteworthy, however, is one specific kind of ornaments, in literature referred to as *muiraquitãs*. These are small amulets made from a green stone, also known as the *pedra das Amazonas*, shaped like frogs. This rare form of jade was probably obtained in the

area of the Trombetas River. This amulet carries strong symbolical meaning and is always associated with the Lower Amazon and the Tapajós Indians living there during the conquest. The amulets therefore represent an ancestral cult, although nowadays they are not often found anymore. Several examples should be in possession of museums or private collectors, although travelers of the Amazon Rivers in the 19th century described that none of the *ribeirinhos* was prepared to hand over their amulet in exchange for huge sums of money (Harris 2013b). The frog-shaped talisman carries an important ideological connection to the rainforest and the water along with the other meanings attributed to it.

Landscape

Without a doubt, the most important factor in a great number of aspects is the landscape, which also includes many or most of the ritual expressions. As a matter of fact, the landscape and the people should not be regarded separately. Harris suggests we follow T. Ingold's ideas regarding "taskscape" when dealing with the Ribeirinhos (Harris 2005b). According to this train of thought, landscape as an "objective" entity does not exist. It is rather the way in which the environment (trees, river, hills, and so on) is perceived after the "taskscape" has been imprinted on it. The taskscape would be the sum of human activities and influences (Ingold 2000).

Environment + Taskscape = Landscape

This is how the term landscape used throughout these pages should be understood too. As Tilley said: 'People both live out their lives in place and have a sense of being part of it. Consequently place is fundamental to the establishment of personal and group identities and the formation of biographies. Place is both internal and external to the human subject, a personally embedded centre of meanings and a physical locus for action.' (Tilley 1994).

In the case of the *ribeirinhos*, the taskscape that is projected on their surroundings works differently than it would in more consistent environments. Every year is dominated by the changing of the dry season to the wet season, in which a big part of the landscape is covered by water and swept away. Therefore there are no steady points and fixed places which would otherwise be important in people's memories (Figure 41).

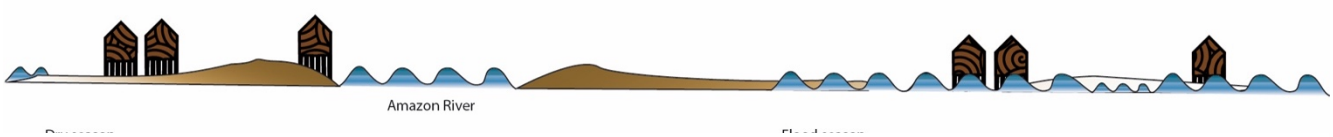

Figure 41: Highly versatile landscapes (image by author)

This, however, does not mean that their relation to the landscape is looser. On the contrary, it is much more intense as their life and the changing seasons and versatile environment are so closely intertwined. Writing about his fieldwork on the Lower Amazon floodplains, Harris states that people's lives are conceived in a highly cyclical manner, alternating between the dry season in summer and the wet season in winter. Apart from this, most of the people are highly mobile, moving between different communities and abandoning certain places if they are no longer suitable. This means that many do not share the same sense of attachment to a specific place, which would be derived from the stability of meanings associated with it (Tilley 1994).

Nevertheless, it can be argued that they share a broader sense of attachment and identity. This way of life, characterised by the continuous need for adaptation and always following the rules of the water leads the people to even speak of a specific form of "knowledge" which they manage and apply to all of their activities. This "*nossa intelligência*", is something that all communities share. The way people acquire this specific knowledge provides them with a sense of belonging and a certain identity, is through their relations and learning processes. "Living and kowing are part of the same historical process." (Harris 2005a).

Ritual expressions

The ribeirinhos' worldview is divided in a visible and an invisible part. Apart from this, there are different elements that inhabit these visible and invisible parts, traceable to different times and coming forth from different traditions. The borders between the visible and invisible, between the material and the metaphysical world, is not strictly delimited but rather blurry. People feel close to the entities inhabiting the invisible world.

These *espíritos* can be *encantados*, *visagens*, *bichos visagentos* (demonic animals) or folkloric animals (Harris 2013b). The *encantados* are enchanted magical beings that can live in the water and actively take part in society, as they are both the subject of many stories and apparently enjoy it when stories are being told to them. They are not necessarily good or evil, but can be both as they can also cause illness and madness. The *visagens* are spirits of deceased that still roam around in the invisible realm.

Another important element is the existence of idols that are linked to the times the original Tapajós Indians settles on the Amazon Rivers. These idols, in whose vicinity festivities took place and that were worshipped, were stones or mummies. These mummies were said to come from the earliest times, they were worshipped and given functions such as "god of manioc" or "god of rain".

During the conquest many of these idols were brutally destroyed, which is why they

were hidden deep in the forest, accessible only to ritual specialists and male village elders (Harris 2013b). These elements are still present in stories nowadays. A material manifestation linked to the same thematic would be that of the appearance of potsherds on riverbanks. This is said to be pottery from the times of the Tapajós. It can appear and disappear suddenly, which is also why people do not collect it but merely appreciate this dynamic marker in the landscape that somehow symbolizes the sudden disappearance of the Indians.

The river does not seem to occupy an important role in the ritual manifestations of the *ribeirinhos*. During the conquest, missionaries were said to cast the venerated idols that were mentioned earlier in the river, meaning that they could never be retrieved from the muddy and quickly flowing water (Harris 2013b). Apart from this, from descriptions it seems that the river, though a primordial element of the *ribeirinhos'* existence, occupied a merely practical place in people's worldview.

It influences nearly everything in people's daily life (exemplified by the resigned acceptance of the water sweeping away everything on its way regularly), all aspects of life are adapted to it (the cultivated crops, the cattle on platforms, the houses, the social tendencies adjusting the mood and activities to dry or wet season) and the advantages are exploited (mainly the ease of transporting goods). Nevertheless, this is not reflected in ritual manifestations apart from the *encantados* which can be entities living in the water. Does this perhaps mean that the river has surpassed any possible ritual role and is simply so essential and concrete for life, that it would be futile to assign a blurry ritual context to it?

Regional overview

The sub-chapter addressing the regional dynamics is not fully applicable in this case as the past pages have not focused on one site specifically. This is an advantage of an ethnographical study, that a region can be assessed in a much broader sense easily, and the dynamics between different communities and external influences or local adaptations are already an inherent part of the study.

Noteworthy is the contrasting of the rural *ribeirinhos*, and the "elite" living in bigger cities, away from the rural area. This elite feels disdain for the *caboclos*, arguing that they are lazy and are offered everything by the rich nature surrounding them. They doubt that the rural people's skills extend beyond catching fish and keeping cattle. However, this feeling of disdain is completely mutual. According to the *ribeirinhos*, the so-called elite or "*gente fina*" are not worth much as they do not share in the same knowledge and are not able to earn a living with their hands, but rather earn money off others (Harris 2005a).

It is interesting that both feel such a strong difference, although their lives are intertwined through the regional markets.

Strong influences can be noted, as for example with the houses which are preferably built using industrial materials nowadays. These materials are supposed to be more durable, but this shift is also taking place because the traditional, natural materials are seen as "primitive". This is in reality an "elite" point of view, which has somehow infiltrated and is being reflected in the *ribeirinhos*' daily lives.

This complicated and multi-facetted relationship and the many nuances that can be counted are of great interest and could lead to interesting observations also for the archaeological case studies.

Anthropological Case Study 2: Amsterdam (the Netherlands)

This last case study is, again, different from any of the previous studies. The reason for its inclusion consists of several aspects. An important part of this decision is that the typical drawing of parallels between archaeological and anthropological cases is sought to be avoided. Therefore, the addition of a modern city that finds itself within our own paradigm could be of use. Apart from this, it also opens up an unexplored dimension of interpretation, as a bridge is built between a personal reality and the archaeological reality.

Moreover, the author's personal affiliation with this case study strengthens the last argument. As this case study is so different from the previous ones, the approach to it is necessarily slightly different too. Instead of carrying out an extensive analysis of the material culture or indulging in the overflow of information by intending to assess all of it, there is a strong emphasis on the answering of the main question. Many elements are left out and it is therefore recommended to interpret this case study as it was intended: a colourful addition that can hopefully contribute as a source of inspiration in the thought experiments regarding people and water that are to come in the next two chapters.

Research history

An important topic is the unraveling or understanding of the construction of people's identity. In this case there are too many sources and possibilities available, making the task almost equally complicated as it would be at an archaeological site.

A stereotypical evaluation of things that would be called "typically Dutch" can be found on many blogs or in popular literature, where identitarian matters are highly simplified. It is mainly foreigners giving their take on "the Dutch culture", see for example " Why the Dutch are Different: A Journey into the Hidden Heart of the Netherlands" (Coates 2015) or "guidebooks" intended for foreigners, such as the recent example "The Low Sky – Understanding the Dutch" (van der Horst 2016). Though possibly charming and even insightful at times, these kind of sources usually perpetuate standardized ideas and indulge the Dutch in "their" culture.

In the more professional field unsurprisingly there are many publications regarding the relationship of the Dutch and water, as any technological advances the Dutch have made against the ever-threatening water are strongly encouraged and funded by the state. An example is the STOWA (Stichting Toegepast Onderzoek Waterbeheer, or Foundation for Applied Water Research) which is an important authority carrying out research, or several University studies dedicated to the topic such as Amsterdam Water Science at the

University of Amsterdam and the Vrije Universiteit Amsterdam or the Delft Research Center Water at the University of Delft.

Another important research interest in Dutch studies is religion, especially studies into the Catholicism or Protestantism of the population and how religion affects the society. This is not surprising regarding the turbulent religious history in the Netherlands during and after the Reformation in the 16th century. Some examples of these religious and social studies and the more specific thematics are: "Van huis uit katholiek: een praktisch theologisch, semiotisch onderzoek naar de ontwikkeling van religiositeit in drie generaties van rooms-katholieke families" (Catholic from birth: a practical theological, semiotic study regarding the development of religiousness in three generations of roman-catholic families) (Elshof 2009), but also "Mist in de polder" (Fog in the polder) (Vellenga 2009) in which the fog symbolizes the unclear Islamic influences in the Netherlands and how both the country and the religion are being adapted. Another telling example is "A perfect Bable of confusion: Dutch religion and English culture in the middle colonies" (Balmer 2002). The last two works also lead us to the next important topic: colonies and immigration. A considerable part of the society is made up by people that originally come from countries that were once colonies. They have also put their stamp on Dutch culture.

This is also true for a more recent wave of newcomers. The industrialization in the 60s, following the 2nd World War and forcefully rebuilding the country and its economy, led to an increased demand for workers. Therefore people were invited from different countries, first Italy, Spain, Greece and former Yugoslavia and later also Morocco and Turkey. These *gastarbeiders*, or guest-workers, partially remained in the Netherlands and had their families join them. Therefore, nowadays another considerable amount of the population is made up of second or third generation Dutch with a different ethnical background. Understandably, also this had led to certain influences in Dutch culture and social changes or even tensions in some cases.

This quick glance at a few topics in Dutch research reveals that in terms of identity, water is a topic that also still binds the Dutch to a certain national pride. On the other hand, it is not the most important theme. Immigration and external influences on the Netherlands are also crucial, showing a complex panorama of identitarian issues that are influenced by different factors. This myriad of factors shows that questions such as "what is Dutch culture?", "how do 'new' Dutch citizens adapt to the Netherlands and its culture" or "how are the Netherlands influenced by the influences of inhabitants with different ethnical backgrounds" are too short-sighted and simplified to be useful.

Site

The question why some people started settling in wetlands, central to this chapter and the whole work, is something that is actively studied and even answered in historical research regarding Amsterdam, located on the shore of the artificial waterway Ij connecting the North Sea and Lake Ij (Figure 42).

Take the official website of the city, welcoming people interested in the city and its history with the following sentence:

Waar 800 jaar geleden niets meer dan een drassig veengebied lag, prijkt nu de grootste historische binnenstad van Europa, met maar liefst 165 grachten, 1.539 bruggen en 6.800 beschermde gebouwen. Wat bezielde de Amsterdammers om in dit onherbergzame landschap een stad op palen te bouwen?

(Where 800 years ago there was no more than humid peat, nowadays the city with the largest historical centre of Europe lies, holding no less than 165 canals, 1539 bridges and 6800 protected buildings. What where the Amsterdammers thinking to build a city on piles in this inhospitable landscape?)

www.amsterdam.info, 2016

The site goes on to tell the well-known history of the city, and how its founding was only partially influenced by the resources and advantages provided by the landscape. The very first inhabitants chose this position

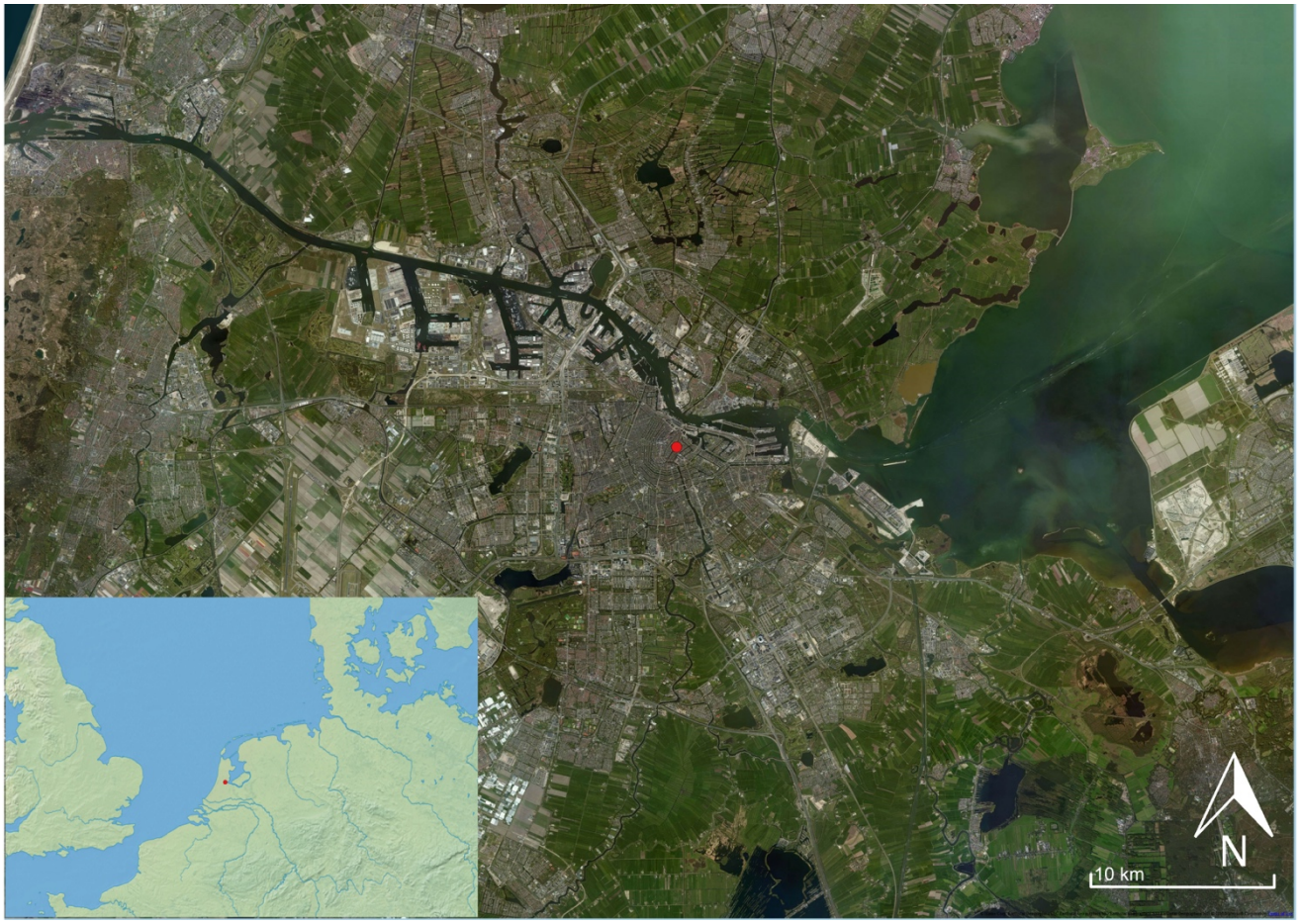

Figure 42: Location Amsterdam (the Netherlands). Data layers: OpenLayers – Google Physical; Natural Earth II by Tom Patterson. Generated by author (2020). Using: Qgis Version 3.10 - A Coruña

because it was fit for their fishing boats. In the 11th century a small harbor is built and gradually important features of a settlements are constructed, such as a church and a marketplace.

In 1275 a document, crucial to the further development of Amsterdam, was signed: the city received the privilege to levy tolls. After this the city grows very quickly and reaches its climax after the Spanish occupation is overthrown, in 1585. This period, lasting until 1672 when the Dutch lose their absolute control over the seas after the war against England and France, is historically known as the Dutch "Golden Century". Even afterwards the state keeps prospering, shifting the focus from seafare to banking. The *Beurs van Berlage* in Amsterdam is said to be the oldest stock market in the world.

The city is gripped by decadence and the Patriots ask the French for help in overthrowing the government. After this, in 1795, the Batavian Republic is proclaimed. This leads to a dramatic decrease of trade, the loss of many colonies and the city shrinks in size. It is only in 1813, when Amsterdam is proclaimed the capital of the brand-new *Koninkrijk der Nederlanden*, that the city starts its comeback. The following period is marked by the industrial revolution. The city grows again and is expanded towards the east, south and west. Towards the north the view on the Ij Lake is now obstructed by the Central Station. What follows in the 20th century are the dramatic events of the crisis and the second World War. Amsterdam used to be an important Jewish city, important enough to have its own Yiddish name *Mokum*. As a result of World War II this population is reduced drastically.

After recovering from the war the city prospers again and goes on to become an important hippy city in the sixties and starts its famous liberal softdrugs policy. This is when the widely spread image of Amsterdam and the Dutch as liberal and free originates. In the seventies many immigrants move to Amsterdam, contributing to the cities unique international atmosphere, nowadays housing over 869.000 inhabitants in 2020 of approximately 176 nationalities (www.cbs.nl 2020).

The city is constructed on piles because of purely practical considerations as the surrounding area is too humid to be able to provide a stable setting for regularly built constructions. This land was used as Amsterdam expanded strongly and quickly on several occasions in history, in which the most convenient solution was to build on piles to

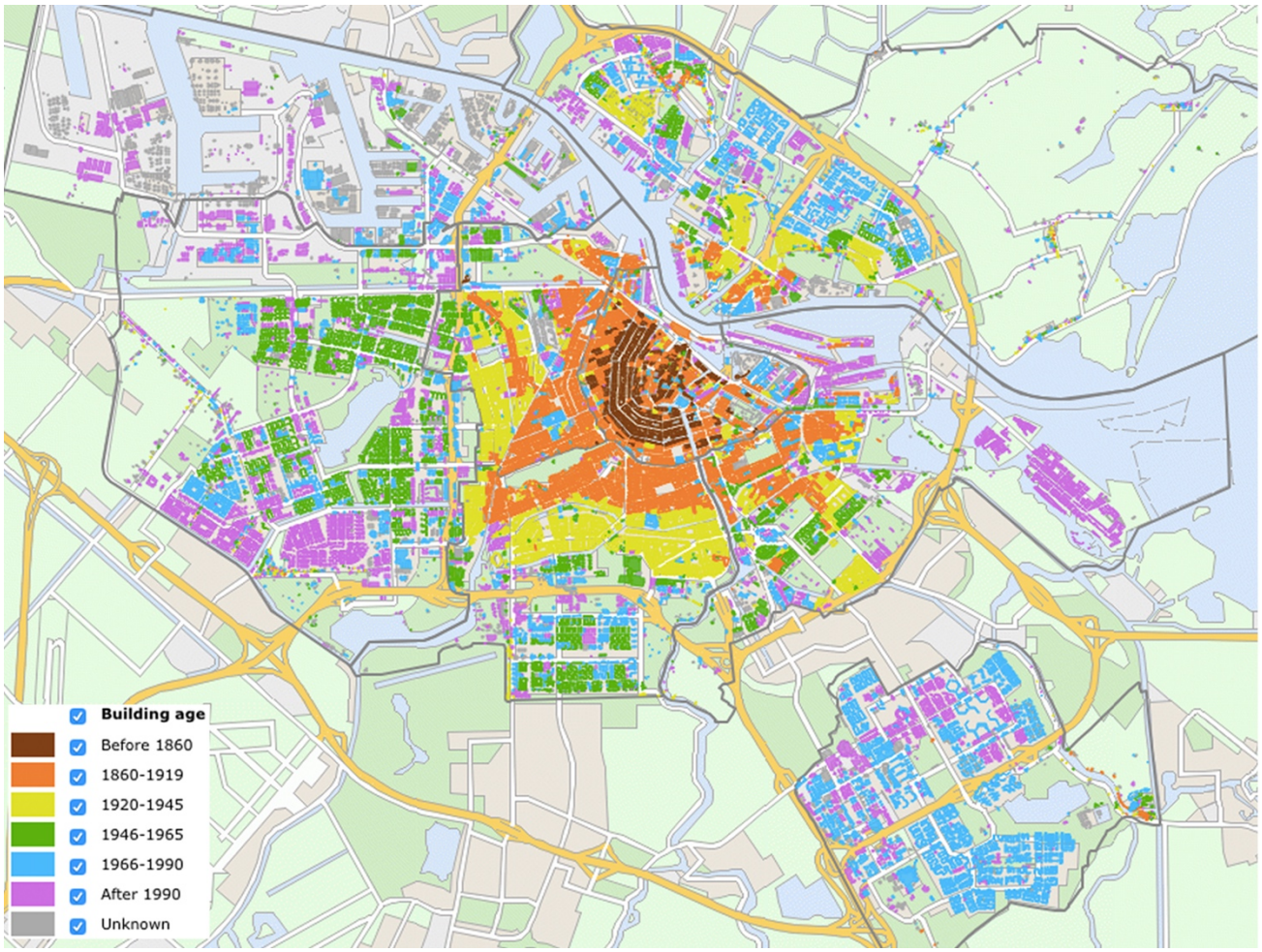

Figure 43: City development of Amsterdam (source: maps.amsterdam.nl)

ensure stability (Figure 43). The heart of the city used to be formed by the harbour. As this was the initial reason why it was built everything else was arranged around this point.

Nowadays this is not the case anymore as the harbour has lost its leading function in the Netherlands and Europe, this is now occupied by the harbor of Rotterdam. The heart of the city, easily recognized on maps old and new, is the Central Station. This station forms the barrier between the water of the artificial Ij Canal and Lake and the concentric construction of canals, effectively dividing the city into zones and nowadays price ranges. These canals are the main presence of water in the city. Different from the other sites that have been discussed, here the water is not as threatening on a daily basis, but domesticated through engineering systems and well-kept in canals. Naturally, the threat of water is still present, but the use of elaborate constructions such as the *Afsluitdijk,* an artificial dike separating the Ijssel Lake from the sea, and intricate systems of dikes and floodgates mark a strong difference.

Resources and aspects of daily life

Raw materials

The reason for building Amsterdam where it stands now was not because this part of the Dutch landscape was especially favourable. On the contrary, as was explained previously, the landscape formed more of an obstacle. The reasons to persist, regardless of this, was not because of a direct access to necessary raw materials, but to control the water. This outstanding position in the landscape eventually led to an important richness in raw materials.

Historically it were the ships of the *Vereenigde Oostindische Compagnie* (Dutch East India Company) and the *West-Indische Compagnie* (Western India Company) that were central to Amsterdam, controlling the trade in spices, textile and the latter mainly slaves, between the Netherlands and Asia for almost two centuries. It is impossible to mention the WIC without referencing the slaving past of the Dutch. A fact that, though one of the most important reasons for the Netherlands' success, is and should still be embarrassing for the nation.

Roots of this past can even be found in popular Dutch culture nowadays, for example in the current discussions surrounding the annual "Sinterklaas" festivities. In this traditional celebration Sinterklaas, a Turkish bishop living in Madrid and travelling to the Netherlands by boat every year, is assisted by helpers. These helpers present what were perceived as typically mooric traits such as dark skin, curly hair or golden earrings. This popular tradition is clearly influenced by remnants of a colonial past and is very racist. Therefore a discussion was started in which it is suggested to replace the dark helpers by colourful ones in order to avoid the racist undertone. This has led to national discussions, which would be a worthy topic for another study entirely.

The function of the city has maintained the same core, centred around the harbor. Also nowadays the Netherlands are one of the biggest trading countries, depending for a major part on export and import. It is usually assumed that the main export materials of the Dutch are flowers, cheese and other dairy products. Partially this is true, complemented by agricultural products. Although there is a very limited space available to cultivate, Dutch cucumbers or tomatoes can be found in many countries. The most important export goods, however, are refined petroleum, crude petroleum, petroleum gas, computers and packaged medication, according to the Observatory Economic Complexity (OEC). In the second half of the last century a gas field, the biggest natural gas field in Europe, was located underneath the Dutch province of Groningen. The exploitation of this gas field has brought the Netherlands economic success, but has had negative consequences for inhabitants of this province too, as houses are known to shift or tear as a result.

The Netherlands still rely strongly on their important trading position, though the products have shifted over the years. The core of this activity has shifted to Rotterdam nowadays though, as it has a bigger harbor.

Tourism

Returning to Amsterdam, this city's biggest import/export activity must be that of tourism nowadays. The city has gained international fame and for many represents the whole country. It is known for its canals, the red light district and the coffeeshops. Loose elements that have been added to this image are tulips, clogs, bicycles and the Delfts Blauw blue ceramic ware, typically from Delft. These elements are what forms the core of the tourist industry in the Netherlands and can be found in countless souvenir shops that are conquering the historical city centre and turning it into a tourist playground. This process, in which the centres of historical cities become hollow representations for the expectations of tourists and lose their original character and "livability" for its inhabitants has been addressed in an article by M. d'Eramo, in which he brands this process *UNESCOcidio* (in Spanish), which can be understood as "UNESCOcide" (D'Eramo 2014).

In this light, even the name of Amsterdam has become a brand representing different things for different types of tourists. There are the endless parades of bachelor parties and young foreigners searching out things that are considered "controversial" such as the consumption of soft drugs or visiting the red light district, but also those appreciating the architecture, canals or famous museums such as the Rijksmuseum or the van Gogh museum. The excessive tourism creates an image which has little to do with the actual reality of living in the city, but is wildly successful. So much that recently the beach at Zandvoort, nearby Amsterdam, has been renamed "Amsterdam Beach", to convince more tourists to go there, attracted by the brandname of Amsterdam.

Amsterdam Beach When the temperatures soar in Amsterdam, sun-seekers flock to the Dutch coast and the beaches at Bloemendaal and Zandvoort to bask on the sands and soak up the vibrant nightlife.

www.iamsterdam.com

This shows, apart from the writer's improbable optimism regarding Dutch summers, that not only the city but also its surroundings are being colonized by the demand of tourists, emphasizing how currently this is the most important factor of subsistence for a city that used to rely on trade.

Nutrition

The elements of which people's diet consists cannot be generalized easily as there are many different people with different preferences, either personal preferences or due to differing backgrounds, to whose needs the globalized market flawlessly caters. What used to be typically Dutch foods, such as carrots or potatoes, cultivated in the cold and wet environment, are now complemented by

countless alternatives from all corners of the world.

Generally, the Dutch eat three meals a day, two of those are often bread. Traditionally only dinner, eaten in the late afternoon, is served warm. An important element in all of these meals is usually dairy. Milk, butter and cheese are consumed frequently. Dutch cuisine is not very well-known internationally. Typical dishes are *erwtensoep*, a thick soup made of peas and winter vegetables, *stamppot* which consists of potatoes mashed with carrots or different cabbages and a sausage, *maatje,* which is a raw herring served with raw onions, or *bitterballen*, breaded and fried balls filled with ragout. Most "traditional" food are hearty meals meant for farmers in winter, but also fish is traditionally consumed often. The North Sea provides for example mussels, herring, common sole, eel or codfish (Productschap Vis 2017). Also ingredients such as *pindasaus*, peanutsauce, or *sambal*, a spicy sauce, are common, inspired by the southeastern Asian cuisine with which the Dutch became acquinted because of the *V.O.C.* history with countries there.

Material culture

Once upon a time, when the Dutch were mainly farmers and Amsterdam was an important fishing town the material culture must have reflected this. Agricultural and fishing tools from these times can still be found in folkloristic or ethnographic museums around the country. Nevertheless, as is the case with food, nowadays the only unifying aspect of material culture would be its reflection of globalization. Therefore, for the purpose of this study no further attempts are made to assess this broad category, otherwise so important for archaeologists.

Landscape

There the ocean flows with two intervals, at day and at night, in a tremendous flood over an immense land. Because of this everlasting struggle with the course of nature, it is doubtful whether the bottom is land or sea. In the area a miserable people live on high hills, or better on man-made mounds, just above the highest water level known by experience. On these mounds they have built their shacks and when the water is high they are like sailors, but when the water is low they look more like shipwrecked sailors. Then they hunt for the fish that flee with the water around their huts.

Gaius Plinius Secundus about the now Dutch and German northern coast (24-79 AD), Naturalis Historia

Dieu créa le monde, mais les Hollandais créèrent la Hollande

Attributed to R. Descartes, publication unknown

This topic was already briefly touched upon in the discussion of Amsterdam's architecture. As a matter of fact, it could not be wrong to state that in this case the landscape

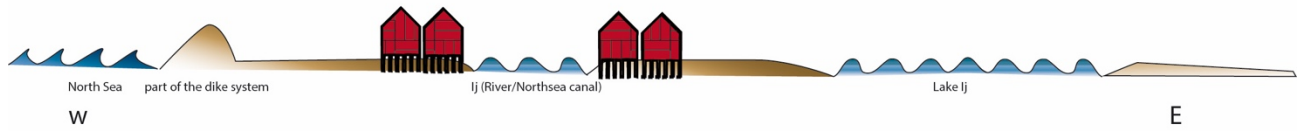

Figure 44: Landscape surrounding Amsterdam (image by author)

was designed, similar to how one designs the lay-out of a settlement. The landscape surrounding Amsterdam was once a tapestry of water and moors. In 1891 the plan was presented to build the *Zuiderzeewerken*, a system of constructions that would close off the Southsea and dry the land, making it possible to settle the area. This led to the youngest Dutch province: Flevoland, located directly next to Amsterdam.

The landscape that was created as a result of these engineering activities was one that nowadays is perceived as typically Dutch. As far as the eye can see a flat, green landscape stretches, interwoven with straight canals and irrigation systems. This landscape is called *polderlandschap*. A *polder* is artificial low-lying land that is enclosed by dikes. This can be reclaimed land, as is the case in the Netherlands, but also floodplains that are protected from water by a dike can be mentioned in this category.

This artificial landscape has a strong effect on people's perception of and relation with their surroundings. Whereas in the other discussed case studies landscape can usually be perceived as a foreign entity, on which certain significant places can be imprinted, in this case the landscape is the direct result of people's efforts. Therefore it loses some of the "natural", "wild" or perhaps even "mysterious" significance (Figure 44). This domestication of the landscape can also be recognized within the city of Amsterdam in the form of the canals. The artificial inclusion of the important element of water both illustrates its importance, and the power of the local people over it. The relationship with the landscape is accordingly different.

Ritual expression

The most important ritual features in Amsterdam pertain to the different religions that can be found there. It used to be mainly Christian and Jewish traditions that were practiced, as can still be seen in the older cemeteries or churches. From the beginning of settling the inhabitants buried their dead within the city, until 1866. Only Jewish people would bury their deceased outside of the city,

constructing their cemeteries far outside the city already from the 17th century. In 1810 French legislation forbade the burying of citizens within the city, this was shortly followed until in 1814 the French laws were replaced by the Dutch state. People exhumated their dead and buried them again in churches. Later the law was brought back, however, and in 1860 the first official cemetery outside of the city was built, which was taken into use from 1866 officially by everyone.

Before these regulations small cemeteries would appear and disappear throughout the city. In medieval times these places were common spaces, often used to carry out daily activities such as the mending of nets or letting animals graze. Sometimes, in the centre, these places could even be used for festivities or markets. Usually they were located close to churches or chapels. What is still visible nowadays are the inscriptions in the floors of the Oude and Nieuwe Church in the city (van Wijngaarden 1997).

Nowadays a great variety of religions can be added to this, first and foremost the Islamic one. According to statistic data from the Dutch *Centraal Bureau voor de Statistiek* (Central Bureau for Statistics) over the period of 2010–2014 the main religions in Amsterdam are Catholicism and Islam (both 11,4%), followed by several branches of Protestantism (6,1% altogether), Hinduism (1%), Buddhism (1%), Jews (0,8%) and "other" (6,1%) (CBS 2015).

As for any other ritual expressions, not linked to religion, in such a varied society, these are endless. However, there are no strong indications for a significant presence of water in important or common rituals. One can imagine that once upon a time, when the sea was a looming entity, possibly threatening the lives of fishers or sailors, these traditions could have been more present.

In this context it could be interesting to mention the *Schreierstoren* nearby the Central Station. This little tower, in translation called "crying tower", formed part of the medieval defensive walls. Originally it was called *Scryetoren*, as it was placed in a sharp turn and *scrye* meant just that. Nevertheless, as this tower was built overlooking the harbour often the wives of sailors would look over the sea from here, waving their husbands goodbye. Thanks to this tearful later function (*schreien* means crying in Dutch) it earned the name *Schreierstoren*, a monument to the close relationship Amsterdam's inhabitants used to have with the sea and the more emotional implications of this.

Regional overview

It is in this very last part, the regional overview, where we reflect on the focus on the city of Amsterdam for this case study, although partially the whole Netherlands have been included. This is a choice which might not be easy to defend as no separate "Amsterdam culture" can be directly recognised next to the common "Dutch culture.

There are several reasons why this approach was maintained, the most important one being that Amsterdam is a pile dwelling, and thus complies with the minimum requirement all case studies were subjected to. The Netherlands, however, do not fulfil this requirement. Although an intense relationship with water is central for the whole country, there are too many regional variations for it to make a short and concise case study. For example, underneath the internationally assumed cloak that was described above, represented by the liberal city of Amsterdam and other big cities, many Dutch are surprisingly conservative.

The possibility of evaluating a cultural identity within a cultural identity is a useful addition to this study as it can highlight certain social aspects that other case studies could not. This will undoubtedly prove to be an advantageous aspect in the following chapters.

TERCER MOVIMIENTO: LO DE DENTRO (COMPARISONS AND HYPOTHESES)

Whereas the last chapter was the core of this work in terms of data, this chapter is what gives purpose to the core. All four archaeological case studies are compared and contrasted, focusing on several key points, and a preliminary summary is made of the possible roles water played in the settlements. Subsequently, the ethnographical case studies are included too, leading to a series of comparisons and reflections on the same topic. This is all preparative groundwork for the discussion of three different formulated hypotheses in chapter 5.

Comparisons

Chronology

All of the sites have been dated to the Neolithic, although there are strong differences. The two central European cases are the only ones that represent the earliest Neolithic settlements in their region (Figure 45). Paradoxically, they are also the youngest, belonging to chronologies that would actually pertain to the local Middle Neolithic. In central and northern Europe the first Neolithic appeared around 5500–5000 BC with the Linearbandkeramik culture. Nevertheless, as the LBK settlers largely stuck to the fertile Löss soils, a strong geological border can be recognized just before the Alpine area (Seidel 2016). In this area Mesolithic evidences have been found from the time when other areas already knew Neolithic sites. The first occupation in the northern pre-Alps appears in the form of lakeside settlements around 4300 BC.

Along the Mediterranean coast the Neolithic spread earlier, around 6000–5500 BC, although also here the southern pre-Alps were not popular. The first settlements here, mainly lakeside settlements, appeared around 5300 BC, making them considerably older still than their counterparts north of the Alps. The unwillingness to settle the pre-Alps was overwon long after the initial “waves of neolithisation” had reached the Mediterranean and central Europe.

Here the Neolithic set in later with the lakeside settlements. Between the Mesolithic and this “delayed” start of the Neolithic there seems to be a gap. It is not surprising that many researchers set out to shed light on this topic. Many have furtively sought for indications of the Neolithic transition in the circum-Alpine region, as was described in Egolzwil 3’s research history, but with very limited success.

La Draga, which falls in between the Alpine and the Greek sites chronologically, is the only site that pertains to the Early Neolithic. It is one of the earlier settlements in northern Spain and has also received special attention because of the answers it could possibly offer on matters of transition. It has been interpreted as a colony of the maritime pioneer settlers (Zilhao 2001), mainly because in some interpretations it depicts a sharp contrast with the lifestyles of other contemporaneous settlements.

Finally, Dispilio in Greece is the earliest settlement of the four chronologically, but within its northern Greek context it already pertains to the Middle/Late Neolithic. The focus on questions regarding the transition is therefore not present, as it is in the other cases.

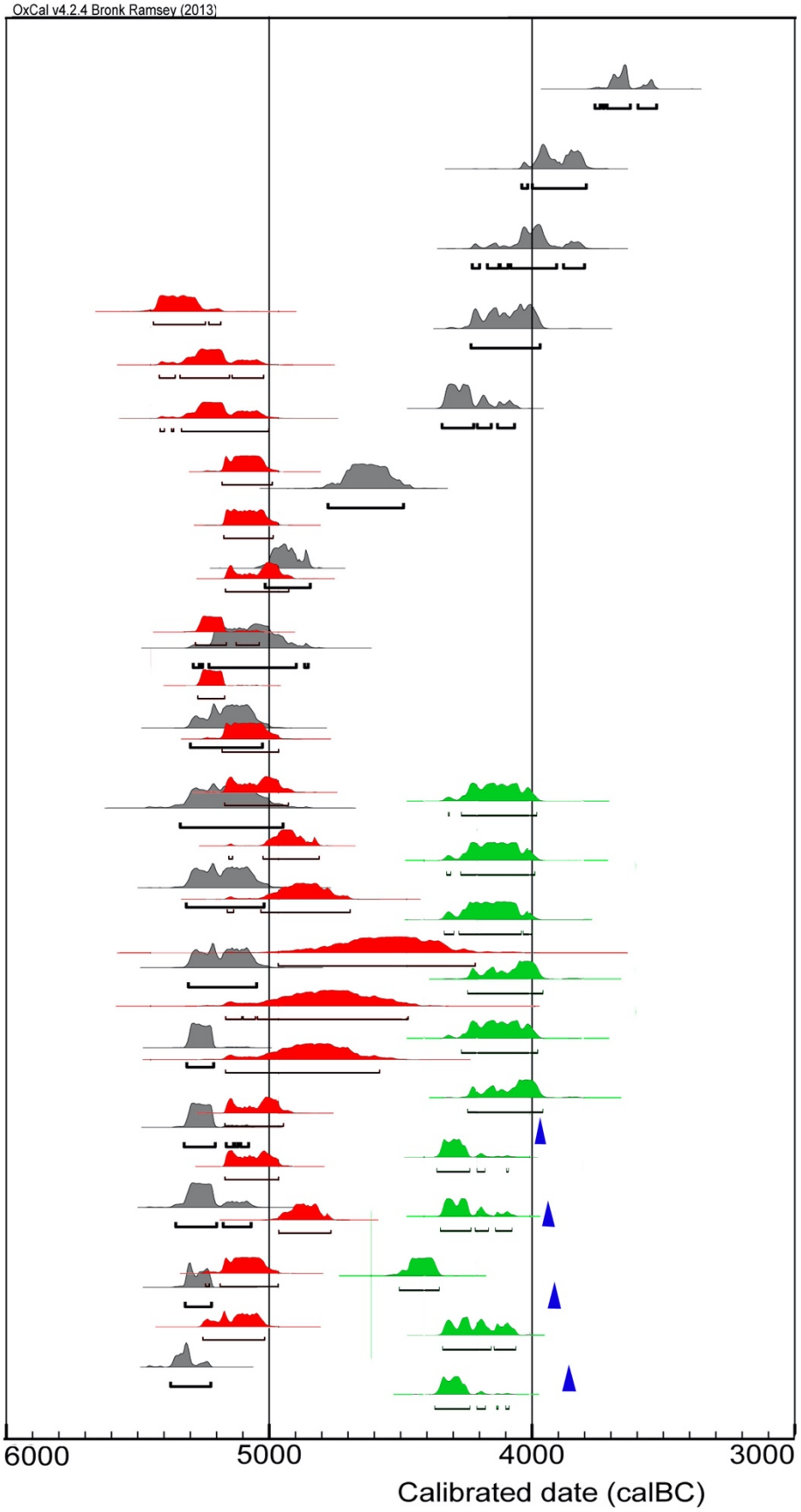

Figure 45: Combined selection of dating from Egolzwil 3 (green), Hörnle I (blue), La Draga (red) and Dispilio (gray). Data: see Annex 4, programme: OxCal v 4.2.4

Raw materials

Dispilio offers the image of what one could expect from a settlement consolidated in a Neolithic lifestyle (Hourmouziadi 2002). Paleobotanical studies show many remains of cultivated crops, mainly cereals but also for example lentils. The presence of storage pits, indicating a surplus in production, points to a very well managed use of agriculture (Touloumis/Hourmouziadi 2003). The animal remains confirm this image of a consolidated settlement; almost exclusively domesticated animals are consumed (Samartzidou 2014).

Nevertheless, not ovicapride meat consumption prevails, as it usually does in Mediterranean settlements, but cattle. La Draga too shows a consolidated Neolithic lifestyle. Still, due to regional and chronological variations this takes on a slightly different form than it does at Dispilio. The cultivation of crops is similarly "professionally" managed, but La Draga shows a strong prevalence of free threshing wheat (*Triticum durum*), which seems absent from the records in Dispilio. The consumption of animals is similar, in the sense that the strongest emphasis lies on the consumption of domesticated animals (Palomo et al. 2011; Antolín et al. 2014). Hunting is

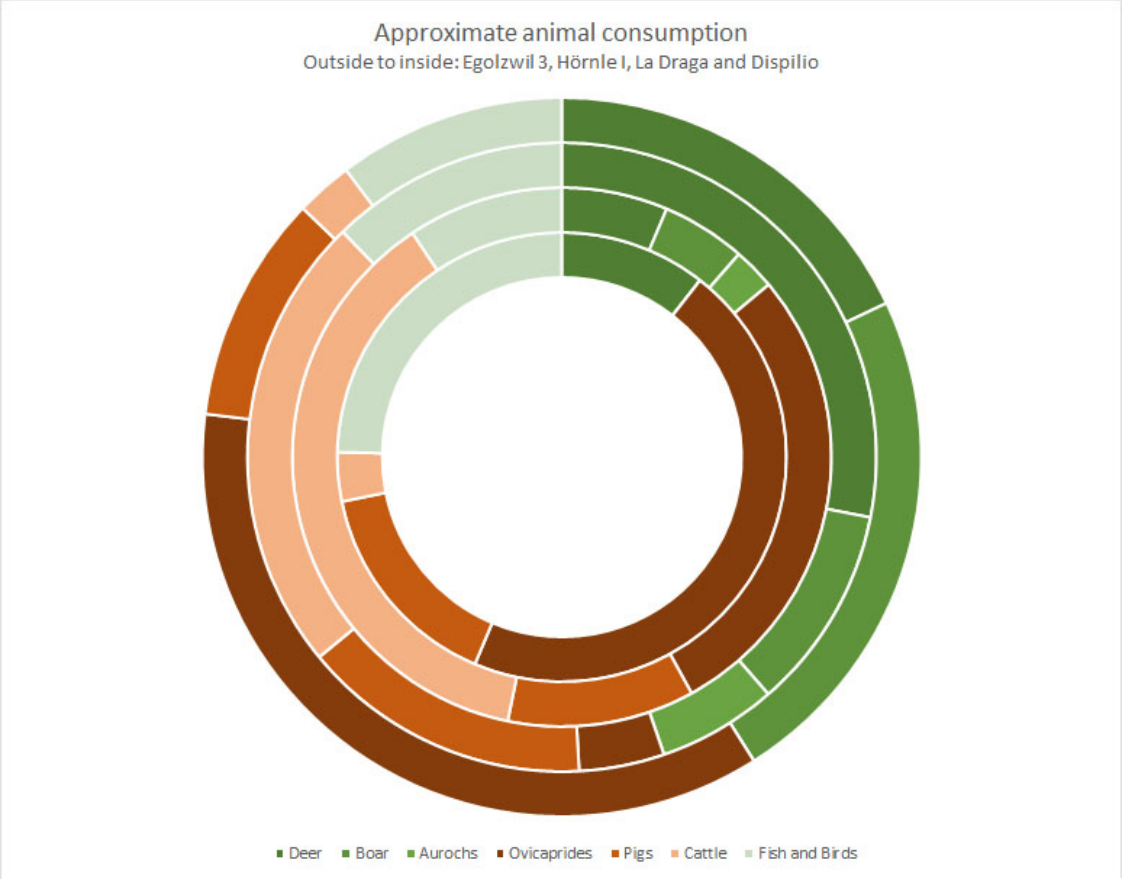

Figure 46: Approximate animal consumption at all sites (image by author)

merely a complementary, or perhaps even social, activity (Palomo et al. 2003).

The remaining two settlements show stronger resemblances to one another than to the other sites. Egolzwil 3 and Hörnle I are removed from each other in time by approximately 400 years, but still both belong to the earliest manifestations of settlements in their region. Apart from this, also spatially they are very close. In spite of being much younger than the other sites, Egolzwil 3 presents a diet that could be considered less "Neolithic", in the traditional sense of the word, opposing hunting/gathering and breeding/cultivating.

Here, the ratio of domestic vs wild animal consumption is nearly equal (Wyss 1994; Kokabi 1990). The domesticated animals are mainly ovicaprides, some pigs and very little cattle. The agriculture, on the other hand, is fully embraced at this site. The most frequently found cereal type here is, as is the case at La Draga, free threshed wheat (Böllinger 1994). Hörnle I presents a similar image in most aspects. Wild animal bones seem to prevail slightly.

However, among the domesticated animals cattle is by far the most important, leaving an insignificant amount of ovicaprides and pigs behind (Kokabi 1990) (Figure 46 and 47). Also in Hörnle I very similar crops are cultivated and there is a strong emphasis on free threshed wheat (Maier/Vogt 2001). All in all, each settlement shows unsurprising features belonging to its specific chronology and region. Although evidences of fishing have

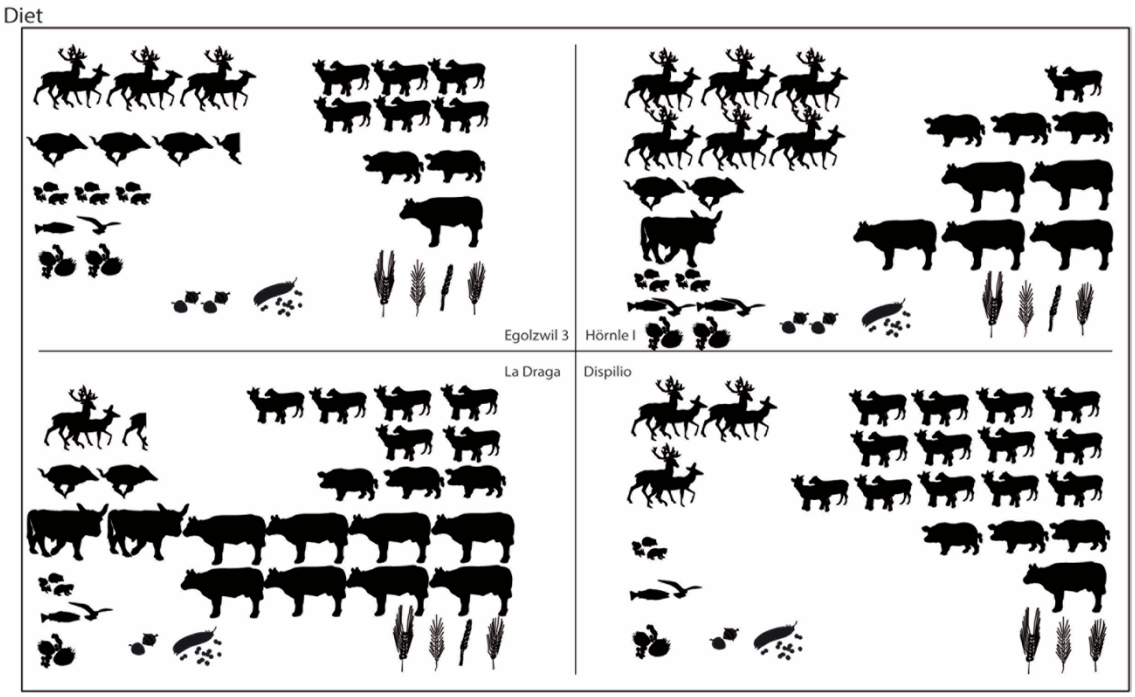

Figure 47: Different elements of the diet at all sites (image by author)

been found at all sites, not everywhere the same importance was ascribed to this activity.

In Dispilio the exploitation of lake resources is repeatedly marked as important, as is evidenced by nets and a great number of fish hooks. 40 bone hooks have been found here, constituting the biggest Aegean assemblage of fishing hooks (Theodoropoulou/Stratouli 2009). Other evidences of fishing tools are absent from the archaeological record, in spite of this researchers are confident regarding the important role of fishing and suggest also harpoons, projectiles and fish traps were possibly used (Theodoropoulou/Stratouli 2009).

Although it has been claimed that none of the prehistoric circum-Alpine lakeside settlements shows a strong focus on fishing (Pétrequin 2016), at Hörnle I the role of fishing is underlined (Dieckmann/Harwath/Hoffstadt 2006). Fish remains occupy 14,8% of the total animal remains and the presence of nets, netweights and fish hooks underlines this. Nevertheless, no indications for a strong specialization in fishing activities were found. In Egolzwil 3 the situation was possibly similar, as the presence of three different harpoon types and wooden net floaters could suggest.

Nevertheless, fish remains are not convincingly present in the archaeological record. This could possibly be due to a lack of excavation techniques permitting these remains to be retrieved at the time of excavation. Therefore, although the presence of the highly specialized and diverse harpoons can indicate a certain importance of the exploitation of lake resources, the actual role this played remains difficult to confirm.

Finally, at La Draga remains of some freshwater turtles, mussels, eels (*leuciscus cephalus*) and barbels (*mergus merganser*) have been found. Nevertheless, these evidences are labelled as “anecdotic” (Tarrús Galter 2008). From the waterbirds that were found on this site, usually each species appears only once or twice in the record. This indicates that these birds were caught rather coincidentally and no specialised strategies for their exploitation existed (Saña 2011). As this site has been investigated using modern techniques it is thereby confirmed that the resources offered by the lake played a negligible role.

Also the fishing tools found at this site are not especially numerous. In the catalogue only a couple of javelins were indicated as possibly used for fishing purposes. At some sites fishing formed an important part of subsistence strategies, as can be seen at Dispilio. At other sites its role seems to be much smaller, although admittedly this could be due to fish remains easily being overlooked in the archaeological record. Nevertheless, the variety and quality of fishing tools present at Egolzwil 3 could hold a similar "symbolic role" as the earlier discussed hunting tools at La Draga.

Here, researchers have suggested that although hunting did not play an important role for the diet, it was practiced rather as a social activity (Piqué et al. 2015). In this case one could imagine that the fishing of lakedwellers at certain settlements, such as Egolzwil 3 constituted a bond with Mesolithic practices and thus perhaps also a social or ancestrally guided activity. This possibility gains interest as these sites form part of a transitional period in their respective regions.

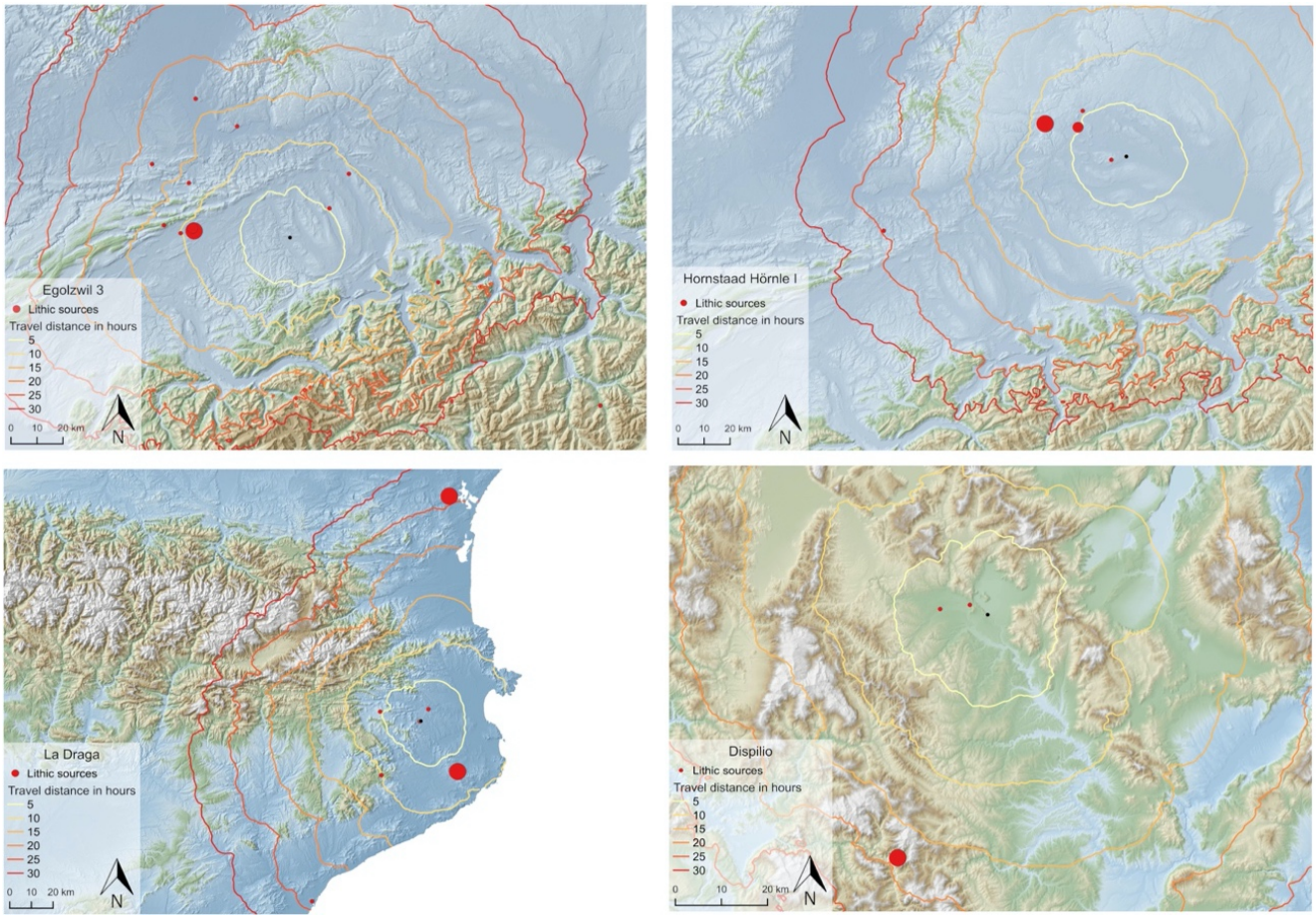

Figure 48: Overview of the distribution of lithic sources of all sites (image by author)

As for the lithic material, this is perhaps an even more diversified topic. It needs to be mentioned in advance that the interpretations are partially influenced by the different research strategies used on the sites (Figure 48). For example, as Egolzwil 3's lithics have been subjected to a rather detailed and extensive petrographical study, the map depicting the different sources is very varied and indicates many places (Kienholz 2011). For Dispilio on the other hand, although the lithic material has also been studied (Doulkeridou 2009), the map looks very different. The sources of the raw material have not been narrowed down further than river or mountain areas, which results in a perhaps simplified picture. Nevertheless, taking the different research methods and variations into account it is still possible to make several general, but useful, remarks about the management of lithic material at the case studies.

Egolzwil 3 presents by far the most varied image, partially, as was mentioned before, because of the detailed petrographical studies. A central source can be recognised in the Olten area at a distance of approximately 40 km, most of the lithic material came from here. Apart from this many smaller sources can be recognised spreading around the settlement in all directions, except to the south where the relief-rich Alps begin. A possible idea that could arise from the observation of this diversified exploitation is that perhaps the inhabitants of this settlement were not all too familiarised with the area and were exploring it. This could explain why there are so many different sources, spread around the site. This idea would fit in well with research done in the last century, when it was thought that Egolzwil 3 could be representative for the neolithisation of this region and was peopled with "newcomers" too (Wyss 1989).

Nevertheless, it could also be interpreted in quite the opposite way. For this second interpretation it would be necessary to have a look at the materials created from the lithic raw material. In case a specialised use of certain types of lithics can be proven this could mean that, contrary to the previous idea, the Egolzwilians were highly familiarised with their landscape and even specifically exploited it, obtaining different materials for specific purposes from specific places in the landscape.

One could go even further and claim that the landscape in this case plays an important role in the choice and creation of objects. Unfortunately, no sufficiently detailed published studies contrasting the raw material and typology of the lithic artefacts, permitting us to further explore this topic, exist so far.

Whether people were exploring the landscape as they were not familiar in it or whether the opposite is true, the fact remains that the area was exploited strongly. This is also understandable as there were no suitable raw materials to be found in the direct surroundings of the site (Kienholz 2011). Apart from this semi-local exploitation, also lithic

material from much further away has been found. It is probable that these materials arrived at the settlements as finished objects. Therefore, it is not necessarily interesting for the assessment of the people's own resource management and will be included in the part about supra-regional dynamics and contacts.

Hörnle I presents a very different image in this aspect. Here we can also see a very limited exploitation of the direct surroundings, which is surprising as the nearby *Schiener Berg* does offer raw materials (Hoffstadt 2005). However, a nearly absolute use of two sources approximately 40 km from the site is depicted. For the rest, the map remains empty, ignoring the long-distance trading routes for now. If we continue the reasoning mentioned previously, this could mean that Hörnle's inhabitants knew their landscape and went straight for the source they considered optimal, without spending too much time on smaller sources. The strategies for obtaining raw material vary strongly, which could be influenced by the specific conditions of the landscape or by different thought processes. Which brings us to the note that the landscape is not defined by the presence of the lake alone. In this case we can see that two settlements, close to one another, show quite varied realities in the aspect of obtaining lithic resources.

Moving on to the other sites, for La Draga several sources have been identified. As was visible on the map, most of the sources are located within a 10 hour radius around the site. The source of the most lithic material, however, is located at a considerable distance from the site. Nevertheless, due to the proximity of both this source and the settlement to the sea, the possibility that this source was reached by boat cannot be excluded. Another possibility is that not raw material, but rather ready made objects were imported or received from this source.

Dispilio is probably the most challenging site to interpret. The information regarding the lithic material is limited and so far only three sources have been identified. The nearby river would provide part of the raw material, but most of the lithics seem to come from the Pindus Mountains (Doulkeridou 2009). This mountain range stretches to the southwest of the settlement. Where exactly people would have found their material in these mountains is unknown, but taking into consideration what we know from the other settlements we may assume that this would be the eastern mountain flank, facing Dispilio. This would reduce the distance from the site to some 30/40 km, though the journey was difficulted by the strong relief. Also for this site, similar to Hörnle I, one main area for the obtaining of lithic material has been identified, apart from a few local sources which contribute a significantly lower number. In the case of Dispilio, we are dealing with an area which has already been settled for a long period of time (Grammenos 1996). Therefore it might be assumed that the positioning of a single main source could be the result of an extensive knowledge of the area and the conscious decision to mainly exploit this one. Possibly

Hörnle I presents a similar image due to this reasons too. Though it is one of the earliest lakeside settlements, it is not the first lakeside settlement in the wider region; simultaneous or previous evidences have been found nearby.

The other two sites, La Draga and Egolzwil, both show a more dispersed image and know a research history that suggests newcomers settled the settlements. Nevertheless, no parallel in the effects of this on the lithic exploitation can be drawn as the reality is far too complex to be reduced to (partially incomplete) petrographical analyses. What we can deduce from the analysis of the lithic raw material is that each settlement depicts a different reality.

The last raw material that is left to be discussed in this part is wood. For each region that is included in this study the same is true; in the beginning Neolithic the human influence that can be noted in the landscape is limited. This changes as people settle and start exploiting the woods for firewood, building material, animal fodder and material for the elaboration of wooden objects (Böllinger 1994; Maier/Vogt 2001; Revelles et al. 2015; Kouli/Dermitzakis 2008).

Also the surroundings of the sites are fairly similar in this respect (Figure 49). As the

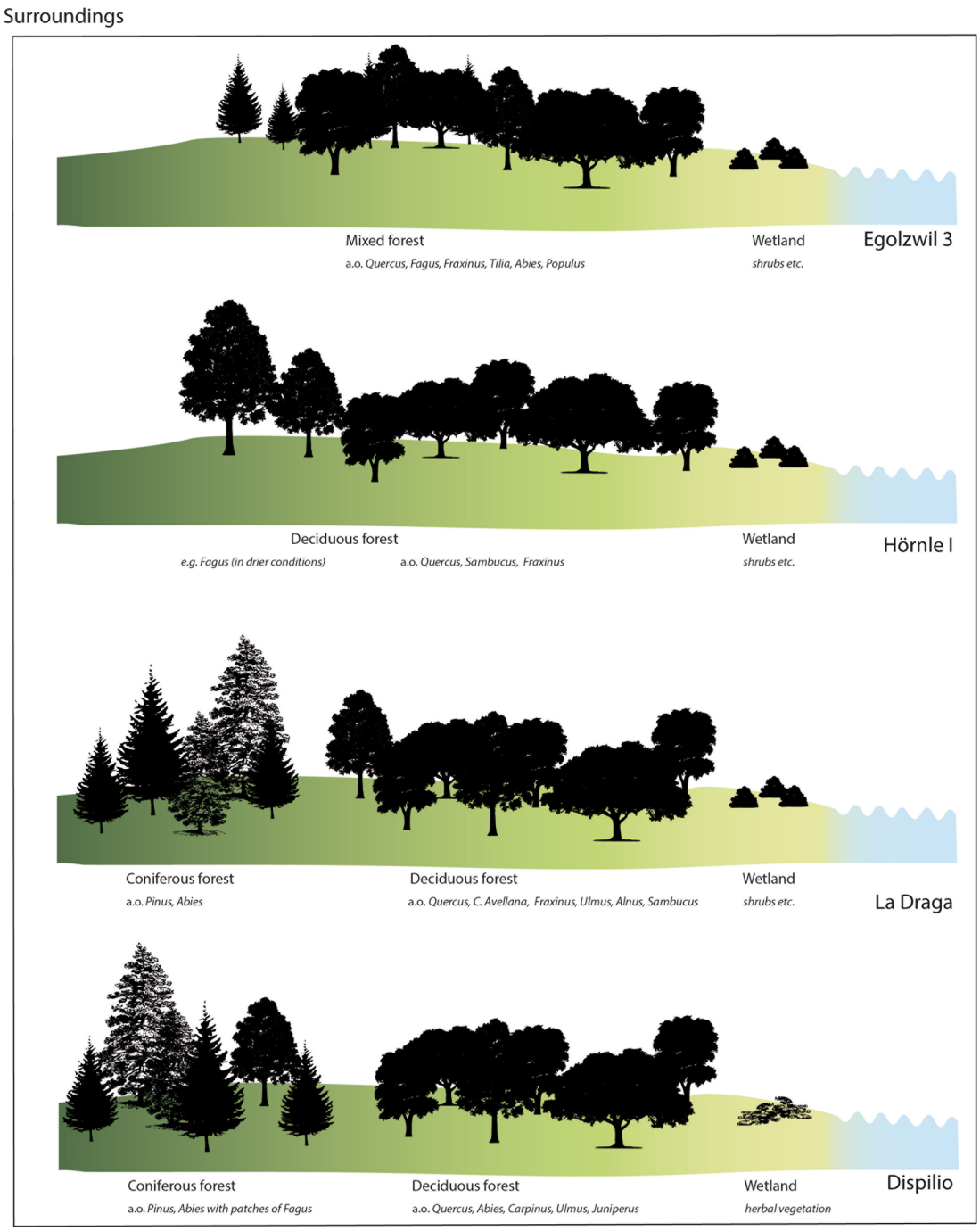

Figure 49: Overview of the surroundings at all sites (image by author)

direct vicinity of the lake is usually too humid as soil for woods, mainly shrubs can be found there. Moving away from the lake this is replaced by riparian forests, combining shrubs and trees such as beech or hazel. Gradually this merges into a deciduous forest with often oak, elm, alder and ash. On the invariably present hilly area nearby the settlement the vegetation is usually constituted of coniferous trees such as pines or fir. All sites represent a rather unified image of wood exploitation, though the surrounding woods differ slightly. The present wood types also provided sufficient variety for the people to be able to

specialise their activities, creating objects from specific woods (e.g. Dieckmann/Harwath/Hoffstadt 2006; Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2000). The wooden objects known from various lakeside settlements make an important contribution to the visualization of the first farmers' material culture, showing vessels and tools that formed an important part of daily life.

Material culture

The fact that Egolzwil 3 is eponymous for the so-called "*Egolzwiler Kultur*" is telling. Not only regarding the boxing in of "cultures" at that moment in research, which we do need to take into account, but also the fact that the pottery found at this site forms a unified ensemble. Almost all of the material is made of local clay sources, only some objects that do not correspond to the local style could have been imported (de Capitani 2013). This handful of *Schulterbandbecher* is said to link the site with the area further north. Otherwise, the Egolzwil ceramics are strongly linked to the area west of the site (Figure 50).

In this sense, even within the more or less simultaneous appearance of pile dwellings all around the Alps, differences can still be recognised. In no way do all of the concerned sites present the same materials. The similarities and influences can easily be accounted for by proximity and contacts. In the case of Egolzwil, these contacts are west-oriented, some sites with very similar pottery in France have been found (de Capitani 2013).

France holds some sites that are even earlier than Egolzwil, whereas southern German pile dwellings do not start appearing until the very end of the 4th millennium BC (Schlichtherle 1997).

Hörnle I shows that when they do appear, the prevaltently western orientation continues. Whether it is because Hörnle I was investigated parting from different principles or not, its pottery is said to be influenced by or linked to several different "cultures" (Matuschik 2011). The word cultures is placed between

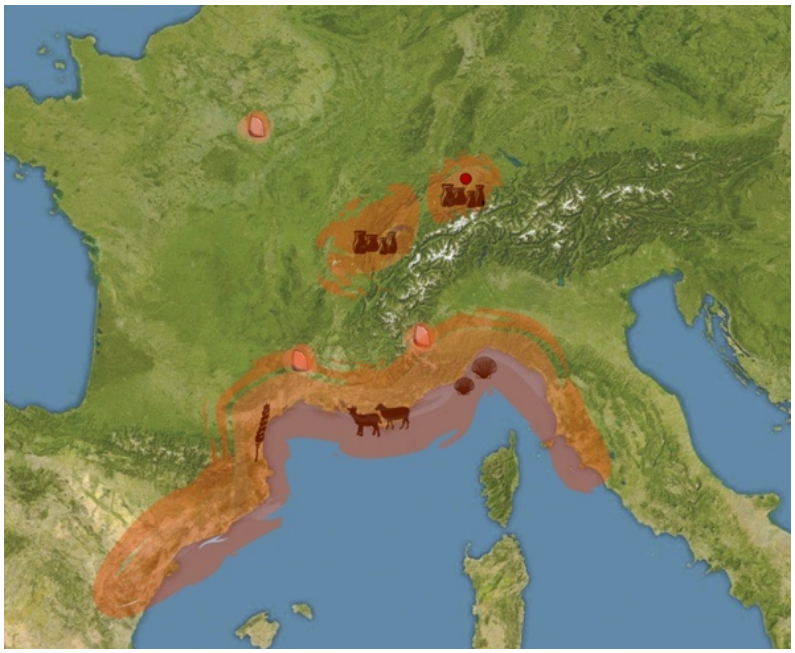

Figure 50: Overview of Egolzwil 3 within its context of influences and contacts (image by author, background: Google Physical, programme: Adobe Illustrator CS5)

quotation marks as it does not have anything to do with any possible definition of culture maintained in this work but rather as an archaeological taxonomical denomination.

Most of the pottery from Hörnle I is described as pertaining to the Schussenried tradition or the fairly similar Lutzengüetle one. Both of these pottery traditions have been identified in sites around Lake Constance and southern Germany (Matuschik 2011). Another key element from this site is the presence of gynaecomorphic vessels. These artefacts, which are decorated with paired knubs that make the vessel reminiscent of the female body, have been found in other sites too and are usually indicative for an early Pfyn "culture".

All of these elements situate the settlement within the context of the western Lake Constance and the upper Danube region. Apart from this, also regional adaptations of neighbouring traditions have been found, similar to Michelsberg ware and the Zürich-Kleiner-Hafner group (Matuschik 2011). Very few imported items were found. Egolzwil and Hörnle present a very similar situation, namely that of sites that are integrated in their environment and maintain contacts with surrounding settlements.

The ceramics reflect this on a small scale, but imported ornaments made of exotic materials such as seashells show that this is true also beyond the regional borders (Heumüller 2012; Wyss 1994) (Figure 51).

Based on the ceramic analyses an important difference between the two sites can be recognised, namely that whereas Egolzwil 3 seems to present its own ensemble, Hörnle I rather picks up on many different styles that are already surrounding it. This might have to do with the fact that Egolzwil 3 was one of the first sites in the area. On the other hand, it might also have to do with the names we have given to various shapes or decorations and the meanings we link to it.

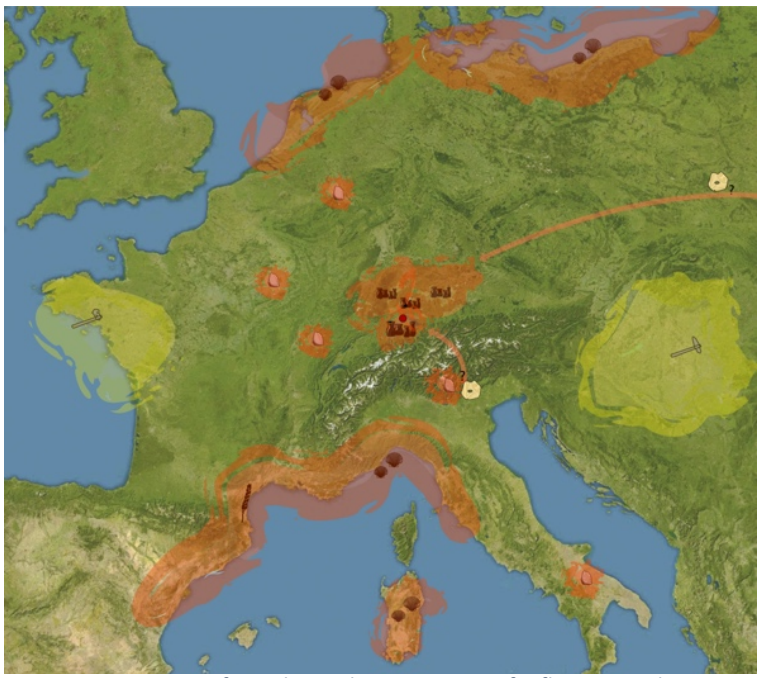

Figure 51: Overview of Hörnle I within its context of influences and contacts (image by author, background: Google Physical, programme: Adobe Illustrator CS5)

For La Draga and Dispilio the situation is different, perhaps even easier to assess, as these sites are placed within a region which is actively and relatively densely occupied by various types of settlements. Apart from this, the Neolithic research tradition in these countries is not as divisive as the German one used to be. For La Draga no imported ceramic objects are mentioned, the material is all locally made (Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2000). Nearby clay sources have been identified at approximately 1 km distance from the settlement. The pottery follows the tradition presented by Cardial Ware, which is typical for the early Neolithic in the western Mediterranean. As the decorations are relatively abundant and complex for some vessels the site typologically holds a position within the early stages of this ceramic tradition (Figure 52). In publications it has been stated that La Draga fits perfectly in the evolution of the Cardial Ware tradition of the western Mediterranean coasts (Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2000).

Also for Dispilio, three nearby clay sources have been identified and no imported ware is mentioned (Hourmouziadi 2002). The stylistic tradition is that of middle Neolithic ceramics in northern Greece and the Balkans: red or red-brown burnished spherical or hemispherical pots, decorated with various incisions, applications or paint (Sofronidou 2002). Remarkable at this site is the discovery of the only water-related evidence of pottery: boat-shaped vessels. This type of pottery is formed, as the name suggests, in a shape reminiscent of a boat. Authors have interpreted the presence of this pottery in Dispilio as a specific pointer towards the lake (Hourmouziadi 2002).

Generally, in order to find more creatively inspired expressions it is necessary to turn to Dispilio. In comparison the Alpine sites, but also La Draga, might seem uninspired. The figurines that are commonly found beginning at the Balkans/Greece and onwards towards

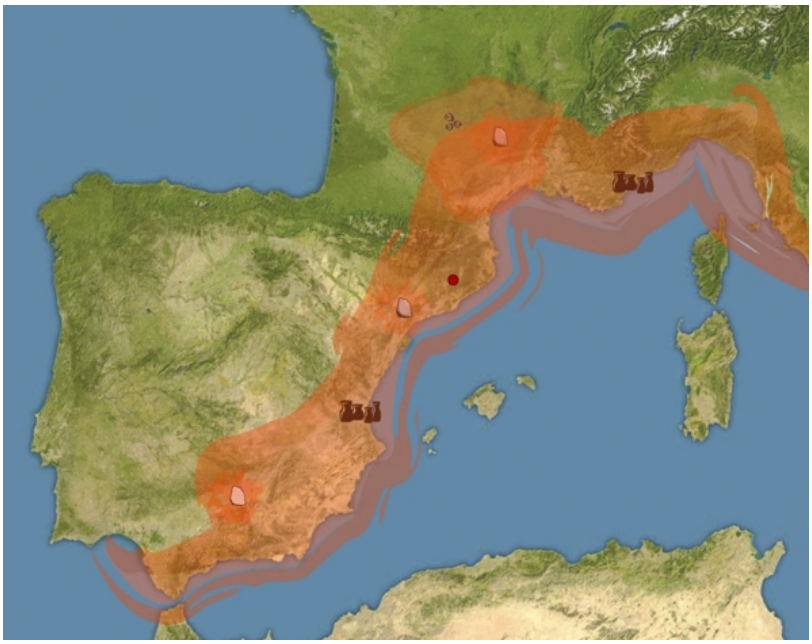

Figure 52: Overview of La Draga within its context of influences and contacts (image by author, background: Google Physical, programme:Adobe Illustrator CS5)

modern Turkey and beyond barely find parallels in central and western European prehistory (Ucko 1968; Thomas 2005).

Apart from the boat-shaped vessels and figurines also ceramic objects that could possibly represent houses have been found (Hourmouziadi 2002). This fits in the regional tradition, as similar items have also been found in the Neolithic of the surrounding countries (Figure 53). So far no comparisons with the actual houses or material from other sites can be made, but an interesting observation has been made: that, contrary to the usual elements that are found such as oven and furniture models, in Dispilio people seemed to be more interested in the exterior of the house, and made models of this (Marangou 2001).

Figure 53: Overview of Dispilio within its context of influences and contacts (image by author, background: Google Physical, programme: Adobe Illustrator CS5)

The next category is that of tools. This is both a very extensive and limited category and will in this case be discussed only shortly. Lithic, and in this case also wooden, objects are not easily divided into categories or traditions. Apart from this, for the wooden material we are missing links and comparisons to other sites. As pile dwellings are nearly the only Neolithic settlements with wooden artefacts, they can tell us a lot about how people lived and what they did, but not about how this was compared to other sites. For example, the tool handles made of wood or antlers have been a very interesting object category as it was previously unknown how the lithic blades and points could be worked into tools exactly.

Among the sites there are slight differences in the typology of these artefacts, but there are not many other evidences to compare this with. Therefore it is not possible to discuss this into detail. The tools found at the four sites are specifically adapted to each place to suit local necessities and continuing certain technical traditions (Wyss 1994; Hoffstadt 2005; Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2006).

What did receive a great deal of attention were the clearly

imported goods, or as they are often called: prestige goods. Perhaps the most detailed studies have been carried out by researchers working on Hörnle I (Heumüller 2012). The study of these objects is of great interest to situate settlements within the contemporary time-space dynamics. Some of the most remarkable artefacts are those made of silex coming from the limits of both northern and southern mainland Europe. It cannot be said with certainty whether the silex blades from the south of the Netherlands or the north of France, the silex blades from the south of Italy or the rock crystal arrowhead from the Alps were imported readily or whether people acquired the raw materials. In either case, it suggests a broad network (Dieckmann et al. 2016).

Another evidence of this are the Zug type axes, which are assumed to have been inspired by similar axes made of alpine jade in Brittany. Moreover, this link is interesting as it presents the possibility of a link between the pile dwellers and megalithic culture. So far there have been no funerary evidences from Neolithic lakeside settlements anywhere, but megalithic structures exist simultaneously on the western façade of the continent and further towards the centre too, as the Oberbipp dolmen illustrates (Ramstein/Schimmelpfennig/Lösch 2014). Some form of contact between the people responsible for the construction of both megaliths and lakeside settlements is probable, as is underlined by these axes. Another axe, from the so-called Aichbühl type is said to have been inspired by axes from the opposite side of Europe; namely those one could find in the Hungarian Lengyel culture (Dieckmann et al. 2016).

Egolzwil 3 seems to be more locally bound if one looks at its tools. The lithic objects do indicate contacts spread throughout Europe, but influences similar to those found at Hörnle I with its exotic axes seem to be missing here (Wyss 1994). The materials found at Egolzwil can prevalently categorized as functional. The only variation from this could possibly be the fishing harpoons, as several elaborated types have been found (Wyss 1994). This variety in fishing gear could be the first indication at this site of special attention for something that is inherently connected with the lake.

For La Draga the tool situation is slightly different. As we have previously seen, most of the lithic material is not obtained locally. It has been concluded by some researchers that most of the lithic tools in fact arrived at the site in a finished state (Palomo/Gibaja 2001). The local material from the site was also processed there, but this would be of an inferior quantity. Apart from this, the tool record presents a traditional picture, with studies having been carried out regarding the specialised use of sickles and other agricultural tools (Palomo et al. 2011) or the presumably ritual bows (Piqué et al. 2015). The same goes for Dispilio. The tools are representative and both indications that link the site to regional traditions and ones that connect it to more extensive trading and

contact networks. An example of non-local tools are the obsidian arrowheads which originally came from Melos (Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2000).

This connectivity is also, if not more strongly, reflected by the ornaments. As these items are not intended for practical use but hold more decorative or symbolic meanings they are often more elaborated than the tools. It is therefore not surprising that also the material and shape they take are often "imported" (Heumüller 2009). Also the ornaments found at Hörnle I extend the imagined network towards all directions over the continent. Shell pendants and ornaments could be provenient from the North Sea or the Baltic, others from southern France and Sardinia. The most spectacular object, however, is a copper disc which was possibly worn as an ornament (Klassen 2010). The presence of this disc at Hörnle I nearly seems de-contextualised, as it appears well before the use of metals in central Europe. It is one of the very first appearances of metal around the Alps, and it is thought that this disc was imported from somewhere towards the East, as metalworking was already common there at that point in time.

The presence of this object must have held a special meaning for the inhabitants of Hörnle I, as it is one of a kind. Nevertheless, not much more can be said about it as it was found in the interior of a house which does not show any special or specific characteristics apart from the presence of the disc (Schlichtherle 1990). As for the provenance of this disc, because of its style it has been argued that it must have come around the Carpathian Basin (Matuschik 2011), as metals were already in use there in these chronologies. Nevertheless, studies on the provenience of the metal itself seem to place it in the context of the Lessinian Alps (Klassen 2010).

In Egolzwil the most spectacular find was contained in a bag. This bag held a variety of objects such as *Triton* amulets and beads. These *Triton* shells, from the Mediterranean area, also place Egolzwil within an extensive network. The beads, on the other hand, possibly indicate relations on a more local scale as researchers have sought for parallels with Rössen style settlements, Zürich Kleiner Hafner or even Hörnle I. As for the more local ornaments, there is a strong focus on (probably wild) boar teeth and tusks, which has been interpreted as a possible indication for a special relationship people felt with this animal (Wyss 1994).

At La Draga, unsurprisingly, also sea molluscs have been found. These were used for ornaments, but also to create the typical Cardial ware decoration and for consumption. This type of ornaments corresponds to the Cardial ware tradition. Apart from this also some special elements were found, perhaps the most spectacular being a marble bracelet and a marble vase. Because of the technique used to make this vase it has been suggested that these objects were imported from the Near East, possibly Egypt, Cyprus or Greece (Bosch

Lloret/Chinchilla Sánchez/Tarrús Galter 2000). Also in Dispilio the most commonly used material for the elaboration of ornaments are shells. The use of this *Spondylus* shell is considered a typical element in the Aegean Neolithic (Facorellis/Sofronidou/Hourmouziadis 2014). A stone ring idol pendant situates Dispilio within Late Neolithic trading networks in Greece.

Architecture and the organization of space

Since the 1980s there has been a so-called spatial turn in archaeology. This re-discovery of space as a factor in research was an important moment for humanities, especially when it came over to archaeology and researchers were allowed to look up from their materials to appreciate "space". Space is able to hold many concepts and a significant meaning as its own definition can be elusive. Space is defined by the presence and absence of certain elements. What makes a house a house? By erecting four walls it is possible to delimit the space which the house occupies, but these walls are not the house. It is rather that what resides within them, which at that point is mere air.

In philosophy this topic has been dealt with as well, and these approaches can help us to understand the dimensions of architectural interpretations in archaeology too. An example is the so called sky-scraper of Blumenberg. The German philosopher Hans Blumenberg explains that when in 1857 the first elevators appeared, it was not because of a real need for high buildings. What could be observed in this shift in architecture, more than the saving of space as could be easily assumed at first sight, was a change of the social structure from a horizontal to a vertical focus. On the one hand, the tall sky-scrapers were a clear sign of power, towering above all other buildings and this dominating the landscape, assigning a very impressive role to the organizations and administrations they housed. On the other hand, the "real" dimension of trading goods and mercancy had become less important than the exchange of abstract data, the transit of decisions and managers and so on. The latter were served well with the tall buildings, expressing a capitalist infrastructure and, again, expressing economical power.

Therefore this building technique made a certain working structure possible, but on the other hand also the perfection of these techniques was impulsed by the change of the working structure itself (Blumenberg 2013). This example shows that the explanations that can be found in a structure or building are not enough, they need to be understood in their social and productive context as these are the conditions for its existence. Especially for the vernacular architecture, found in all of the archaeological case studies incorporated here, these thought processes and meaning are reflected.

Vernacular architecture means that buildings were constructed using local raw materials and following traditional techniques

transmitted by and among a certain group of people. The main characteristics of these buildings would be that they are adapted to their environment. This defines prehistoric architecture pretty concisely. Human building involves decision and choice, it is never as simple as finding the material that is nearest to your position and turning it into a shelter. In this respect human architecture differs from any other. This is defended by Marx too, who states that what distinguishes the worst architect from the best of bees (with their intricate and admirable beehives) is this, that the architect raises his structure in imagination before he erects it in reality. He not only effects a change of form in the material on which he works, but he also materialises a purpose of his own that gives the law to his modus operandi, and to which he must subordinate his will (Marx 1906).

Therefore architecture expresses thoughts and ideas and cultural aspects can be deduced from it. This view is not supported by all researchers for vernacular architecture. In his book, tellingly titled "Architecture without Architects", B. Rudofsky argues that "simply" using local resources and fulfilling local needs is not considered to be the work of architects (Rudofsky 1964). Nevertheless, in answer to this it should be argued that the intertwining of function and style is the mark of cultural behaviour (Lemonnier 2012). This is the stance the current work parts from too. A result of the "spatial turn" mentioned in the beginning is also the development of a new field, called *Architektursoziologie*.

Architectural features are thought to reflect society, and it is investigated empirically to what extent a society is represented in architectural remains (Schubert 2010). As was indicated earlier, the study of architectural features has been taken up by several researchers in the case of pile dwellings, and it is becoming a very inspiring line of investigation as it is highly social. Ebersbach for example poses the question whether we can derive social meaning from buildings in the same way the opposite is true (Ebersbach 2013). Is it possible to recognize existing social meaning in the architecture and lay-out of settlements? She argues that pile dwellings are the ideal subject to test these theses on, as so many architectural elements which would be missing at any other type of settlement are still present and they have been studied well.

The most important factor when speaking about the structuring of pile dwellings is probably the fact that they were generally very short-lived and were in need of repair and maintenance constantly. People seem to be constantly on the move, creating, adapting and abandoning settlements in a high speed. It has been observed at some of the circum-Alpine settlements that different wood was used for the construction of some houses, point in case could be Hörnle I. Usually this was the case during a certain period of time or for a certain part of the settlement. It is still not clear whether the use of qualitatively inferior material

was due to the (temporary?) lack of other wood, or whether there is any social explanation for this.

An interesting alternative interpretation is that the wood type was not as important as has been assumed so far, and this practice evidenced that these houses were meant to last for a limited period of time (Ebersbach/Bleicher/Bolliger 2016). The main theory linked to this is that of corresponding and non-corresponding societies. For the first it is argued that the living space is bigger than the social groups, meaning that any social meaning takes place within this space. For the

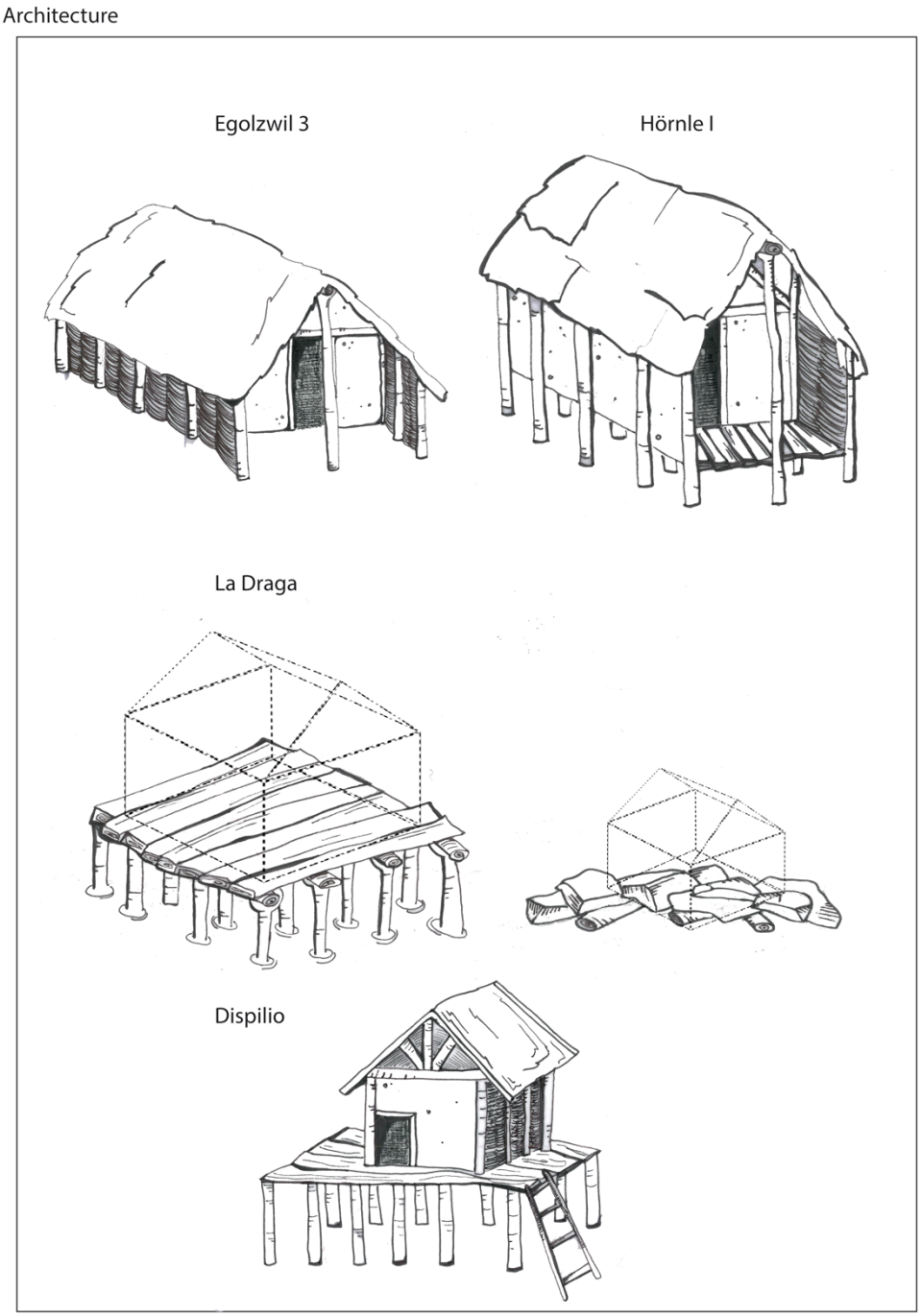

Figure 54: Sketched impression of architecture at each site (image and drawings by author)

latter, it is argued, the space is too small to hold the required social groups, meaning that people have to move beyond this space and in different directions to maintain their social groups. The latter would be the case of the pile dwellers, leading researchers to suggest that perhaps unstable settlements led to or were a result of stable networks (Ebersbach 2010; Ebersbach 2016; Hofmann et al. 2016). The central European pile dwellings are hardly examples of steady settlements, as Egolzwil 3 and Hörnle I confirm. The question is what meaning we can deduce from this.

Egolzwil 3 was located on the lakeshore of a small lake, approximately 5.5 m2, its houses were not elevated but placed directly on the shore. This is different in Hörnle I, where the houses, though on the shore, were elevated on piles. Also, even though both settlements were placed next to a lake, the experience of each site was probably very different. Whereas the Egolzwilians looked out over a small lake, the Hörnlians were confronted with the clearly larger Lake Constance. La Draga is more similar to Egolzwil in this respect, located next to the Banyoles Lake, which is also overseeable. Part of the houses here was placed further away from the water, directly on the ground, and another part was elevated on piles and built next to or in the water. As for Dispilio, it remains unclear whether the houses were placed on the lakeshore or in the water. The current theory accepts both possibilities.

In this respect we can already see that settling near/on the lake is not always the same. Added to this there are the specifics of the organisation of space in each settlement. In general the settlement lay-outs look rather similar. Egolzwil 3 shows the pattern that can be found in many Alpine settlements, namely that of small rectangular houses, aligned in rows (Wyss 1989). Hörnle I seems to break with this, as the houses are placed a bit more chaotically (Schlichtherle 1990). Nevertheless, it needs to be added that only a part of the settlement was excavated and we cannot know whether the whole site was structured like this. Otherwise, the houses are of similar dimensions.

Also La Draga presents small uniform houses, although changes do occur between the wetland and dry-land areas and in the different settlement phases. Interestingly, the wet and dry parts of the site are also separated by a wooden palisade running through the settlement (Bosch Lloret et al. 2011). This could have very strong implications for the ideological organization of the site. It is highly improbable that this structure was used for defensive purposes as it would not be strong enough for such a task. From Dispilio not much is known about the actual settlement lay-out. The houses are thought to have been rectangular and curvilinear and elevated above the water, but how they were actually distributed remains unclear for a big part (Facorellis/Sofronidou/Hourmouziadis 2014). There is, however, an important similarity to be

drawn with La Draga, in the sense that also at this site different types of structures were present. Also Dispilio could show a combination of elevated and ground-level buildings. It is possible that the two latter sites follow this model and so make use of the available space in the most practical way (Figure 54).

Also the internal spatial divisions at sites have led to interesting research, mainly in the circum-Alpine are. At the Swiss site of Arbon-Bleiche 3, for example, investigations have shown that the settlement is internally divided regarding the diet people follow. In other cases differing material records have been discovered inside the houses. All of this is impulsing new, more social lines of research in pile dwelling archaeology (Ebersbach 2013). An example which is slightly later, but still Neolithic, can be found at Zürich Mozartstraße. It has been found that people there, pertaining to one and the same "tradition", built a wide variety of different houses (Ebersbach/Bleicher/Bolliger 2016). The houses differed in shape, size and orientation, which is relatively uncommon as most pile dwelling settlements indicate highly uniform houses. This possible need to stand out or differ could also be interpreted at Parkhaus Opéra, where a palisade divides the settlement. This plays into a line of investigation in which the differences between houses or the inventory of these are ascribed to the differing background of their inhabitants, suggesting that people from different places were temporarily settling together (Ebersbach 2013). This concept breaks through our almost unconscious and automatical assumption that each settlement forms a social unit.

Another aspect of internal divisions within settlements is the duality between living spaces and working spaces. Though manifested differently, at each settlement this can be traced back. The clearest case of this has been presented on the topic of Egolzwil 3, where researchers have been able to draw divisions between parts of certain houses, designating clearly practical functions to some (Dieckmann/Harwath/Hoffstadt 2006). A similar vision has been proposed for Dispilio, suggesting that domestic activities such as cooking would have taken place inside the house and activities related to subsistence strategies, such as repairing fishing nets, on the platform outside the house (Kalogiropoulou 2013).

In Hörnle, although each house is described as an individual "economical unit", certain areas with high amounts of certain materials and production remains were found, indicating possible workshops of beads or lithics (Dieckmann/Harwath/Hoffstadt 2006). Finally, at La Draga the division between working and living seems to have stretched even further and covered the whole settlements. The area closer to the lake has been designated as a "living area" with domestic buildings, whereas in the area of the settlement that was located a bit further inland workshops have been found, leading to the

interpretation of this area as a "working area" (Bosch Lloret et al. 2011).

An important contrast in the duration and effort of maintenance for sites can be found between the Alpine and the southern sites. Whereas the German and Swiss case studies were very short-lived, La Draga and Dispilio seem to have resisted a bit longer. Egolzwil was occupied for 9 years according to dendrochronological dating, Hörnle's first phase lasted for some 8 years. After a destructing fire people rebuilt the whole settlement, only to abandon it a couple of years later. La Draga shows a strong contrast, as it was occupied for approximately 200 years. This long duration of the settlement is perhaps one of the most fundamental differences between La Draga and the circum-Alpine sites. If the previous assumptions regarding settlement stability or dynamicity and how this is a reflection of the societies that inhabit them can be accepted, this could draw a firm line between the way the southern and northern sites presented here can be interpreted.

Dispilio was inhabited from the Middle Neolithic until the Early Bronze Age, making for a period of approximately over 1500 years. This indicates a very long continuation of the settlement, layering one settlement layer on top of the other and thus forming a mound (Karkanas et al. 2011). In this sense the site fits in very well with the contemporaneous tells in its region. The Neolithic is marked by very long-lived settlements which ended up forming multi-layered tells or mounds. It is interesting to see that a lakeside settlement, which if it differs in anything it would be the spatial set-up, still follows this "standard".

Landscape

The landscape is widely recognised as an important factor in archaeological research nowadays. Nevertheless, the usual focus on evidences within the boundaries of the settlements does not contribute to a wider assessment of sites within their landscapes. An example of how to do so could be found in the work of R. Bradley, partially based on M. Eliade (Bradley 2000; Eliade 1964), in which a cosmological model is created, dividing zones in the landscape in sacred, transitionary, every day and dead zones, thus forming the upper and lower world and the everyday world in between.

A similar division is very difficult to establish for archaeologists concerned with lakeside settlements. This is mainly due to the fact that we do not find any deceased, eliminating the dead zone and thus the lower world, and very scarce remains that could be dubbed sacred, thus also eliminating the upper world. Without these upper and lower worlds all we have left is the everyday world, as also the areas of transition disappear without having anything to transit into. This does not mean that these areas do not exist, but it is very difficult if not impossible to identify them. Nevertheless, an attempt is made to discuss and contrast the features that can be identified at each site.

What is nowadays the *Wauwilermoos* used to be a small lake in the Neolithic. This lake was fed by the Ron River, fed in turn by the Wigger which comes forth from the Aar. Towards the northern site the lake was

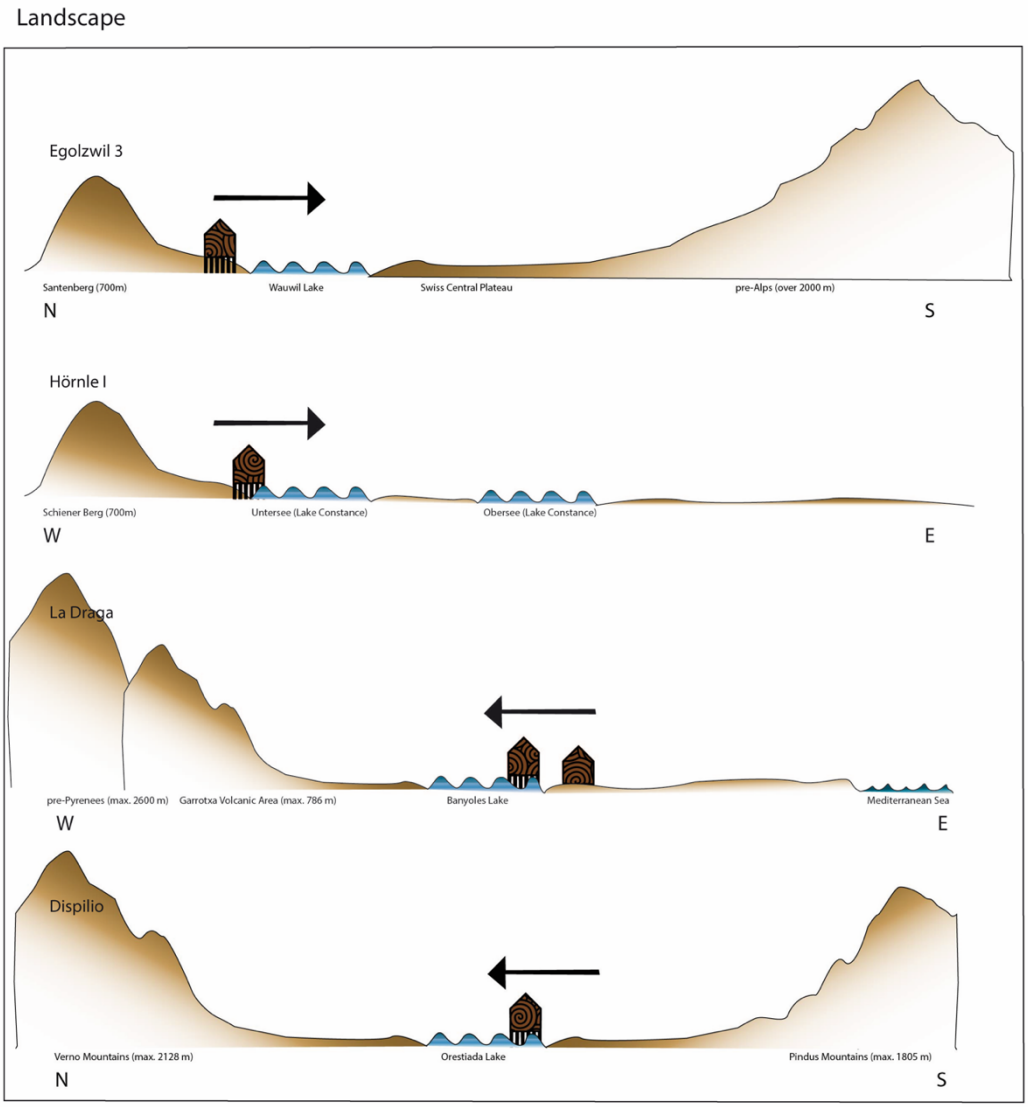

Figure 55: Important landscape features at each site (image by author)

sheltered by the *Santenberg* (690 m). The landscape opens up towards the south, offering the panorama of the high plain between the Jura and the Alps. The next border in the landscape in this direction are the Alps, which are also visible on clear days. Not far southeast from the lake another, bigger, lake can be encountered. The settlement of Egolzwil 3 was located on the northern lakeshore. Although the settlement was built on piles, it was not elevated above the ground (Wyss 1994).

As the houses were facing the water the view would be that of the lake and the plateau stretching out beyond it, before being interrupted by the Alps. This placement differs strongly from that of Hörnle I. In this case the site was placed on a small "peninsula" stretching out into the water of Lake Constance, fed directly by the Rhine from the west. To be exact, the part of Lake Constance that is also called the *Untersee* nowadays. The shape of the lake is now irregular, so that the *Untersee* is connected to the main body of water by a narrow waterpass. The irregular shape of the water, as opposed to the impressive unified part of the lake that can be found towards the east, makes for a special view on the mosaic of land and water from the site.

Whether this was the same in the Neolithic cannot be said without further specific research, but it can be said with certainty that the interaction between land and water here is more equal in comparison with, for example, the Wauwil Bog of Egolzwil. Whereas the inhabitants of Egolzwil looked out over a lake, being able to define each limit with the naked eye, the people of Hörnle witnessed a very different panorama. In this case, the presence of water perhaps played a stronger role in the landscape as it may have seemed less manageable. The position of the site, on the tip of the small peninsula surrounded by water from three sides, only contributed to this. A similarity with Egolzwil would be that also Hörnle is nested between the water and some hilltops. The relief is not very pronounced here, but still the site is sheltered from the west. Nevertheless, this position between lake and some sort of hill cannot be made into something typical even though these two case studies show it.

Around Lake Constance and the *Wauwilermoos* both many more sites have been found, regardless of the side of the lake or what features appeared directly behind it. As a matter of fact, when adding the rest of the lakeside settlements on those two lakes to the equation it becomes clear that the important thing was to settle on the lakeshore, regardless of the orientation regarding the lake.

As for La Draga, the settlement is placed on the eastern side of the Banyoles Lake. This lake is, much like it used to be in the Neolithic, shaped in the form of an eight, spanning a surface of approximately 1.12 km2. It is estimated that the lake used to be bigger, expanding the

lakeshore some additional metres into the land. The site is placed between the lake and a plain on the western side, which is only interrupted after approximately 30 kilometres, by the seashore. Access to this side was open, which might explain why people chose this side of the lake to settle.

On the other side of the lake and towards the south a more relief-rich area rises in the form of the la Garrotxa volcanic area in the west and the Guilleries in the south. Further towards the north, the Alta Garrotxa and the hills of the l'Albera park limit the plain. Lake Banyoles is situated on the westernmost part of this plain, before the hills start, hugged from three sides by these forested hilltops and looking out freely only towards the east, where the sea stretches out. Naturally, the hilly area would be more difficult to access. Nevertheless, people exploited it, as is shown by for example the provenance of lithic materials or the close contacts that were maintained with other sites. Regarding other sites, in this case several contemporaneous settlements have been found in the area. Also on the shore of Lake Banyoles several archaeological evidences have been found, though never conclusively indicating another pile dwelling settlement (Bogdanovic et al. 2015).

Our last site, Dispilio, is a special case. As was mentioned previously, this settlement was placed on a mound containing all material of previous phases. In the Neolithic, which constitutes its first settlement phases, this mound must not have been very elevated still. The theories regarding the exact position of the structures of the settlement in this time still differ and various reconstructions exist side by side, placing the houses on the shore, in the water or both (Karkanas et al. 2011).

Apart from Dispilio no other evidences for lakeside settlements have been found at Orestias Lake. Nevertheless, nearby, just over the border with North Macedonia (FYROM) and also in Albania more lakeside settlements have been found on the lakeshores of Lake Ohrid or the Korça basin for example (Naumov 2016; Cabanes 2008). Dispilio does not stand alone in its environment but maintains a close and dynamic relationship with other contemporaneous settlements in what is described as the "passage between Europe and Anatolia" (Andreou/Fotiadis/Kotsakis 1996). The area is caught between two hill ranges. Towards the west there are the Pindos mountains and towards the west the tops of the Pelister National Park that actually has its highest peaks in modern day North Macedonia. Following this pass towards the north one encounters the earlier mentioned lakes of Prespa and Ohrid, which are considerably larger than the Kastoria Lake.

The area in which Dispilio was set is and was characterised by a "wild" landscape, with many hills and mountains. Approximately 100 km towards the west and east the Ionian and Aegean sea can be found respectively. Nevertheless, these presences were mainly overshadowed by the mountains, as these not

only covered a possible view of the sea with their tops, but also made access complicated. Therefore the most important water present at this site was undoubtedly that of the lake. As a matter of fact, this is also the only one of the case studies which also holds non-functional artefacts related to the lake. In Dispilio several boat-vessels have been found which could reflect the role of water in the material culture (Marangou 2001).

Looking at Figure 55 it becomes clear that all settlements have another common trait, apart from being located on the lakeshore. Namely that they are all, to a higher or lesser extent, placed in the vicinity of mountains. The added advantage of this is often a favourable micro-climate, except in the case of Egolzwil 3 which suffers from a rather unfavourable micro-climate as a result of its position in the Wigger Valley (Böllinger 1994). Otherwise the position close to mountains or sheltered by hills can have favourable effects such as protecting settlements from strong winds or maintaining constant temperatures.

After the general overview of each site's surroundings it is important to mention the land-use too. Better said, possible land-use. This topic proves to be problematic as often the outskirts of the settlement have not been investigated and as there are many unknown factors that are to be taken into account. Detailed studies into the land use of pile dwelling sites in Germany, Hörnle I being one of the case studies, have proposed several hypothetical possibilities (Baum 2014). The actual land-use depends on people's strategies, varying from an intensive approach cultivating big fields or rather a "gardening" approach in which small clearances can be used for cultivation. A strong factor is also how long people settled a certain area. In the case of Egolzwil 3 and Hörnle I, although for the latter several hypothetical possibilities are proposed in aforementioned article, it seems more probable that small clearances were exploited. This is partially confirmed by the paleobotanical data, as these settlements were short-lived. In the cases of La Draga and Dispilio on the other hand, presenting a long settlement continuity, it seems more probable that eventually larger fields came into being. As for the distance of the clearances/fields, this remains unknown. Nevertheless, in the various proposed models a reasonable distance of 2 km from settlement to fields has been maintained (Baum 2014).

Ritual

In a context that does not have many materials and no other sources to work with, it is complicated to trace back thought processes and even more the ones that would divide the daily from the ritual. Nevertheless, this dichotomy is already part of the problem. The definition of what can and what cannot be considered ritual is a problematic topic.

This is described very poignantly by Catherine Bell in her "Response" to the Cotsen

Advanced Seminar at UCLA on the archaeology of ritual. She addresses the fact that many researchers focus exaggeratedly on a definition for ritual. According to her this occurs as a result from the fear that our discipline will need to defend its value, after acknowledging that we are not able to trace back exactly what people were thinking or how they meant something. "Several speakers argued that we need to define ritual so we can better talk to one another, *as if our problems interpreting a ritual site lay in communicating with one another*." (Bell 2007; 283, cursive in original). She also adds: "Well, we are never going to agree on a definition of ritual. We do not want to, nor will doing so solve the problems we face. (…) No field ever moves forward because a good number of people agree on the definition of some central concept that then allows them to get down to work." (Bell 2007; 283). Inspired by these words it has been decided not to extend this discussion to eternity but to add another citation, describing this work's position on this topic: "In these studies ritual is viewed as a specialised form of behaviour which emphasises some of the concerns of daily life through a kind of performance. It is not opposed to domesticity, and often grows out of it." (Bradley 2005).

Having started off with this defense of studies into ritual matters in prehistory, it is an anti-climax to state that the evidence of any possible ritual activities is largely absent from lakeside settlements. This has been mentioned in various contexts earlier too.

First of all, the usual go-to source of ritual interpretation, burials, is absent. This absence of the dead robs us of many possibilities. As difficult as it is to define ritual in many ways, in prehistoric archaeology we usually at least have the certainty that some sort of ritual meaning is involved in burials. The fact that no bodies or evidences of burial rites have been found means that pile dwellers had a way of disposing of their deceased that did not leave any traces or that people could have been buried further inland where archaeologists have not found them yet. As no cemeteries and hardly any burials have been found still, regardless of an intensification of research in the Hinterland in the central European lakes, this second possibility seems implausible. This leaves few possibilities.

If the presence of the lake played any sort of symbolical role it could very well be that bodies were laid to rest in the water. Nevertheless, if this had been done at least a few preserved bodies, similar to the bog bodies known from Iron Age Scandinavia and the Netherlands, should have been found (Sanders 2009). This means that perhaps the deceased were burned and then cast in the water. In either case, a division is drawn between the dead and the living, as no visible markers are present. This is a great contrast with the megalithic activities that were taking place in the same chronology.

Nevertheless, there are some possibilities that a similar ancestral cult was practised. Indications for this could be found in

the Sipplingen house (Schlichtherle 2016) which shows a sequence of drawings in a style that could be reminiscent of the megalithic anthropomorphic engravings and paintings on the Atlantic façade (Bueno Ramírez/Behrmann Balbín/Barroso Bermejo 2015). One wall of mentioned "cult-house" was decorated with the outlines of four female figures. Female, because three-dimensional breasts were added to them, protruding from the wall.

Although this find is unique, it does bring some hope for the Neolithic circum-Alpine ritual interpretations, which otherwise seem highly uninspired. Although also other megalithic indications have been found in central Europe (Müller 1995; Ramstein/Schimmelpfennig/Lösch 2014), the link between these and the lakeside settlements remains difficult to trace. Another possible ancestral link mentioned by other researchers was called into life after the finding of human bone remains within a settlement. It is argued that these did not end up there coincidentally, but were placed within the confines of this daily-life space to include the ancestors and thus the tradition (Chapman 2000; Jennings 2014a). This absence of human remains is mainly concerning the circum-Alpine settlements.

Neither at La Draga have any burials been found (Bosch Lloret et al. 2011), but various burial rites are known from this area in this chronology (Bosch Lloret 1994) and it is possible that La Draga's inhabitants have also partaken in these. At Dispilio some human remains have been found, although it is improbable that they are from the prehistoric period of the settlement. Two adults, two infants and some scattered and burnt bones which could supposedly stem from 14 further adults and 2 children (Petroutsa 2009). Not much has been written about the burial rites that accompanied these dead, only that the complete skeletons had been buried and the scattered bone remains had been burned and were found in various layers and resting in several vessels.

Nevertheless, to underline that the absence of ritual evidences does not equal the absence of ritual activities a list composed by J. Marcus has been included. She investigates Meso-American ritual behaviours, and composed a generalised list of components that should be present at a so-called ritual based on both archaeological and anthropological research. Included are:

- One or more performers
- An audience (humans, deities, ancestors)
- A location (temple, field, patio, stairway, cave, top of an alter)
- A purpose (to communicate with ancestors, to sanctify a new temple)
- Meaning, subject matter, and content
- Temporal span (hour, day, week)
- Actions (chanting, singing, playing music, dancing, wearing masks and costumes, burning incense, bloodletting, sacrificing humans or animals, smoking, making pilgrimages to caves or mountaintops)

- Foods and paraphernalia (stingray spines, obsidian blades, cones and spheres of copal incense, balls of rubber, paper streamers, beverages, meats, tamales) used in the performance of rites

(Marcus 2007)

Although this list should not be applied one on one on European prehistory, it does constitute an interesting guide for our thoughts, as most of the mentioned elements do not necessarily leave any traces. Further evidences that could be described as out of the ordinary or to which ritual meanings could be ascribed seem to be wholly lacking at some sites. Egolzwil is the "simplest", and therefore perhaps most difficult, site in this respect. As was mentioned before, no noteworthy evidence of this character was encountered at this settlement.

This does not mean that ritual meaning was absent or that it did not form an important part of Egolzwil's inhabitans' lives, but that we cannot trace it archaeologically. Hörnle I presents a largely similar situation, except for the copper disc which was found in one of its houses. This is undoubtedly a "special" object, as it is uncommon in this area at that time. On the other hand, this does not necessarily provide it with ritual meaning. The only thing that is indicated by this object for sure are long-distance trading routes.

A local element, however, which should also be mentioned, are the gynaecomorphic vessels. These are also known from other sites in the circum-Alpine region. It is not a big leap of faith one needs to make to connect these vessels with the earlier mentioned "cult house" at Ludwigshafen. Even though nothing similar to this building has been found at Hörnle I, the recurring theme of prominent breasts in not necessarily practical places is present. Perhaps in this sense also the gynaecomorphic vessels could be interpreted as witnesses of ancestral rites, symbolising ancestors just as they are depicted on the Ludwigshafen house or, a bit further away, in megalithic contexts (Bueno Ramírez/Balbín Behrmann/Barroso Bermejo 2015; Schlichtherle 2016).

Ritual meaning in buildings might have had a place at La Draga too. Otherwise no ritual indications have been found in material culture, but in one of the excavated buildings the remains of a goat were found. As this buildings was standing on the lakeshore and was one of the oldest buildings this finding has been interpreted as part of a settling rite, perhaps to inaugurate the settlement. The practice of depositing animals as part of inaugurational rites is well known from the European Neolithic and has been found on another occasion in La Draga too (Els Arqueòlegs Atribueixen a Rituals Les Banyes de La Draga 2016) and is known from Late Neolithic Greek contexts too (Souvatzi 2008).

At Dispilio, however, so far no such evidences have been found. Nevertheless, many other materials that are open to ritual and ideological interpretations have been found at the site. The figurines, common in the Neolithic

Balkans, Turkey and beyond, form a considerable part of the material culture. As per usual their interpretation is neither straightforward as they could be used in a variety of contexts and meanings.

Looking at the forms of figurines found at Dispilio it seems that these would represent elements from daily life, such as common animals, boats, etc. Therefore their depiction of ancestors or deities seems less likely. The boats are also an interesting element as it is one of the very few, if not only, evidence that can specifically and exclusively be linked to water and in this sense symbolizes people's connection to the lake.

Adaptations to water

The adaptations to living in or near water made by the piledwellers are slightly different for each site. For Egolzwil the adaptations seem minimal, as the buildings are still on ground-level and were eventually flooded, leading to the abandonment of the settlement (Wyss 1994). The settlement was built on piles, but these ensured the stability of the houses in the humid underground and did not actually lift the buildings above the ground or water. Also in other aspects this site does not show any specific indications for its closeknit relationship with water. Except for some fishing, which was only complementary to the prevailing hunting/gathering and agricultural/livestock activities in spite of some specialised tools (Wyss 1994).

Hörnle seems to show a stronger adaptation in this respect, as the houses were raised on piles (Schlichtherle 1990). This at least is a clear adaptation to living on/near the water. This particular adaptation also kept reminding the inhabitants actively of the water as the architectural structures needed constant mending and re-building. Dispilio is similar in this aspect (Facorellis/Sofronidou/Hourmouziadis 2014), whereas La Draga still leaves us with some questionmarks. The houses nearby the lake were built on piles, probably slightly lifting the houses from the lakeshore, but the buildings slightly further inland were placed on the land (Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2000).

As a matter of fact, this does show a perfect adaptation to various circumstances in the same place and by the same people, reducing the presence of pile dwelling architecture to a merely functional aspect. For the rest, also these sites have delivered evidences of the catching of fish and in some cases waterbirds too, nevertheless the role that these resources played have been interpreted differently at each site (Wyss 1994; Dieckmann/Harwath/Hoffstadt 2006; Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2000; Theodoropoulou/Stratouli 2009). This means that the environment was exploited as any other would. On the other hand, neither here

can we find any form of specialisation in these strongly water-bound activities.

Another way in which people adapted to the water surrounding them was by building boats, for increased mobility. Dugouts have been found at La Draga and Dispilio both (Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2006; Facorellis/Sofronidou/Hourmouziadis 2014). This is a very important adaptation as it means people integrated their geographical position in mobility networks and probably enjoyed a heightened mobility, this being in transporting goods or the maintaining of various networks. Though no similar boats have been found at Egolzwil 3 and Hörnle I, many indications of extensive networks are present.

Settlements' role in regional dynamics

The biggest difference between the regional contacts can be found between Eolgzwil 3 and Hörnle I on the one side and La Draga and Dispilio on the other side. Although

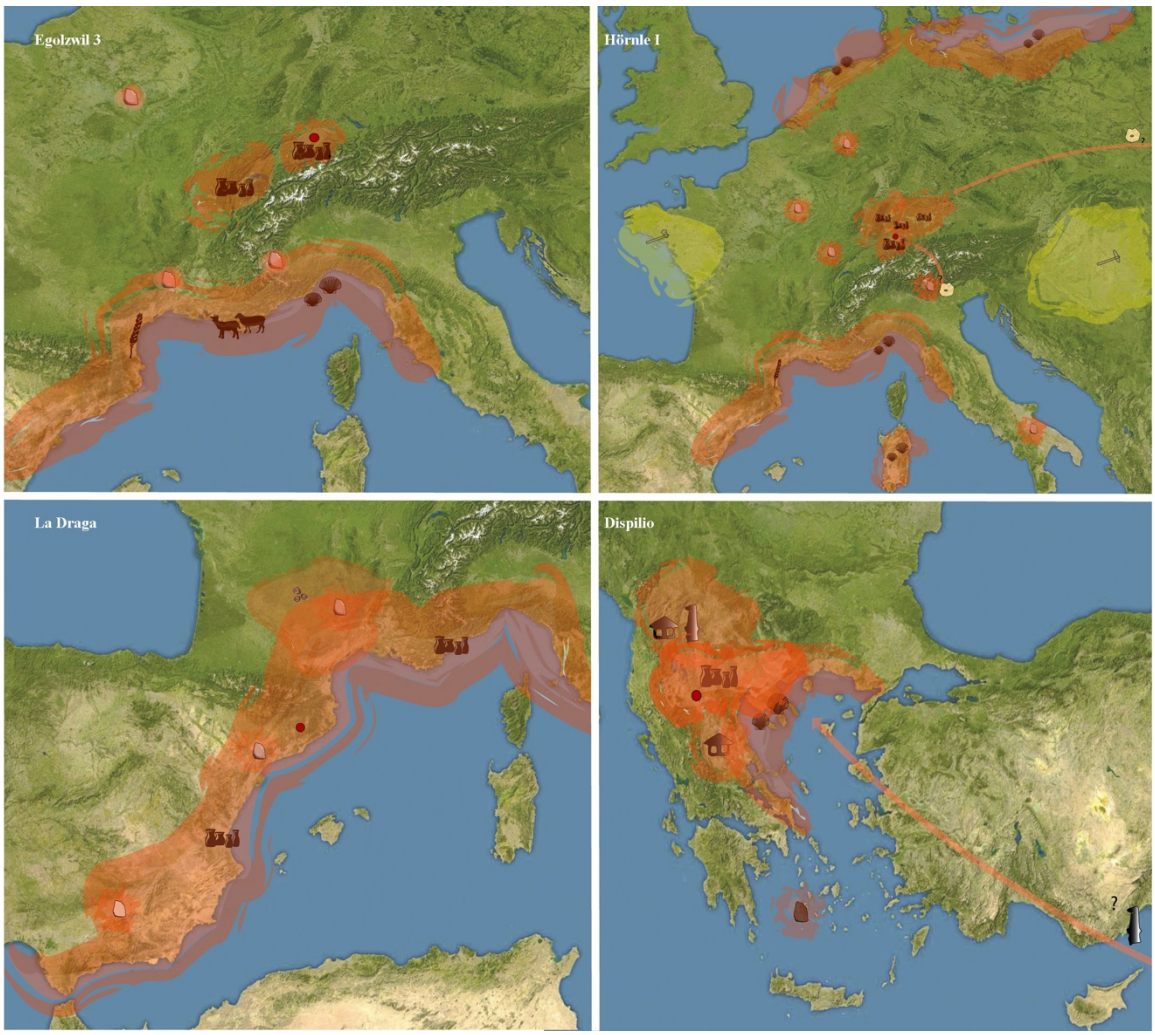

Figure 56: Overview of all sites within their context of influences and contacts (image by author)

it is clear that the two circum-Alpine sites did not exist in an isolated context but maintained contacts with nearby pile dwellings and also participated in long-distance trading networks, they still hold a different position from La Draga or Dispilio. This biggest difference lies in the fact that these Alpine settlements are the only known settlements in that area at the time.

Whereas the southern sites are surrounded by contemporaneous sites, Egolzwil and Hörnle only have other lakeside settlements in their vicinity. La Draga and Dispilio on the other hand are integrated into a Neolithic that is in full course, and are surrounded by a variety of other sites. Dispilio was long thought to be the only lakeside settlement within its micro-region, though similar sites can be found when one crosses the border and enters North Macedonia or Albania (Figure 56).

Nevertheless, recent excavations show that this is not entirely true as a truly impressive amount of sites and evidences were found near Amyntaion. La Draga on the other hand remains “unique” in this respect. No other lakeside settlements of the like have been found in its area, and it is not until the Middle Neolithic that lakeside settlements start appearing in its neighbouring country, France. What we do have is the puzzling presence of La Marmotta in central Italy, which stems from a similar chronology as La Draga, but is also isolated in its likeness until later, also the Middle Neolithic, pile dwellings start appearing in northern Italy.

Nevertheless, the material that was discussed indicates a similar pattern for the settlements, stretching beyond regional networks and integrating them into broader European trading and contact networks in Europe.

The central European pile dwellings occupied an important role in these activities due to their strategic position along the important Danube, Rhône and Rhine Valleys, but also the Alps were transversed by the wide-spread networks (Heumüller/Mainberger 2016). As a matter of fact, the northern Alpine lakeside settlements formed part of one of the most important European long-distance trading routes: the Alpine route, stretching not only from North to South and vice versa, but in a multitude of directions (Jennings 2014b). Although the importance of this route is emphasized mainly in the Bronze Age, it is not only imaginable that contacts stretched through this area already in the Neolithic, but there are archaeological indications for this too.

This is reflected in the diverse material record found at Hörnle I, but also in our current knowledge of for example Jade trading networks (Heumüller/Mainberger 2016; Pétrequin et al. 2012). This stone was obtained in the western Alps and transported over great distances to western and eastern Europe both. What illustrates this mobility argument even better, added to the presence of boats facilitating transport, is the fact that some of the

oldest wooden wheels that have been found come from the alpine lakeside settlements. Other typical trading products from the Neolithic in this area are silex, amber or shells. Later these activities were only intensified and in the Bronze Age very lively and dynamic networks existed, containing mainly bronze objects of which the trading routes can be followed well (Jennings 2014a). Apart from this, as has been mentioned earlier, both northern pre-Alpine case studies included in this study show evidence of contacts with the Mediterranean area in the form of free threshing wheat, shells and ovicaprides.

Contrasting with anthropological case studies

After the contrasting of the archaeological case studies, also the anthropological ones are included in the following pages. This overview will not stick to the same format as the previous comparisons, as the highly disparate material records and other sources of information do not allow for this. Obvious differences on socio-political and cultural levels shall not be discussed into detail as this would become very specific without necessarily contributing to the main questions this work poses. Therefore the focus will lie on several core topics, namely; architecture and the organisation of space, landscape, ritual and identity, in the hope that these reflections might contribute to the hypotheses that will be formulated in the next chapter.

Architecture and the organisation of space

When comparing earlier observations made on this topic a certain similarity with the *ribeirinhos* becomes obvious. Some of the circum-Alpine pile dwelling settlements are not the socially unified units they are usually thought to be. The seemingly uniform villages, with their identical houses aligned in rows, seem to have been inhabited by a variety of people, if the strong differences in diet and material culture can indicate this. For Egolzwil a similar study was not possible because the settlement's horizons had been flooded.

Hörnle I has neither been subjected to similar scrutinising studies, but at least the pottery does seem to be evenly distributed and represented in the excavated houses. This idea is therefore not applicable at any of the archaeological studies, but it does offer a new look on the Neolithic reality.

The settlements were not seasonal, but they were neither necessarily as stationary as we know cities to be nowadays. The example the *ribeirinhos* illustrates such a dynamic way of settling very well. This liquid, or flowing, mode of habitation is closely linked to the water. The presence of the Amazon River offers people a heightened mobility, leading to the development of many trading contacts.

Apart from this, it is also the water that forces people to be highly mobile for different reasons, as the frequent floods and continuously changing landscape require an active style of habitation. The first argument is

also applicable to Amsterdam. It was mentioned that what characterises this city are mobility, trade and the diverse influx of population as a result of this. In this sense the identity of people is not so much defined by water itself anymore, but by the results of the mobility and possibilities provided by it. Water is not worshipped, though it does form an important part of people's daily life. What *is* an important factor is the influence that many different people have had, drawn voluntarily to Amsterdam because of prosperous trade or banking or even involuntarily as a result of the Dutch colonies. Water in this sense is important not in itself, but as a medium.

This importance of water can also be seen in the distribution of the settlements. Many of the *ribeirinhos'* villages are constructed in "lines" along the river, on the floodplains. They are not built around a village nucleus such as a square or other social gathering point, but rather following the water. The water is always directly accessible from the houses, in most of the cases it is possible to go anywhere without crossing the water. This highly water-centric orientation of the settlement stands to the disposition of people's lifestyle, in which everything starts and ends with the water.

In the case of Amsterdam, the city was constructed around the harbour, as this is the main reason of its existence. Water was also invited into the city in the form of canals. This increased mobility and on a more interpretative level it could be said that nowadays it is a reminder for people of how close the connection between this city and water really is. Different from the other pile dwellings dicussed in this work, floods are not a daily reality for the Amsterdammers. The city stands on piles and historically has a strong connection to water, but nowadays this is not visible in its streets. The canals, however, remind everyone immediately of where they are and the important role of water of that place, defining the city's centre in liquid circles, the importance of the space increasing with each circle coming closer to the middle.

The archaeological sites occupy a different position in this aspect. Neither are they constructed in symbiosis with the water, giving it a more than central role, nor are they centred around a specific point. All of the archaeological case studies, regardless of regional differences, present a very similar lay-out. The houses are located in or near the water, are usually flooded every now and then and consist of uniform buildings without specific signs of an outstanding space or buildings that could be intended for ritual or other social purposes. Following the train of thought that was described above, this could indicate that people's existence, though actively influenced by the proximity of water, was not centred around it.

Another aspect of architecture are the folkloristic meanings connected to it. From ethnographical and folkloristic studies there are many examples, mainly from the Balkans and further east, of fertility meanings that are

linked to pile dwellings. There are tales of newlyweds having to spend their wedding night in pile dwellings or pile dwellings that are used as menstrual huts. This connection between fertility and these structures may very well be traced back to the use of stilthouses for the storage of grain. The elevated floor ensures that humidity, rodents or other animal are denied access to the stored goods. The link between grain and fertility is easily made, as we know it from other cultures and contexts too.

Another association in regional folklore, getting closer to Russia now, is that of Baba Jaga. Baba Jaga is a supernatural being, closest to a witch, that lives in the forest, in a cabin that stands on chicken legs. In some stories the cabin can move around and in other it can rotate as the leg or legs jump. Famous visual portrayals of this can be found in children's books or the popular Russian fairytale "*Mrazík*". This hut on chicken legs also appears in other Russian folktales. The chicken legs have been interpreted varyingly by scholars, for example as the result of old burial practices. In ancient Slavic burials small hut-like constructions on poles sometimes held the ashes of the deceased.

Following this interpretation, the hut also becomes a liminal place separating the living from the dead, which also makes sense in the canon of stories about the magical being of Baba Yaga (Johns 2004). The chicken legs, apparently also found underneath castles in Ucranian tales, are perhaps the result of a fertility cult involving chicken sacrifices. Moreover, pregnant women are not supposed to get close to hens as this would give the unborn baby the "hen-ilness", making it cry constantly once it is born. To remedy this illness the baby needs to be brought to the hens with the petition of giving it back its sleep or making the hens peck grains off the baby.

Landscape

The role of the position of the different sites in respect to the water has been discussed shortly above, now the attention is shifted even further towards the landscape. It was Barrett who mentioned that landscapes were not understood just as places to occupy, but rather in terms of the actions that were executed there (Barrett 1999).

These executed actions contributed meaning to the landscape and a bond was established. This bond was possibly strengthened by activities such as fragmentation (Chapman 2009) or significant points in the landscape were chosen. One can imagine, and we also know this from other examples, that for example trees or large stones could fulfil this role.

Nevertheless, when we imagine the landscape in which for example a *ribeirinho* settlement could be placed, these significant points are difficult to trace or imagine. The shifting and changing floodplains would prevent any object, deposited to fixate a certain

point, to actually remain in its place. Also stones and trees, to continue with aforementioned examples, are made visible or invisible or even moved around by the waterlevel. Does this mean that there was no strong connection with the landscape? On the contrary. It must not be forgotten that bodies of water can also be an important element in the construction of mental landscapes (Ballmer 2010).

For the *ribeirinhos* the water that surrounds them is probably one of the most significant elements in their lives, as is reflected in their activities, some rituals and other aspects of daily life. In Amsterdam, on the other hand, the situation looks very differently. The landscape surrounding the city is the typical Dutch polder landscape, immediately to the East the new province of Flevoland can be found. This province was created in the last century in a process in which the Zuiderzee (Southsea) was dried through the creation of the engineering masterpiece of the *Zuiderzeewerken*. The most important cities here, Almere and Lelystad, were created and settled in the second half of the last century making. Lelystad, for example, was named after the engineer Cornelis Lely that was involved in the project of the *Zuiderzeewerken*. Big parts of Flevoland are part of a unique natural reserve whose eco-system was designed by biologists and which is a reference for many animal and plant species. From this small background story it becomes clear that the relationship between people and their landscape changed drastically.

In this case, the mythical and ancestral dimension of a landscape is wiped away. This is replaced by a human “triumph” over nature. People are no longer mystified by the landscape surrounding them, but they control it and even create it. Generally speaking, it can be confirmed that in the western world people experience a much more distanced relationship to the landscape and nature. As we are no longer so dependent on the land alone and have even gained some control over it, the relationship has changed. Especially in big cities nature is far to be sought. The concept of guerilla gardening, in which people randomly plant flowers or plants in a city and thus “re-occupy” the urban landscape, shows how distant agriculture has become. Amsterdam is somewhat of a culmination of this, as it is a big city placed in a landscape that is overweighingly artificial. People do experience the landscape and have a bond with it, but the main characteristics of the landscape, the flatness of the polder or the dykes that stand in contrast near the seashore, only accentuate the human influences.

In the case studies the impact of water does not seem to be as drastic as it is for the *ribeirinhos* on the floodplains, although certain parallels could be found. The changing character of the landscape, for example, could easily make the lake into the dominating factor in the landscape. Searching for a parallel with Amsterdam, on the other hand, is an even

bigger challenge. What could apply here is that in all of the archaeological cases the people were the first or among the first impacting the landscape. The construction of the houses required wood, many trees were cut down, clearances were created by this and probably exploited for agriculture. In this sense it is possible to say that the pile dwellers must have felt a specific relation to their landscape because of their interactive role in it, something that was new to humanity at these times. On the other hand, they still maintained a bigger sense of wonder and admiration because of they could still not exercise any real influence on the natural factors.

This brings us to the next point, in which the role water can take on is further discussed. On the Amazon floodplains the water is said to shelter several deities or supernatural beings. These entities receive offerings and can be either friendly and helping ghosts or dangerous creatures. The water itself, being a home to these entities takes upon itself the role of an intermediator between the human reality and another one. This makes it into a transitional or liminal space. A similar meaning can also be observed in several archaeological contexts. Take for example the Bronze Age depositions in lakes or marshes, especially in Scandinavia and the British isles, that are interpreted as ritual (e.g. Rundkvist, 2015; Yates / Bradley, 2010). Many examples of metal depositions were found in wetlands. Researchers commonly ascribe ritual meanings to these practices, linked to the significance these humid places in the landscape might have held. This is underlaid by further depositions of a similar character in the Iron Age and of course the famous bog bodies, known again from the northernmost European countries.

For the Neolithic no similar examples are known, but the strong meanings attributed to bodies of water or other humid manifestations in the landscape is clearly underlined by these examples.

Ritual

This segment, about ritual, has been a challenging one in all of the archaeological case studies, as only minimal evidences of ritual activities could be retrieved for most sites. Added to this is the difficulty of archaeological interpretations of ritual in itself, which is not at all straightforward. In a new attempt to reflect on this topic the evidences from the extra case studies prove to be very fruitful. To continue where the last segment left off, water is one of the most important factors in the *ribeirinhos'* ritual manifestations, but by far not the only one. Informants have spoken about the many *encantados* that live in the water (Harris 2013b), these were mentioned earlier too. These magical entities live in the water in pleasure and luxury and like to be told stories. Just as they are the subject of many stories, they apparently also enjoy being on the receiving end and thus become an almost interactive element.

Apart from these entities, however, there also used to be mummies and idols such as painted stones that formed part of the ritual repertoire. Nowadays these are difficult to find as they were either destroyed by Portuguese missionaries or hidden from those by the *ribeirinhos*. These mummies and idols are still subject of many stories and played a central role in festivities. The mummies seem to represent an ancestral cult in which the *ribeirinhos* remember the original Indians, settling the floodplains.

Another manifestation of this ancestral cult would be the fascination for sherds washing up along the watershores. People who are moving on the water often notice these and tell that these sherds then disappear and show up in other places, accentuating the mystery surrounding the objects and the original inhabitants they represent. This story also links the water with the ancestors, strengthening the meaning of both elements and their interaction. Harris states that the *ribeirinhos* maintain a non-anthropocentric view of the world in which the human would only be a participant within a web of relations (Harris 2013b). This underlines the importance of natural features and the surrounding world in the experience of *ribeirinhos*.

This leads us to the other extra case study, in which the complete opposite is true. As was described previously, Amsterdam is much more distanced from the water and this is also reflected in its rituals. As a matter of fact, “rituals” is not an adequate term in this case, as the people are characterised by a religion. The city and its people are, unsurprisingly, integrated into a world in which water holds no special meaning. It forms part of a country which was once divided between Protestants and Catholics, and where religion nowadays plays an increasingly small role. External influences have brought many people to Amsterdam, and with them their religions, making it a very multi-cultural and multi-religion place. In order to make this work, religion nowadays needs to play a small role. Nevertheless, also when religion was still a big topic in past times, this was not bound to the water stronger than at any other places this religion was exercised.

One can imagine that for certain people specific rituals or meanings did exist, for example for sailors. In Amsterdams heyday as a harbour, filled with sailors, people maintained such a close relationship with the water, and especially its threats, that certain expressions were dedicated to it. Nevertheless, this always concerned the people that were directly affected, usually sailors and their families. Similarly to a previous conclusion, also here it can be stated that the importance of water in ritual practices is directly influenced by its presence in daily life. For the *ribeirinhos* water is a central element in their rituals, as is central to other facets of life too.

Characteristic of rituals in lakeside settlements, especially those in central Europe, is that they seem invisible. If we have a look at the *ribeirinhos* we see that the most

important mentioned elements are mummies, painted stones and storytelling. At least two of these confirm what was already suspected for many prehistorical context, namely that we do not find certain elements not because they did not exist but because they cannot be traced. The painted stones are an example of using a very ordinary element and ascribing meaning to it, which can be very puzzling imagined in an archaeological context. Even more complicated is to trace back mentioned storytelling archaeologically, though this an overwhelming richness of information shared by informants on this topic (Harris 2013b) shows that there are parts of a society which we cannot grasp.

Identity

Identity is a topic that is difficult to pin down and often overly simplified. The *ribeirinhos* are actually a very large group of people that come from various backgrounds and that know many different groups. Many are descendants from the original Indians, also present in the ancestral cults, but others have come to the floodplains for work from other places (Harris 2005a). It is a mixed population and it would be a mistake to look for a single identity defining them all. Still, in the ethnographical work carried out a rather uniform image is presented. For these studies specific settlements were included where people were perhaps least influenced by more recent modernisations. In this case the identity that is portrayed is mainly defined by the work that is carried out together such as the cultivation of certain crops and fishing, the stories that bind people to similar rituals and beliefs and the general floodplain lifestyle. These are strong factors that people have in common.

As for Amsterdam, it is representative of our western capitalist society in the sense that it is not the common identity that is most strongly preferred. An individualistic approach is characterising in many aspects. It complies with the rest of the country, but also a somewhat different identity, proudly shared by "Amsterdammers", can be found. This is one of the variations on the well-known big city-countryside dichotomy, and in Amsterdam this is for a big part based on the many different influences that can be felt in the city. It is, after all, one of the most multicultural centres there is. Nevertheless, what makes Amsterdam interesting in this respect is that once upon a time this myriad of influences could be attributed to its status of important harbour city. This links it somehow to the prehistoric case studies. These places too show strong ties with other places through the many and varied evidences of trade and exchange.

Water is obviously a medium that connects people and the exploration of such connections invariably leads to the influencing of an identity. Therefore, if it is true that the prehistoric pile dwellers maintained an increased dynamic position, this might

probably have influenced their identities in one way or another. Apart from this, previously it was stated also for the people inhabiting prehistoric lakeshores, that they might not have been a uniform group but rather a combination of people from different backgrounds. Also this is a possibility that needs to be considered. Which leads us to the concept of identities within identities, exemplified by Amsterdam. Even though it is not considered separate from the general reality of the country it still does present its own particularities. These particularities were partially explained by the multicultural atmosphere for example, as was applied to the prehistoric settlements too.

In the research history of European pile dwellings, one of the first highlights was the question to which culture these settlements pertained. The solution was the creation of a whole separate pile dwelling culture, the infamous *Pfahlbaukultur*. With this approach, giving a new name to anything new, the topic was sorted. Later this idea was silently banned to the old books. It was disproved scientifically and represented an outdated philosophy.

CUARTO MOVIMIENTO: LA REALIDAD (DISCUSSION)

In the case studies all available data from sites were assessed to see what factors could have influenced people in their choice to settle on the lakeside. In the previous chapter the sites were contrasted to see how this choice could be manifested in different ways at each site. Here this information is synthetized into a list of factors that exercised their influence. In order to discuss the potential importance of these factors they are tested in three different hypotheses.

The cases that are made are; 1) that the lake was of no importance and did not play an active role in people's choice to settle there 2) that the lake was of practical importance and people settled there to benefit from the practical advantages it offered, or 3) that the lake held a certain ideological or symbolical importance. These three possibilities that are discussed are meant to extrapolate different arguments and explore each reasoning. It is highly unlikely that the truth comes close to either one of the exaggerated hypothesis. They are constructed and treated as mutually exclusive in order to distill the broadest possible range of arguments.

These hypotheses, and thus also the arguments and reasoning, are centred around lakeside settlements exclusively. Throughout this work it has been argued that one of the most important factors to be taken into account is the context of settlements, placing special emphasis on networks and regional contemporaneous sites. Nevertheless, this chapter adopts a more exclusive point of view that centres on the specific reasons for settling that could have been at play at the different lakeside settlements discussed in this work. The observations that should come forward after this discussion are put back into a broader context in the final chapter, reaching the conclusive remarks of this work.

Observations made in this chapter are based on the application of all previously discussed material on a list of reasons for settlement that has been compiled from various sources in literature dealing with Neolithic settling (Bailey/Whittle/Cummings 2005; Ostritz 2000) and commonly understood factors that can be of influence. Not all of these factors bear the same importance and their relevance fluctuates when

assessed from the point of view of different hypotheses.

In order to translate the abstract discussion of factors and hypotheses to something slightly more tangible the case studies are called upon one more time. Everything that has been documented and discussed regarding the four archaeological sites is contrasted against each of the hypotheses. Finally, it is also important to note the organization of the depicted list. The different factors that can be at play in the decision of people to settle a certain location have been divided into five categories. The factors mentioned in the first category are the ones that are usually assessed in archaeology as they are traceable and can be interpreted without too much difficulty. This archaeological compatibility and ease of evaluation gradually decreases with each category until arriving to the last which is mentioned only to draw attention to these problematics and represents factors of whose importance or mere existence we are unaware.

Natural factors

The natural factors that are at play at archaeological sites can be rather straightforward and are usually elements that are traditionally included in archaeological research.

- Vicinity of water. This factor is a basic need for any settlement. Necessarily it is therefore also included for the lakeside settlements. Considering the obvious benefits they have it seems paradoxical to mention this factor, especially in the first hypothesis. The vicinity of water is not only important because people could drink it or bathe in it. It also provided water for the domesticated animals and wild animals. Some of the latter coming close to the settlement would benefit the inhabitants as it would improve their hunting possibilities. Also important is the possible exploitation of the lake, including not only wild animals coming to drink but also birds and fish that reside in this environment. Lastly, also in the elaboration of objects water could be advantageous, for example in the making of pottery water plays an important role but also the processing of antlers and bone is facilitated by water (Jennings 2014a).

- Precipitation and temperature. Especially in an environment that is already humid this is an important factor. If the precipitation is too high this results in unfavourable living conditions, as the humidity can cause diseases, make stored foods rot and so on. Similarly to the precipitation, in the constant

presence of water temperature can play an increasingly important role. Humid and wet circumstances can be unfavourable too.

- Soil type. As the discussed settlements relied primarily on their agricultural activities, the quality of the soil that is available around the settlement is very important. For the spread of the Neolithic in central Europe, for example, this factor was of crucial importance as the first farmers stuck strictly to the Löss soils. Regions with other types of soil were therefore ignored, such as for example the pre-Alps, which were only incorporated in the Neolithic with the emergence of lakeside settlements.

- Availability of resources. Also other resources such as lithics, wood or clay for pottery were important factors. In the case studies this topic was discussed in the form of "direct resources". Nevertheless, what was often ignored in the site-catchment studies as we know them from the last decades is that the absence of certain resources can indicate other factors that are at play. When certain key resources are not available they will need to be imported from somewhere else. This is a logistical disadvantage that was probably compensated otherwise. In this study these alternative factors are emphasized and can be found in the next categories.

- Strategical factors. The factors in this category are not directly primary needs, as the ones from the previous category. Nevertheless, they are still highly practical factors that exercised a strong influence on the daily life of pile dwellers. In order to assess the presence and influence of these themes a more interpretative approach is necessary. Subsequently this also means that the probability of errors due to overlooked or misinterpreted information is higher.

- Defensive position. This is only mentioned as a possibility that needs to be considered, although it does not seem to be of importance at any of the case studies. The earliest lakeside settlements in the different regions that are discussed here do not show any indications of a defensive use and neither do their contemporaneous counterparts.

- Strategic trading position. This point is defined by the settlements' connections with other sites and their position within regional and broader

trading networks. Archaeologically this can be traced by external influences that can be recognized in the material culture or imported artefacts. This point can be of specific importance in the case of lakeside settlements as the lake and its connections to waterways can provide improved ways of contact. Travelling on water is much faster than travelling on land and bigger quantities of material can easily be transported by boat. Thus the presence of boats on sites too could be an indicator confirming this factor.

- Ease of construction. The ease or difficulty of building can also have been of influence in the choice of location, especially when studied in relation to the community's dynamics. It has been established previously that building constructions on the lakemarl has both advantages and disadvantages. The problematics here are mainly linked to the fast decay of wood in changing humid conditions, meaning that structures are in constant need of repair and renewal. However, experiments have shown that building at the lakeside can be not only much easier than was believed previously, but also much easier than building on mineral soil (Menotti/Pranckenaite 2008). This could possibly benefit short-lived and/or dynamic settlement modes.

- Ritual factors. Special landscape features (the lake) and ritual events linked to the lake. Meaningful places in the landscape could be constituted by extraordinary features, such as a hill or a rock formation. Although it can be difficult to trace this, it is possible. Examples could be rock-art, votive deposits on specific places (such as the Bronze Age sword that was broken and the fragments were placed on two facing hills, thus "enchaining" the landscape (Chapman 2000) and so on. The agency of landscape in different contexts is an important topic in archaeology nowadays, as can be seen in different books (e.g. Bradley 2000; Tilley 1994) that treat topics such as monuments in relation to the natural topography (Bradley 2000) or patterns of intervisibility that can be established in a landscape (Tilley 1994; 156). In this factor the importance of the lake in people's world of thoughts is underlined.

- Special landscape features (not the lake) and ritual events not linked to the lake. Also the opposite is possible. If evidences are found that other landscape features played an important role this does not exclude the lake from holding a significant role, but in the case of the absence of the latter this could

reflect negatively on the importance of the lake as an ideological factor.

- Other ritual events. As not everything is necessarily connected to the landscape there is another separate category to account for the manifestation of alternative possibilities.

- Continuation of settling (lineage myths, community founder narratives). An important factor that needs to be taken into account is whether a site is a "new" settlement or whether there is a continuity of use. In the first case the reasons for settling need to have been determined by very different thought processes than in the latter. If a site was previously inhabited the decision to stay can be much easier than the decision to start occupying a certain place. Although it is not necessary and a place can remain occupied for extensive periods of time because of certain favourable conditions, it is very probable that at a certain point also tradition or ancestral links occupy an important role in the narrative. Although these cannot always be successfully traced as they might be part of an oral tradition or another archaeologically untraceable form, the presence of a previous settlement needs to be taken into account as a high probability of the earlier mentiond possibilities exist. In some cases the founding of a settlement is explained by a narrative. Perhaps the most famous example is that of Rome. The eternal city was founded on its seven hills after Romulus had seen a great number of birds fly over a certain place, to his brother's dismay. Another example is that of Prague. The legend says that Libuše, a prophetess and part of the Přemysl Dynasty, looked out on the landscape and called out that a city was to be built where „a man is building a threshold in the forest". A man building a threshold was indeed found in the middle of the forest and there and then the city of Prague (Praha) was founded, also explaining its name as *práh* means threshold in Czech. These two examples show that in the case of founding myths no logical explanations are maintained, but rather prophecies and other symbolical events. In time, whether this solely ritual character of the founding is true or not, it becomes meaningful and is another factor to consider, even though it is usually archaeologically invisible.

Ritual untraceable factors

As was mentioned in the beginning, the categories described here are listed in such a way that as the list descends the factors become increasingly difficult to trace

archaeologically. The previous category included several ritual factors that could possibly be traced. Nevertheless, it is clear that these traceable factors form the minority and a vast majority of ritual activities and factors influencing a decision as the one that is discussed here are invisible. At this point not much beyond reasonable theoretisising and speculating is possible regarding this problematic. This does not mean, however, that it should be ignored. On the contrary, acknowledging this difficulty is crucial for an approach that is as integral as possible.

- Special landscape features (possibly linked to the lake)
- Ritual events (possibly linked to the lake)
- Founding narratives (possibly linked to the lake)

Hypothesis 1: the lake as a negligible factor

The first, and perhaps most extreme, hypothesis that will be assessed states that the presence of the lake did not have any noteworthy influence on the lake-dwellers. Neither practical advantages would have convinced people to settle here, nor ritual considerations. The choice to settle here would be completely random if this is to be believed. Factors speaking in favour of this hypothesis would be those confirming that generally positive conditions, unrelated to the lake, were present at this location.

The contrary, negative natural or resource-related conditions, could speak against this theory as this would mean that something else would hold superior importance, in which case the possibility that this influential factor was the position next to the lake cannot be discarded. Strategical considerations related to the lake should also be absent. Furthermore, any ritual activities unrelated to the lake could also strengthen the idea that the lake was not of any special importance.

The first category, of natural factors, should be the most important one in this case. The vicinity of water is always an important factor in prehistoric settling, therefore it is marked as positive even in this case. A generally favourable environment, a balanced precipitation and temperature guaranteeing relatively comfortable living conditions and making agriculture possible are key. Also the soil should be fertile and suitable for agricultural activities. Other resources, such as lithic material, clay for pottery, wood for building purposes, etc. are required too. The location should present very favourable living conditions that have nothing to do with the lake.

The strategical considerations in which the settlement's defensive position can benefit from the presence of the lake or trading is facilitated by the connectivity of the water and transport by boat should not play any role here. As for the ritual factors, anything indicating that the lake or water plays a distinguished role speak against the hypothesis, whereas any importance that can be given to anything but the water speaks strongly in favour of it.

Egolzwil 3 shows an overall mixed pattern of factors. Judging its values in combination with the first hypothesis does not result in a positive conclusion. As the settlement is located in one of the coolest climates of the suboceanic zone (Troll/Paffen 1964) the temperatures are usually low (mean temperature in January is just below 0 °C and mean

temperatures in July around 20 °C) and the precipitation comes to a yearly average between 100 and 1400 mm (Böllinger 1992). On top of this, the case study revealed earlier that there was a lack of quality lithic materials in the vicinity of the settlement.

The lithic material that could be found nearby (quartz, radiolarite and glauconite quartz) was used for only 0.7% of the lithic artefacts found on the site (Kienholz 2011), probably because these materials were difficult to knap. These two significant disadvantages could speak against the hypothesis that the lake did not hold any importance. After all, there must have been some advantages to the chosen location, and as most of these are absent at Egolzwil 3 the probability that the lake did fulfill a certain role increases. However this possible specialization in fishing or a strong exploitation of other lake-resources, which could be interpreted as an argument against the hypothesis, seems lacking too.

Fishing tools and remains of aquatic animals have been found at the site (Wyss 1994), but their modest presence does not seem sufficiently significant. Finally, as the site was occupied for only 9 years (de Capitani 2013) the choice for an environment in which building is uncomplicated seems logical. The area is indeed very suitable for dynamic and versatile construction, as studies have indicated that the soft lakemarl accommodates piles easily and the building of structures does not take a lot of time (Menotti/Pranckenaite 2008).

All in all, this hypothesis is not reconciliable with the variety of factors that are at play at Egolzwil 3. Hörnle I presents a very similar situation, although the environmental conditions are more favourable. Detailed studies show that the mean yearly temperature (between 8.5 and 9 °C), the regular precipitation and the soil make the area of Lake Constance very favourable for the cultivation of cereals and even vegetables (Vogt 2001). An added advantage is that the lake, of considerable dimensions, works as a buffer against late frost.

Also in terms of the availability of resources the surroundings are favourable. Therefore here the possibility that less importance was placed on the lake could be more probable as no negative factors need to be compensated by the lake. Nevertheless, it has been discussed before that the inhabitants of Hörnle I maintained a widespread network of contacts. From the shells from the Mediterranean area and northern Europe to the links to Brittany and

eastern Europe, everything indicates a busy network. This was probably made possible by the central position of the settlement and very possibly supported by the waterways created by Lake Constance. Finally, as is the case in Egolzwil 3, also Hörnle I is characterized by a dynamic and short-term occupation which would benefit from the construction conditions presented by the lakemarl. Again, the first hypothesis falls short as the role of the lake is impossible to discard.

Neither La Draga nor Dispilio differ strongly from the previous two examples. The natural resources and environmental factors at play in their surroundings are favourable, as is the case at Hörnle I or even moreso. At La Draga the mean annual temperature is 15 °C and the annual precipitation is 750 mm (Revelles et al. 2014), making it a very favourable area for agricultural practices. Dispilio comes close to this situation with an annual mean temperature of 11.4 °C and 698 mm of annual precipitation (AM Online Projects 2015). Also here this means that the lake would not necessarily be important.

In the strategical considerations it speaks for this hypothesis that neither site presents a defensive character that could somehow have been strengthened by the lake. Nevertheless, it needs to be added that other contemporaneous sites neither show explicitly defensive features. Another strategical feature does seem to be of influence, namely that of the strategical trading position.

So far it seems that Hörnle I presented the most and most varied contacts across Europe, but also La Draga and Dispilio were involved in networks, possibly strengthened by their vicinity to waterways. In La Draga wooden dugouts have been found (Bosch Lloret/Chinchilla Sánchez/Tarrús Galter 2006), as in Dispilio (Marangou 1999), which directly proves the use of water as a medium for contact and possibly trading. Another important point is the fact that neither of these southern sites seems to have necessarily benefitted from the constructional specifics provided by the lakeshore. As both sites were inhabited for a long time (La Draga for approximately 200 years and Dispilio for over a thousand years altogether, be it with interruptions) it is possible that the architectural aspects of pile dwellings, in constant need of renewal, would not benefit them and they would have been better served with more permanent constructions. This is therefore a conflictive point.

This hypothesis would not be able to explain why the inhabitants chose for

a pile dwelling if it would not benefit them. Moreover, whereas the practical exploitation of lake resources can be blurry at the other sites, Dispilio does show a stronger emphasis on the catching of fish both in the variety of related artefacts and remains of fish (Theodoropoulou/Stratouli 2009; Toulouomis 2002). In the ritual part, La Draga does present some ritual evidences, such as the deposition of a goat underneath an early structure (Bosch Lloret et al. 2011) or the possible ritual deposition with ornaments and animal skulls. As these events do not seem related to the lake explicitly, this would at least not contradict the hypotheses.

Dispilio, however, presents an even stronger case against the hypothesis here as apart from non-water related ritual evidences such as figurines or house models it also presents boat shape-models (Marangou 2001), meaning that the water did most definitely play a role, apart from the earlier mentioned practical aspects. It is thereby confirmed that Dispilio is especially incompatible with this hypothesis. It can actually not be applied to either of the sites as all present either practical or ideological arguments against it and there is nothing that could support it. With that, unsurprisingly, the idea that the lake is of no influence or importance can be discarded. What has become clear is that even if settlements differ in social and/or cultural aspects, a placement in such vicinity to a lake will always exercise some influence in one way or another. Therefore it remains established that the choice of settlement of lakeside settlers cannot have been completely coincidental or random.

Hypothesis 2: the lake as a factor of practical importance

In this case the water (or lake) would only define the settlement's inhabitants in a practical way. They would benefit from the presence of the water because it provides them with resources and can be of strategical value. Nevertheless, ritual evidences in which the water occupies a central role should be absent.

The first category, that of natural factors, does not play a very important role in this case. These factors are primary needs and should be present at any settlement. To which extent they are important depends on possible other priorities the settlers might have had. Whereas the first hypothesis relies very strongly on an important role for these factors, this second one allows for a bit more space as the role that water plays can be stronger than or partially compensate the importance of other needs. What is meant by this is that people could be prepared to make a bigger effort to fulfill other primary needs, as long as they are close to the water and enjoy its benefits.

What would be most strongly visible archaeologically is an intensive or highly specialized exploitation of fish, shells and/or or birds that typically live in these aquatic surroundings. The precipitation and temperature defining the living conditions should still permit agricultural activities, but could play a smaller role than in the first hypothesis. Fertile soil and other resources are still important, but especially the other resources could have been obtained slightly further away too. The category listing strategical advantages is key in this case as the practical advantages of a strategical position and/or an important place within trading networks can weigh very heavily. The latter could even justify a lack of local quality resources as these could then easily be imported.

Also the advantages in building that the soft lakemarl could provide can play an important role here, if this short-term and highly dynamic mode of building favours the settlers. As for the ritual factors, if the position next to the lake were to be exclusively practical there should be no indications that it played a more elevated role. Any other ritual evidences, related to various aspects of life or perhaps other natural features would be acceptable however.

This second hypothesis is, if anything, easier to defend than the previous one as it seems that the practical benefits, as well as the disadvantages, from any surrounding are not easy to escape or ignore. So it is

that Egolzwil's relatively unfavourable surroundings with high precipitation, cold temperatures and lack of good quality lithics has a strong effect in this case. If the settlement founding is to be due to the practical advantages of the lake, Egolzwil would need to show a strong emphasis on lake-related activities to compensate for the otherwise unfavourable surrounding conditions.

Although the site does show that the aquatic resources were being exploited and a variety of fishing tools were found, the benefits do not seem to compensate the downsides. However, if the strategical trading position and ease of construction are added to the considerations there is still something to be said for this theory. Hörnle I follows Egolzwil 3 in this, giving an even slightly better result in this hypothesis as the favourable environment and availability of other resources mean there is less that would need to be compensated. Regardless, an important factor in assessing this purely practical and non-ritual role of the lake would be the presence of ritual evidences.

Although at first it might look like the two circum-Alpine sites incline strongly towards this hypothesis as no ritual evidences signaling the lake were found, it needs to be taken into account that no other evidences were found either. Therefore a complete lack of evidence makes it very complicated to assess this. La Draga also shows a favourable prognosis in the first category, as the general surrounding is favourable and also the lake plays a small role in the subsistence strategies and was probably an important factor for the relationships maintained by its inhabitants. However, as was the case in the previous hypothesis, the construction methods might be problematic. The fact that no water-related ritual evidences were found, but perhaps unrelated evidence does seem to support this hypothesis. Nevertheless, it is reiterated that this is not necessarily significant as an overwhelming part of possible ritual meanings are absent from the archaeological register. Dispilio differs from La Draga in the aspects that the boat models that were found could easily be used as an argument against a solely practical role of the lake. Apart from this, the claimed emphasis on fishing at this settlement also sets it apart.

Although this hypothesis is at least partially applicable for all settlements, and thus confirms the statement at the end of the previous section that it is not possible the lake played no role whatsoever, it is clear that the absence

of more ritual evidences prevents us from confirming it.

Hypothesis 3: the lake as a factor of ideological/symbolical importance

The third and last hypothesis states that the lake would only hold a ritual significance for the lakeside settlers. This would mean that none of the practical advantages presented by the lake would be of strong importance, similar to the first hypothesis. However, other than in the first hypothesis, these practical advantages would be accepted and would not necessarily speak against the hypothesis.

Ritual manifestations are especially important in this case, as they could express the existence of a special connection between people and the water. On the contrary, any ritual indications dedicated to other topics could speak against the hypothesis that the lake was only a factor of ideological or symbolical importance. Though evidences could co-exist up to a certain point, the lake needs to be emphasized convincingly in order for it to be only of and ideological and not practical value.

In this case the first two listed categories, of natural and strategical factors, would not be of strong relevance. Whereas the two previous hypotheses were depicted as mutually exclusive, this third option can allow for a bit more overlap. What is very clear, however, is that in the ritual factors the importance of the lake and not other landscape features are key. This proves to be a highly problematic situation.

As there are not enough evidences found at the sites relevant to this hypothesis, the conclusion would be based solely on the finding of the perhaps ritually deposited goat and the other assembly of ornaments and skulls at La Draga on the one hand, and on the other hand the boat-models, figurines and other elements known from Dispilio.

Anthropological Case Studies

To add a note of comparison, the other two case studies are discussed here. Illustrating what remains invisible at the archaeological sites.

First of all, the *ribeirinhos* are a strong example for an explanation of wetland settling. The area cannot be described as generally favourable, due to the continuously changing floodplains and the guaranteed flooding of settlements which turns everything into a muddy and humid landscape as far as one can see. Nevertheless, people have adapted to this so well that in every other aspect this environment has been turned into an advantage and life around it has been optimized. The agricultural activities that are practiced here consist mainly of the cultivation of manioc and acai, both crops that are favoured by a sub-tropical (and thus humid) environment. These are traded for other necessities.

Apart from this and in spite of the *ribeirinho's* access to regional markets and industrial materials and food, the surrounding rainforest provides much of the required raw materials as well as food. Plants for various purposes and building materials are collected here. The placement of the buildings on piles provides a safe position for their inhabitants. Not necessarily against human enemies nowadays, but rather as a safe haven from wild animals and, most importantly the water. Even cattle is kept safe on platforms when the flood season strikes.

Apart from this, the water plays an important role in the transport of both goods and people. It holds a central role in the trade that takes place between *ribeirinhos* and regional markets. Apart from this, as the societies are highly dynamic and mobile it is difficult to say whether the water enables them to lead this kind of life or shaped it that way. This question of the chicken and the egg holds little importance nowadays as it is a given fact. People have settled like this for centuries. As for the more intangible role water could fulfil in the life of the people that settle its floodplains, this is difficult to say. The rivers have become a part of stories and beliefs as much as for example ancestors have, up to a certain extent these two important elements can even overlap. It is therefore important to note that although the water occupies a crucial role in day to day life, it does not seem like people are convinced to settle here because of a strongly ritual reason. The disadvantages that are presented by the humid and inconsistent floodplains are rather compensated by a perfect

adaptation to the environment. Also the application of the different hypotheses shows that none fits perfectly, though the first and second, defending no significant role of water and a purely practical role respectively, do seem to share equal points.

As for Amsterdam, the results seem rather vague in comparison, in spite of access to a lot of information. This is mainly because the relationship of a western capitalist society has a very different way of interacting with aspects presented by its surrounding than the people in the previous example. Also Amsterdam was not built in a very favourable spot, as a matter of fact, it was mentioned earlier that this "spot" referring to its surroundings did not exist around the time of the initial settling.

Not only was this city built on piles to withstand the humid conditions, but the surroundings were created by engineers in order to be used. That is a very big effort to settle an unhospitable area. The reason for this are the advantages that were offered by the important harbor. Amsterdam, originally a fishing village, developed into a central point for international trade, the Dutch being among the first exploring southeast Asian markets through the practices of the VOC. Because of the modern time in which trade was already occupying a more important position than agriculture the fact that the surrounding soil was not necessarily favourable was not so important. Nevertheless, with the elaborate soil and water management it became possible nonetheless to cultivate the humid northern Dutch land.

As for ritual features, in this kind of society landscape does not usually play a strong role anymore. Furthermore, especially in the case of Amsterdam and the Netherlands, where the surrounding environment is man-made and therefore loses an important aspect of qualities or values to which its significance is ascribed in previous considerations. When contrasting this information against the hypotheses it becomes clear that the third possibility, water being of a primarily ritual meaning, does not apply at all. The first and second nearly tie, however. It is important to keep in mind that this is possible because nowadays the practical functionality of water has faded, in spite of its important historical role. The city established itself, once upon a time, and though this past is still crucial for its character and the identity of its inhabitants, it does not play a strong role anymore.

Overview (*Zwischenfazit*)

Table 1 Overview of various hypotheses applied to the case studies (the darkest red being the most negative and darkest green the most positive, yellow is neutral/lack of evidence)

There are several important observations to be made (Table 1). Already in the comparisons it became clear that a certain dichotomy exists between the central European settlements and the ones in southern Europe. This seems to be reflected too in the motivation people could have had to settle there. Whereas La Draga and Dispilio would not necessarily benefit from the "ease of construction" as their long-term settling lifestyle made the constant renewing and re-building a downside, this is very different for Egolzwil 3 and Hörnle I.

There is also the fact that the pre-Alpine lakes were embedded in a context in which Mesolithic activities near the lakeshore could be recognized and they were surrounded by (nearly) contemporaneous lakeside settlements. Dispilio and La Draga on the other hand, though everything indicates that they

were an active part of the regional social situation, hold more unique places as lakeside settlements in their respective regions. Nevertheless, as intensified research in the Greek and Balkan area is starting to show, this is partially due to a lack of investigation. The nucleus of lakeside settlements around the northern Greek, North Macedonian and Albanian lakes requires unifying studies, which will doubtlessly contribute valuable information.

From the overview it can be deducted that the first and third hypothesis are incompatible with the realities of the settlements and that the second hypothesis, defending that the lake fulfills a merely practical role, seems to come closer to the truth presented by the archaeological record, although this is in part due to the lack of visibility of many relevant elements. At La Draga and Dispilio the first and second hypothesis show very similar patterns. This can be attributed to the both water and non-water related ritual evidences that were actually found at these settlements.

BIS! (CONCLUSIONS)

This work posed the question what moved people in different parts of Neolithic Europe to start settling wetlands. The motivation to study this was twofold, playing into a knowledge gap in current research but also putting strong emphasis on the research approach, which could possibly benefit future research projects too. The study is based on previous literature; no new archaeological fieldwork was carried out. It is important to underline this fact as a positive element, as too often in archaeology the "discovery" of "new things" is preferred, although it should be the interpretations and approaches that are innovative and that can lead to important revelations. Therefore, theoretical bases are of utmost importance.

This work was highly influenced by the symmetrical approach in both archaeology and anthropology and specifically focuses on landscape-related considerations. Also cooperation between research disciplines and the use of innovative methods is promoted. An example of this is the use of GIS systems. Apart from providing interesting possibilities for archaeological research, the elaboration of maps contributes to a highly visual and comprehensible approach.

Another important point in this work is context. This is practiced on a small level by including all present material types and traceable and untraceable factors that are at play at each site on a regional level by assessing each case study both within its regional settling context, and on an international level by including different countries and research traditions. The archaeological case studies that are assessed according to mentioned principles are Egolzwil 3 (Wauwil Bog, Switzerland), Hörnle IA (Lake Constance, Germany), La Draga (Lake Banyoles, Spain) and Dispilio (Lake Orestiada, Greece). Added to this are the anthropological case studies of the *ribeirinhos* (Amazon floodplains, Brazil) and Amsterdam (the Netherlands). By assessing these case studies the aspects that are not visible at archaeological sites have partially become visible, leading to valuable insights.

This richness in data and contexts is one of the strengths of the current work, enabling interesting observations in the chapters following the case studies. Nevertheless, the variety of sites, research methods and states of publication was also one of the biggest challenges. Difficulties in the process of synthesizing a consistent level of knowledge from all of these varying contexts were usually encountered in the form of absences; either disparities in research levels or the lacking of contemporaneous sites providing a context in the pre-Alpine area.

The studied sites do not pertain to the same chronologies but are linked as they are

examples of the earliest known lakeside settlements in their respective regions. It is therefore not an ensemble, neither chronologically, regionally or culturally, that has been assessed but rather a multitude of expressions that contribute to the answer what reasons impulsed a life on the lakeshore.

Egolzwil 3, first settled around 4300 BC, is one of the earliest known lakeside settlements north of the Alps. Although much of the surrounding area, beyond the pre-Alpine regions, had already been occupied by the Neolithic *Linearbandkeramik* societies, the circum-Alpine region was not. Mesolithic occupation has been confirmed here but the exact unfolding of the transition to the Neolithic lakeside settlements remains complicated to assess. Indications for a certain continuity from the previous period can be found in the strong emphasis of Mesolithic subsistence methods evidenced at the site. Also the possibly non-practical importance of fishing could indicate strong links to Mesolithic ancestors. Contemporaneous or slightly posterior sites in the area show similar realities. Another site in the central European pre-Alps, though slightly posterior, is Hörnle I, settled from approximately 3900 BC onwards. This site, other than Egolzwil 3, could already represent the continuation of a tradition of settling the lakeshore and seems correspondingly more strongly integrated in its context.

Whereas Egolzwil 3 relied on networks for some resources, Hörnle I presents a broad scale of import and export towards nearly all corners of Europe. Its position at Lake Constance was probably decisive for this too, as it was tightly embedded in one of the most important European long-distance trading routes. Also the ceramic vessels found at this site indicate a strong exchange of influences with surrounding contemporaneous sites, whereas Egolzwil 3 presents its own ensemble.

An important presence at both of these sites, and all lakeside settlements in this region, is that of free threshing wheat (*Triticum turgidum*). This wheat links the sites to the Mediterranean area, although it remains unclear whether this took on the form of mere contacts, more permanent displacements of people, or how strong this influence was on the neolithisation processes. Even though contact between people is highly likely, a direct wave of colonization is rather unlikely, as the pre-Alpine settlements seem to hold on to anterior traditions. Additionally, this would not offer answers to the question why people started settling lakeshores as no Mediterranean lacustrine settlements contemporaneous with the first central European ones are known.

The examples from the Mediterranean belong to different chronologies. An example of this is La Draga, initially settled around 5250 BC and thus forming part of the Early Neolithic in northeastern Spain. It is also embedded in the specific duality of this chronology. Different traditions can be recognized, represented on the one hand by the Epicardial sites, often in

caves, and Early Cardial sites such as La Draga. The first have undergone a process of neolithisation but are still strongly anchored in previous Mesolithic ways. This stands in contrast to the highly specialized and adapted Early Cardial sites that appear rather suddenly. Therefore, the people inhabiting these settlements have been denominated as maritime pioneer colonists, having arrived from overseas. La Draga would pertain to the latter. Its position on the lakeshore seems to be of secondary importance, if any at all. The prevalence of Mesolithic traditions could only be found in the symbolical hunting that was probably practiced.

Finally, another image is presented by Dispilio, the fourth archaeological case study. This site was first settled around 5300 BC and is placed within the context of the Greek Middle Neolithic. It forms part of a period in which all discourses regarding transitions have already lost their relevance. The site lies in an area that forms an important corridor between Europe and Anatolia, placing it in the middle of extensive networks. The archaeological traces of the Neolithic period found in this region are manifold, including tells, flat-surfaced sites, pits, ditches and lakeside settlements.

The occupation of lakes in the neighbouring countries of North Macedonia and Albania provides the interesting possibility of comparing contacts both with dry-land and lacustrine settlements. The result is the observation that Dispilio's activities did not focus on or resemble either the dry-land or the lacustrine settlements especially, but that it was embedded in regional dynamics as any other site would be. This confirms the idea that lakeside settlements should not be included in any dualistic discourses, opposing these settlements or the settler's identity and dry-land settlements or their inhabitants. This has been assumed for a long time in lakeside settlements research, but could not be tested fully for the other case studies due to a lack of either contemporaneous dry-land or lacustrine settlements.

When comparing the settling dynamics of each site, the strongest disparity that has been found is the duration of settling. The pre-Alpine sites were usually settled for short periods of time, not only the elected case studies but also generally. Egolzwil 3 existed for a mere nine years and Hörnle I for approximately 16 years. As a result, it has been suggested that these sites were seasonal. Nevertheless, this could not be confirmed. For their short lifespan Egolzwil 3 and Hörnle I were occupied permanently. This dynamic character of settling has also been confirmed at some other pre-Alpine sites where the material records and food remains within houses indicated highly diverse inhabitants within the same settlement. This could be an important reflection of the communities that inhabited these settlements. On the other hand, lakeside settlements in the southeast and southwest of Europe could be occupied for hundreds of years continuously.

Although the construction of the settlements, their lay-out and architecture do not indicate strong differences that could relate to this problematic, people's diet could shed some light on the topic. Although all four sites present a mixed subsistence pattern, relying on domesticated animals and agriculture as well as hunting and gathering, there does seem to be a slight difference. Whereas at Hörnle I and especially Egolzwil 3 hunting still occupied a very important practical role, the hunting that was practiced at La Draga and Dispilio does not seem to fulfill a necessity. For La Draga it has even been suggested that hunting should be seen as a social or ritual activity. This could indicate that the latter two sites, which were inhabited for a significantly longer period of time, relied more heavily on livestock and farming activities that were specifically bound to a single place, whereas the two pre-Alpine sites maintained a certain degree of independence from these place-bound activities that permitted them to abandon and re-occupy sites frequently. These differences in settlement duration and the subsistence patterns that are most probably linked to it could illustrate strongly differing social structures, in spite of other similarities. This indicates that people could have had very different reasons for inhabiting the lakeshore, meaning that the common factor of living near the lake influenced social structures less than expected.

In archaeological research the study of ritual features and especially burials is often helpful in the assessment of aforementioned social dynamics. Nevertheless, burial rites do not offer any help here as they are absent from nearly all lakeside settlements. The only mention that can be made is that of possible future lines of investigation regarding the possible connections between central European lakeside settlements and megalithism. The idea for this line of research stems from the Oberbipp dolmen, contemporaneous with the first Swiss lakesides settlements, and several indications of ancestral cults that were possibly practised at lakeside settlements, such as the burying of isolated bones within the settlements or the presence of humanized vessels or anthropomorphic decorations on houses, reminiscent of megalithic visual elements. As for the other case studies, although several burials were found at Dispilio, their context is too inconclusive and uncertain for them to be taken into account in any conclusive remarks. At La Draga, as at most other Early Cardial sites in the region, burials are absent too.

An important point in this build-up to the reasons at play in the selection of settlement locations is the role that water played at each site. Both Egolzwil 3 and Hörnle I present some fishing tools and fish remains, but it has been claimed generally that the pre-Alpine lakeside settlements do not show enough evidence in

order to assume that fishing played a crucial or even important role. La Draga presents a similar situation and only Dispilio has been interpreted as being strongly focused on lake exploitation. Beyond this primary exploitation of the lake other reasons, such as the lack of space in the hinterland and the ease of construction, could theoretically be valid for each case study. Nevertheless, the argument of the ease of construction on the lakeside is tricky as the required technology for this is something that is developed over time. Therefore, this would not necessarily benefit initial settlers and influence the decision to settle near the water.

However, what can be treated as an important water-bound factor is that of the networks maintained by lakeside settlements. The importance of various trading and exchange networks is strongly visible in the material culture (especially at Hörnle I) and at least at Dispilio this specific relation to the water is possibly confirmed by the presence of boat-models and actual log-boats. An increased importance of trading networks at lakeside settlements, compared to other settlements, remains to be investigated more closely. Nevertheless, for now there are no reasons to believed Dispilio would be more or less strongly embedded in networks than any other site, as opposed to for example Hörnle I, although it does show stronger emphasis on elements related to water.

Summarizing the archaeological evidence in the light of the posed question for the sites that were discussed:

Egolzwil 3, one of the very first lacustrine settlements in its region, was possibly initially settled due to the spacious environment, free from trees, provided by the lakeshore. Its otherwise unfavourable position and the scarcity of certain resources such as lithics was compensated by the favourable exchange networks. Mesolithic roots that can be recognized at this site speak against complete newcomers, colonizing the region, and as Mesolithic evidence around the lake is known perhaps the definite settling of the lakeshore is after all the continuation of a tradition, only now archaeologically better visible.

Hörnle I shows much more strongly developed contacts. The position, near the extensive Lake Constance and benefitting from trading routes in the river valley, seems to favour this strongly emphasized characteristic of the site whereas other explanations fall short.

At La Draga the significance of the lakeshore is barely noticeable, neither in terms of fishing or networks that would be more strongly developed than those of its contemporary counterparts, although the advantages of a certain ease of mobility around the lake and relationships with surrounding sites were undeniably facilitated. Perhaps the settlement's occupation can be explained pragmatically, as is best illustrated by the

architecture. La Draga shows evidence of both structures raised on platforms and structures on the ground which could indicate that the site near the lake was settled because of the practical consideration that there was space and the inconvenience of small floodings was compensated by the platforms in the lakemarl.

Dispilio is the only site that is thought to have relied strongly on the exploitation of the lake. This, combined with the presence of boats, which doubtlessly facilited various contacts, could already be enough reason to occupy the lakeshore. An additional aspect is the fact that in this region both dry-land and lacustrine occupations are common in the Neolithic, illustrating that lakeside settlements here are simply no more or less than another type of settlement, which can offer certain advantages, as mentioned before. Nevertheless, these advantages are a minor aspect of the settling reality in which the site is embedded. The slight water-bound specifics would possibly be only a nuance in an otherwise unified identitarian reality.

The previously mentioned issues regarding identity are difficult to assess. For this reason, the inclusion of aspects that are not easily traced in the archaeological record, the anthropological case studies were included. From these we learn that the *ribeirinhos* were highly adapted to their environment. Inconveniences posed by the frequently flooded and unstable environment of the Amazon floodplains were not only compensated by a strong exploitation of the rivers and their intensive use in transport, but even integrated to become a part of life.

In ritual contexts water does play a role, but it is not primary as also other elements are integrated. Although water deities are present and the river occupies a symbolically fluid and dualistic position, these only make for a small part of the broad spectrum of ritual beliefs and activities. Life close to the water influenced people's culture and identity both, but this is something that could appear after a certain period of time and is thus not eligible to count as a reason for initial settling, but rather as a result of settling. One of the problematic aspects of this work was that similar reasoning could not be made for the archaeological case studies as ritual evidence was often either absent or invisible. Nevertheless, the previous statement does offer a possible interpretation, confirming that water can initially be a practical factor and only later grow to occupy a ritual role. At a certain point water also enters the intangible world of people in the form of stories, certain rites or as a presence but, from the *ribeirinhos'* case and the overweighingly practical considerations found at the archaeological case studies, it seems that this was not the initial reason to live nearby the water.

Another anthropological example this was contrasted with is Amsterdam, which illustrated a case in which people create their own landscape. The disconnection of the

inhabitants from water on almost all levels here exemplifies the possibility that such a seemingly important element of the landscape is reduced to a mere presence. Thus any possible non-practical properties ascribed to it are diminished as a certain sense of wonder ceases to exist and natural occurrences no longer need to be explained by myths or beliefs. Historically this was different, when the city relied on fishing activities or when the harbour of Amsterdam was still one of the most important ones in the world, but the gradual diminishing of the practical importance in combination with the lack of natural mystery have had their effect.

It remains confirmed that the reasons for inhabiting lacustrine environments can be highly diverse as many different factors are at play. No common truth valid for the settling of all lacustrine settlements can be synthesized from the data. The ideological importance that could have weighed in here and any symbolical value ascribed to water is most likely to have been of a smaller significance initially, possibly gaining in importance over time, as was explained similarly for the constructional advantages which at the first settling would not necessarily be relevant as the technology still needed to be developed.

The idea that subtle differences in identity could perhaps be observed between lakeside settlers and dry-land settlers is very difficult to assess from the archaeological record. Especially because we are not talking about a set identity that can be boxed in, but about nuances. As much as these nuances should be part of archaeological research, it is difficult to assess them in prehistorical contexts. Nevertheless, what was shown in the archaeological record is that each site was strongly embedded within its own regional context. Therefore, if the settling near the lake influenced certain aspects of identity this did not necessarily exclude people from broader social contexts. Over time people could change their relationship with the environment and certain aspects could start occupying ideological meanings. Additionally, it should be taken into account that the reasons that led people to settle a certain location could be very different from the reasons that kept them there.

For the archaeological case studies discussed in this work individual hypotheses have been proposed, elaborated through an exhaustive assessment of the archaeological record. By acknowledging lakeside settlements as another part of the spectrum of settling possibilities, while accepting certain nuances influenced by the water, be this practical or ideological, and accepting a versatility and possible changes in meaning of these nuances over time, we are taking a step in the direction of visualizing more intricate identitarian realities in the archaeological record. As was stated in the beginning, the goal of this study was not to find a simple answer, but to explore a highly social question in a time in which archaeological research is becoming

increasingly scientific and is preoccupied with answers to which we do not know the questions.

This work contributes to the existing literature on this topic by bringing together and discussing all possible aspects of settling near the lake exhaustively; the reasons that could have led to this but also the implications for the lakesettlers' lives. The results show that nearly all maintained argumentations in previous publications fall short, as only small aspects of that what is presented here are usually mentioned, supposedly explaining a complex context. Additionally, by adding the southern lakeside settlements a new line of investigation has been opened, connecting these different parts of Europe and new possibilities for future research. The findings in this work can be of interest for investigations pertaining to the thematic of wetland settling as they shed light on initial motives, or the lack of those, to occupy these specific places. Apart from this, it also illustrates the possibilities of the used specific research approach that relies on highly interpretative, inclusive, and international aspects.

BIS! (CONCLUSIONES)

El presente trabajo se centra en la pregunta que podría haber influenciado a la gente en diferentes partes de Europa a ocupar entornos lacustres en el Neolítico. Las dos principales razones para valorar esta cuestión son la existente falta de investigación acerca del tema y el énfasis que se hace en el método implementado en este trabajo, que podría beneficiar futuras investigaciones.

El estudio se basa en literatura existente, no incluye trabajos de campo y por lo tanto no contribuye con datos ”nuevos”. Sin embargo, esto se considera como un aspecto positivo porque en la arqueología a menudo existe una preferencia por ”nuevos descubrimientos”, cuando en realidad son las interpretaciones y los enfoques los que deberían ser innovadores y llevar a revelaciones importantes. Para este fin el marco teórico es un elemento clave.

Este trabajo ha sido influenciado por los conceptos del enfoque simétrico, presente no sólo en la teoría arqueológica pero también en la antropológica, y hace hincapié en los distintos significados del paisaje. También la cooperación entre distintas disciplinas y el uso de métodos innovadores se promocionan. Un ejemplo de lo último sería el uso de Sistemas de Información Geográfica (SIG).

A parte de presentar interesantes posibilidades para la investigación arqueológica, la elaboración de distintos mapas contribuye a un enfoque muy visual y comprensible.

Otro punto importante es el contexto, expresado en distintos niveles. Se implementa a pequeña escala a través de la inclusión de todos los elementos del registro arqueológico y elementos visibles e invisibles de los yacimientos de los casos de estudio, a escala regional situando los yacimientos dentro del contexto regional de asentamientos, y finalmente a escala internacional haciendo formar parte del trabajo a distintos países y por lo tanto distintas tradiciones de investigación.

Los casos de estudio arqueológicos que fueron estudiados según estos criterios son: ~~;~~ Egolzwil 3 (Pantano de Wauwil, Suiza), Hörnle IA (Lago de Constanza, Alemania), La Draga (Lago de Banyoles, España) y Dispilio (Lago de Orestias, Grecia). Además se elaboraron dos casos de estudio antropológicos: los *ribeirinhos* (llanuras aluviales del –Amazonas, Brasil) y Amsterdam (Lago de Ij, Países Bajos). El valor de estos últimos es que se visualizaron ciertos elementos que parecen invisibles en los yacimientos arqueológicos, llevando a observaciones novedosas.

Esta riqueza en datos y contextos es uno de los puntos fuertes de este estudio, permitiendo interesantes observaciones en los capítulos siguientes a los casos de estudios. Sin embargo, esta variedad en yacimientos, métodos de investigación y estados de

publicación eran las principales dificultades con las cuales se topaba el trabajo. La complejidad del proceso de sintetizar un nivel de conocimiento igualitario de los distintos contextos se solía manifestar en diversas ausencias, como son la ausencia de yacimientos contemporáneos en el área cerca de los Alpes, o las disparidades en los niveles de investigación.

Los yacimientos no pertenecen a las mismas cronologías pero están vinculados porque son los primeros palafitos conocidos en sus respectivas regiones. Por lo tanto, no constituyen un conjunto, ni en cronologías, regional o culturalmente, pero más bien fueron estudiados como una multitud de expresiones que contribuyen a la respuesta a la pregunta que impulsó la vida en el lago.

Egolzwil 3, fundado cerca del 4300 BC, es uno de los primeros yacimientos lacustres conocidos al norte de los Alpes. Aunque el área alrededor de los prealpes ya fue poblada por las sociedades LBK, las zonas sin tierras Löss permanecieron excluidas de ocupaciones neolíticas hasta los primeros palafitos. Fueron confirmadas ocupaciones mesolíticas, pero la temática de la transición sigue siendo problemática. Indicaciones de una cierta continuidad entre el Mesolítico y el Neolítico en esta zona se pueden reconocer en la importancia de estrategias de subsistencia mesolíticas encontradas en los primeros yacimientos palafíticos. Tambien la posible importancia no-práctica de la pesca podría señalar vínculos con los antecesores mesolíticos. Yacimientos contemporáneos o un poco más tardíos muestran una realidad similar.

Otro yacimiento del ámbito centroeuropeo, incluido como caso de estudio, es el de Hörnle I, habitado a partir del 3900 BC. Este asentamiento, al contrario de Egolzwil 3, posiblemente representa una continuación de una ocupación neolítica de las orillas del lago y parece correspondientemente más integrada en su contexto. Aunque Egolzwil 3 se encontraba dentro de un contexto de redes de contacto, Hörnle I presenta amplias redes de intercambio hacía todas direcciones en Europa. Probablemente su posición en el Lago de Constanza, aprovechando de importantes redes de contacto que fluían a través de los valles de los ríos, formaba un factor decisivo en esto. También la cerámica recuperada de este yacimiento indica un intercambio fuerte, de materiales e ideas, con asentamientos contemporáneos. En comparación, Egolzwil 3 presenta un conjunto mucho más único. Sin embargo, una presencia muy importante en ambos yacimientos, y en todos los palafitos de esta región, es la de una especie especifica de trigo (*Triticum turgidum*). Este tipo de cereal conecta los asentamientos con el área del Mediterráneo, aunque no queda claro si este contacto se manifestaba por contactos entre gente, desplazamientos más permanentes, o que influencia esto tenía en los procesos de neolitización. Aunque contactos directos entre

personas son muy probables, una directa ola de neolitización no lo es, si nos atenemos a la supervivencia de tradiciones anteriores. Además, esto no ofrecería respuestas definitivas a la pregunta de por qué la gente empezó a ocupar entornos húmedos, como los primeros palafitos al norte de los Alpes no coinciden cronológicamente con los palafitos conocidos del ámbito mediterráneo.

Un ejemplo de un yacimiento lacustre mediterráneo es La Draga, ocupado a partir del 5250 BC y por lo tanto formando parte del Neolítico Antiguo en el nordeste de España. Este yacimiento está integrado en la dualidad específica presentada por esta cronología en el área. Se puede distinguir entre dos tradiciones distintas, representadas por un lado por yacimientos epicardiales, frecuentemente en cuevas, y yacimientos cardiales, como La Draga. Los primeros han experimentado un proceso de neolitización pero siguen enclados en tradiciones mesolíticas. Esto forma un contraste importante con los yacimientos cardiales que presentan métodos neolíticos altamente especializados y aparecen de repente. Por estas razones se ha sugerido que la gente creando este tipo de asentamientos sean *maritime pioneer colonists* que atravesaron el mar. La Draga pertenecería a esta última categoría. Sin embargo, su posición en la orilla del Lago de Banyoles no parece influir en su existencia demasiado. Alguna indicación de raíces mesolíticas se podría interpretar desde la caza más bien secundaria o incluso simbólica que se practicaba en el yacimiento.

Finalmente, el último caso de estudio, el yacimiento de Dispilio, presenta otra realidad más diversa aún. Este asentamiento comenzó a ser habitado cerca del 5300 BC y está integrado en el contexto del Neolítico Medio del norte de Grecia. Forma parte de un periodo en el cual todos los discursos respecto a transiciones han perdido su relevancia. Dispilio se encuentra en un área que forma un corredor importante entre Europa y Anatolia, por lo tanto colocándolo dentro de extendidas redes de contacto. Existen numerosas evidencias del Neolítico en esta región, incluyendo por ejemplo *tells*, asentamientos planos, fosas, fosos y palafitos. La ocupación encontrada en los lagos de los países vecinos de Macedonia y Albania ofrece la posibilitad de comparar contactos con ambos asentamientos en tierra y palafitos. El resultado es la observación de que Dispilio no se relacionaba de una manera especial con ninguno de los dos, pero estaba integrado en las dinámicas regionales igualmente, lo cual confirma una hipótesis que no se podía corroborar en los otros casos de estudio, o por la ausencia de asentamientos en tierra contemporáneos o palafitos contemporáneos.

Comparando las dinámicas de asentamiento de cada yacimiento, la disparidad más destacada es la duración de la ocupación. Los yacimientos prealpinos suelen haber sido ocupados durante estancias cortas

en el Neolítico, no sólo los casos de estudio inlcuidos en el presente trabajo pero también más generalmente. Egolzwil 3 existió nueve años y Hörnle I aproximadamente 16. Por lo tanto, fue sugerido que estos asentamientos fueron estacionales, lo cual no se pudo comprobar nunca. Esta dinámica de asentamiento fue confirmada también en otros yacimientos prealpinos donde los materiales y las evidencias de la dieta encontrados en varias casas indicaban una alta diversidad de habitantes dentro del mismo asentamiento. Esto podría ser un importante reflejo de las comunidades que vivían ahí. Por el contrario, yacimientos lacustres en el sureste o suroeste de Europa fueron ocupados continuamente durante varios siglos.

Aunque la construcción de los asentamientos, su disposición o arquitectura no indican diferencias que podrían ayudar en la interpretación de esta problemática, la dieta de los habitantes podría arrojar luz sobre el tema. Los cuatro casos de estudio presentan estrategias de subsistencia mixtas, dependiendo de animales domesticados y actividades agrícolas, también la caza y recolección, pero se pueden observar ciertas diferencias. Mientras en Hörnle I y especialmente Egolzwil 3 la caza seguía ocupando un papel práctico de gran importancia, la caza que se practicaba en La Draga y Dispilio no parece tener la misma importancia práctica, si no más bien social o ritual, como se ha sugerido para La Draga. Esto podría indicar que los últimos dos asentamientos dependían fundamentalmente de actividades de ganadería y agricultura, ligadas a un único lugar, mientras los yacimientos prealpinos mantenían un cierto grado de independencia que les permitía abandonar y volver a ocupar sitios con frecuencia. Esta diferencia indica que la gente podría haber tenido razones muy diversas para ocupar las orillas y que el factor común de vivir cerca del lago influía menos en las estructuras sociales de lo que se podía haber esperado.

En la investigación arqueológica el estudio de rasgos rituales y especialmente enterramientos se considera de alta importancia a la hora de valorar dinámicas sociales, como por ejemplo las mencionadas anteriormente. Sin embargo, en este caso los ritos funerarios no ofrecerán ayuda al no ser visibles en casi todos los yacimientos lacustres. Lo único que se podría mencionar en este apartado es la posible futura línea de investigación acerca de posibles conexiones entre los yacimientos lacustres de Europa central y el megalitismo. La idea para esta dirección de investigación se basa en varios indicios, como son el dolmen de Oberbipp, coincidiendo con los primeros asentamientos en zonas húmedas de Suiza, y varias indicaciones de posibles cultos a ancestros que posiblemente se practicaban en estos sitios, como por ejemplo el enterramiento de huesos aislados dentro del asentamiento o la presencia de recipientes antropomorfos o la

decoración antropomorfa de casas, evocadora de los elementos visuales megalíticos. En el caso de Dispilio se han hallado varios enterramientos, sin embargo su contexto es tan poco concluyente que no se les puede tener en cuenta para observaciones finales. También en La Draga, como es común en los yacimientos Cardiales de la región, los enterramientos están ausentes.

Un punto importante en esta acumulación de información que llevan a las razones relevantes en la selección de lugares para ocupar, es el papel que tenía el agua en cada asentamiento. En Egolzwil 3 y Hörnle I fueron encontrados utensilios de pesca y restos de pescado. Sin embargo, generalmente se sostiene que los asentamientos prealpinos no muestran las suficientes evidencias como para adscribir un papel primario o demasiado importante a la explotación del lago, lo cual parece casar con las evidencias de estos yacimientos. La Draga presenta un caso similar, y únicamente en Dispilio se puede reconocer un fuerte énfasis en la explotación del lago. A parte de esta explotación de los recursos acuáticos también otros puntos podrían aplicarse a todos los casos de estudio, como por ejemplo la falta de espacio en los densos bosques rodeando los yacimientos y la facilidad de construcción en la orilla del lago. Sin embargo, este último argumento es engañoso pues la facilidad de construcción depende de ciertas técnicas que tienen que ser adquiridas antes de ser rentables. Por lo tanto es probable que estas técnicas se desconocieran al principio, en consecuencia, la importancia de este argumento explicando los motivos de los primeros pobladores disminuye.

Sin embargo, un factor importante relacionado con el agua es el de las redes de contacto y de intercambio que fueron mantenidas por asentamientos lacustres. La importancia de varias redes se refleja claramente en la cultura material (especialmente en el caso de Hörnle I), y al menos en Dispilio esta relación especial con el agua se ve confirmada en la forma de varios modelos de barcos y verdaderos barcos hechos de troncos. La importancia elevada de redes de contacto en los yacimientos palafíticos en comparación con otros yacimientos queda aún por investigar. Aún así, de momento no hay razones por las cuales se podría suponer que Dispilio estaba más o menos fuertemente integrado en redes de contacto que otros asentamientos, al contrario de Hörnle I, aunque muestra más elementos conectados con el agua.

Resumiendo las evidencias arqueológicas a la luz de las preguntas que se plantearon:

Egolzwil 3 se ocupó inicialmente aprovechando el entorno amplio de la orilla, libre de una vegetación densa. Su posición más bien desfavorable y la escasez de ciertos recursos, como materiales líticos, fueron compensados por favorables redes de

intercambio. Las raíces mesolíticas que se pueden apreciar están en contra de la teoría de que los habitantes de Egolzwil 3 hubieran sido personas externas, recién llegadas. Como se conocen restos mesolíticos del entorno es posible que la ocupación del lago fuera la continuación de una tradición anterior, ahora visualizada mejor en el registro arqueológico.

Hörnle I muestra indicios de contactos regionales y de larga distancia mucho mejor desarrollados que los de Egolzwil 3. Su posición, en la orilla del extenso Lago de Constanza y cerca de redes de contacto aprovechando los valles de varios ríos, parecen favorecer esta característica tan presente del asentamiento, dónde otras explicaciones para su fundación no son suficientes.

En La Draga, la posición cerca del lago parece ser de poca importancia, ni en aspectos de la explotación del lago ni comparando las redes de contacto con yacimientos contemporáneos. Sin embargo, seguramente el acceso al lago para mantener contacto con otros yacimientos cercanos fue aprovechado. El uso pragmático de la arquitectura podría confirmar que el yacimiento de La Draga fue ocupado únicamente por consideraciones prácticas. Existen evidencias tanto de estructuras elevadas sobre pilotes como estructuras directamente en el suelo. La inconveniencia de pequeñas inundaciones fue compensada con la construcción sencilla de plataformas en las orillas.

Dispilio es el único yacimiento en el cual la pesca parece ocupar una función significativa. En combinación con las redes de contacto atestiguadas por la presencia de barcos, estos podrían ser los argumentos más importantes para la ocupación de la orilla del Lago de Orestiada. Un aspecto adicional es el hecho de que en esta región ambos yacimientos lacustres y en tierra seca son comunes en el Neolítico, mostrando que los asentamientos lacustres no son más que otro tipo más de asentamiento, quizás ofreciendo algunas pequeñas ventajas relacionadas con el entorno específico. Sin embargo, estas ventajas no serían nada más que un aspecto del conjunto de asentamientos en el cual el yacimiento estaba integrado. Los aspectos específicos relacionados con el agua podrían ser tan sólo un matiz pequeño en una identidad común y unificada.

La temática de la identidad es difícil de valorar. Por lo tanto fueron incluidos los casos de estudio antropológicos, visualizando varios aspectos que son difíciles de identificar en el registro arqueológico. Así vemos que por ejemplo los *ribeirinhos* están altamente adaptados a su entorno. Las inconveniencias causadas por las frequentes inundaciones y el entorno poco estable de las llanuras aluviales del Amazonas se compensan con una fuerte explotación de los ríos y el uso intensivo de los mismos como modo de transporte.

A parte de eso, el agua también ha sido incorporada como una parte sustancial en otros aspectos de la vida.

El agua ocupa un papel en contextos rituales, pero no es tan primario como se podría haber esperado, sino que también quedan incluidos otros elementos. Aunque deidades de agua están presentes y el río ocupa una posición simbólicamente líquida y dualística, esto es solo un pequeño aspecto del abanico de creencias rituales y actividades que los *ribeirinhos* mantienen. La vida cerca del agua influencia la cultura y la identidad de las personas, pero esta influencia se puede estimar más bien como algo que se manifiesta a lo largo del tiempo, y por lo tanto no se puede considerar como un motivo explicando la ocupación inicial de los entornos húmedos. Uno de los aspectos problemáticos en la elaboración del presente trabajo ha sido el hecho de que las mismas consideraciones no se pueden realizar para los casos de estudio arqueológicos, porque las evidencias rituales normalmente estaban ausentes o invisibles. Sin embargo, la anterior afirmación provee una posible interpretación, confirmando que el agua puede ser una entidad únicamente práctica que desarrolla su papel simbólico a lo largo del tiempo. En un momento determinado el agua entonces entra en el mundo intangible de la gente, adoptando la forma de historias, ciertos ritos o una presencia; pero, a partir del ejemplo de los *ribeirinhos* y las consideraciones más bien prácticas que se han demostrado en los casos de estudio arqueológicos, esto no parece haber sido un motivo principal inicialmente.

Otro ejemplo antropológico que se incluyó es el caso de Amsterdam, ilustrando como la gente es capaz de crear su propio paisaje y los resultados de esto. La desvinculación entre los habitantes y el agua en prácticamente todos los niveles demuestra que un elemento del paisaje tan importante se ve reducido a una mera presencia. Por lo tanto, posibles significados no-prácticos desaparecen. Una cierta sensación de asombro deja de existir y ocurrencias naturales no se tienen que explicar a través de mitos o creencias. Históricamente esto no fue así, cuando la ciudad dependía de la pesca o cuando el puerto de Amsterdam aún era uno de los más importantes en el mundo. Sin embargo, el decreciente progreso de la importancia práctica del agua en combinación con la carencia de asombro a causa de lo natural han tenido sus efectos.

Queda confirmado que las razones para la ocupación de entornos lacustres pueden ser muy diversas, porque es necesario considerar una multitud de factores. No se puede resumir una verdad común para todos los yacimientos lacustres. La importancia ideológica y el valor simbólico del agua probablemente hayan sido de menor importancia inicialmente, posiblemente ganando mayor relevancia a lo largo del tiempo, de forma similar a como se explicó para las ventajas de construcción que

en el caso de los primeros asentamientos no necesariamente serían muy relevantes porque primero había que desarrollar las técnicas adecuadas.

Las posibles diferencias en identidad entre los ocupantes de los lagos y los de tierra seca, resultado de una relación intensa con el agua, son difíciles de valorar desde el registro arqueológico. Especialmente porque no se trata de una identidad fija que se puede delimitar, pero más bien de matices. Aunque estos matices deberían ser una parte vital de la investigación arqueológica, no siempre es fácil valorar estos temas en contextos prehistóricos. Sin embargo, fue demostrado que cada asentamiento estaba integrado plenamente en su contexto. Por lo tanto, si bien la ocupación de las orillas influenciaba ciertos aspectos de la identidad esto no significaba que el resultado fuera la exclusión de ciertas comunidades de contextos sociales más amplios. A lo largo del tiempo, la relación entre la gente y su entorno podría tomar formas más ideológicas. Además, se debe considerar también que las razones que llevaron a la gente a ocupar un lugar específico pueden ser muy diversas de las razones por las que se quedan.

Se propusieron hipótesis individuales para los casos de estudio arqueológicos incluidos en el presente trabajo, elaborados a través de un estudio comprensivo del registro arqueológico. Al reconocer los asentamientos lacustres como una parte más del abanico de posibilidades de ocupación, a la vez que aceptando ciertos matices influenciados por el agua (siendo estos prácticos o más bien ideológicos) y admitiendo una versatilidad y posibles cambios en el significado de los mismos a lo largo del tiempo, estamos dando el siguiente paso hacia la visualización de realidades identitarias más intrincadas en el registro arqueológico. Como se mencionó en el inicio, el objetivo de este trabajo no fue encontrar una respuesta sencilla sino explorar una cuestión altamente social en un tiempo en el que la investigación arqueológica se está volviendo más y más científica y se está ensimismando con respuestas de las cuales desconocemos las preguntas.

La contribución del presente trabajo a la literatura existente es el hecho de que reúne y valora todos los posibles aspectos de la vida cerca del lago exhaustivamente, las razones que podrían llevar a ese tipo de ocupación pero también las implicaciones de ello en la vida diaria. Los resultados han demostrado que prácticamente todas las argumentaciones anteriores en la literatura no erean suficientes, como normalmente se mencionan tan sólo aspectos muy pequeños, supuestamente explicando un contexto complejo. Adicionalmente, a través de la inclusión de yacimientos de otras partes de Europa se ha abierto una nueva línea de investigación, conectando distintas regiones y por lo tanto proporcionando nuevas posibilidades para futuras investigaciones. Las observaciones del

presente trabajo pueden ser de interés para cualquier investigación acerca de la ocupación de entornos lacustres, porque arroja luz sobre los motivos, o la falta de ellos, relevantes en la ocupación inicial de estos entornos. Además, este trabajo demuestra las posibilidades de una metodología específica, basándose en aspectos altamente interpretativos, inclusivos e internacionales.

SUMMARY

Lakeside settlements have been the subject of archaeological research in Europe for the biggest part of two centuries, starting with the excavations conducted on the Swiss lakeshores and spreading from there. This work poses the question what moved people in different parts of Neolithic Europe to start settling wetlands. Fishing, the control of waterways, the vicinity of various resources, a defensive position, demographic pressure and the ease of construction have all been mentioned as possible reasons in literature. However, in-depth studies are absent and most reasoning is general, environmentally deterministic and lacking the acknowledgement of non-practical factors (Chapter 1). Thus the current work both plays into an existing knowledge gap and aims to develop and present a highly inclusive (focusing on international and interdisciplinary aspects) and theoretical approach (Chapter 2) which could benefit future research too.

Four archaeological case studies from different European regions were selected, sharing the trait that they are the oldest known lakeside settlements in their respective areas. These are Egolzwil 3 (starting approx. 4300 BC, Switzerland, Wauwil Bog), Hörnle I (starting approx. 3900 BC, Germany, Lake Constance) in the northern pre-Alpine area, La Draga (starting approx. 5250 BC, Spain, Catalonia) in southwestern Europe and Dispilio (starting approx. 5300 BC, Greece, Lake Orestias) in southeastern Europe. A profound assessment of the material record from these settlements was carried out, based both on direct resources, such as raw materials, and indirect (intangible) resources, with a strong focus on regional contacts and landscape. Additionally, two anthropological case studies were included; the *ribeirinhos* societies (Brazil, Amazon floodplains) and Amsterdam (the Netherlands, Ij Lake) in order to attest for issues that are traced with difficulty in the archaeological record and to provide different points of view (Chapter 3).

After a comprehensive evaluation of the situation presented by each site (Chapter 4) several hypotheses were formulated to extract the factors at play in the decision to settle the lakeshore at each settlement from the archaeological data (Chapter 5).

The first indication breaking with the possibility of unified motives for settling wetlands was the duration of the lifespan of the settlements. Whereas the pre-Alpine sites were settled for extremely short periods of time, the other discussed settlements were occupied for hundreds of years. This might be clarified by the a closer assessment of the diet. Whereas hunting occupies an important practical role at the pre-Alpine sites of Egolzwil 3 and Hörnle I, its role at the other sites is significantly smaller and perhaps socially or ritually motivated. The latter sites relied more heavily on place-bound livestock and farming activities, whereas the pre-Alpine sites maintained a certain degree of independence that permitted them to abandon and re-occupy sites frequently. This difference indicates that the common factor of living near the lake influenced social structures less than expected.

The anthropological case studies shed some light on such topics of social dynamics. The *ribeirinhos* were highly adapted to their environment and the floodplains, with all their advantages and disadvantages, were integrated into daily life and the ideological realm. Contrastingly, in Amsterdam water ceased to hold active meaning in either practical or symbolical contexts as its practical function was abandoned and the intangible factor of the landscape disappeared by the de-mystifying effect of people's alterations. The reasons for inhabiting lacustrine environments can be highly diverse and no common truth valid for all lacustrine settlements can be synthetized. The ideological importance that could have been at play in the occupation of lacustrine environments is most likely to have been of a smaller significance initially, possibly gaining in importance over time. For the

archaeological case studies several hypotheses have been formulated.

Egolzwil 3 was possibly initially settled due to the spacious environment, already free from trees, provided by the lakeshore. Its otherwise unfavourable position and the scarcity of certain resources such as lithics was compensated by favourable exchange networks. Mesolithic roots that can be recognized at this site speak against complete newcomers, colonizing the region. As Mesolithic evidence around the lake is known perhaps the definite settling of the lakeshore is after all the continuation of an anterior tradition, which has only become better visible archaeologically. Hörnle I shows much more strongly developed regional and long-distance contacts than Egolzwil 3. The position, near the extensive Lake Constance and benefitting from trading routes in the river valleys, seems to favour this strongly emphasized characteristic of the site whereas other explanations for its establishment fall short. At La Draga the position on the lakeshore seems of very small importance. The pragmatic approach maintained in the architecture could explain this. Evidence of both structures raised on platforms and structures on the ground could indicate that the site near the lake was settled because of the practical consideration that there was space to settle and the inconvenience of small floodings was compensated by the easily constructed platforms in the lake marl. Dispilio is the only site that is thought to have relied strongly on fishing activities. This, combined with the networks attested by the presence of boats could form important reasons to occupy the lakeshore. An additional aspect is the fact that in this region both dry-land and lacustrine occupations are common in the Neolithic, illustrating that lakeside settlements are no more than another type of settlement.

Possible subtle differences in identity between lakeside settlers and dry-land settlers as the result of an intensive relationship with water are difficult to assess. Each site was embedded within its own context and there are no indications in the material record that could indicate a strongly differing identity. Therefore, if the settling near the lake influenced certain aspects of identity this did not necessarily exclude people from broader social contexts. By acknowledging lakeside settlements as another part of the spectrum of settling possibilities, while accepting certain nuances influenced by the water, be this practical or ideological, and accepting a versatility and possible changes in meaning of these nuances over time, we are taking a step in the direction of visualizing more intricate identitarian realities in the archaeological record.

This work contributes to the existing literature on this topic by bringing together and discussing all possible aspects of settling near the lake exhaustively; the reasons that could have led to this but also the implications for the lakesettlers' lives. The results show that nearly all maintained argumentations in previous publications fall short. Additionally, by including lakeside settlements from different regions a new line of investigation has been pursued, connecting different regions and thus opening new possibilities for future research. Moreover, this work illustrates the possibilities of a specific research approach that relies on highly interpretative, inclusive, and international aspects.

RESUMEN

Los yacimientos en zonas húmedas han sido un tema importante en la investigación arqueológica de Europa durante la mayor parte de los dos últimos siglos, iniciándose en las orillas de los lagos suizos. En el presente trabajo se plantea la pregunta que se tendría en mente la gente en distintas partes de Europa paraa ocupar estas zonas húmedas en el Neolítico. La pesca, el control de vías de agua, la proximidad a varios recursos, una posición defensiva, presión demográfica y la facilidad de construcción son todo argumentos que han sido mencionados en literatura como posibles explicaciones. Sin embargo, no se han llevado a cabo estudios exhaustivos acerca de este tema y la mayoría de las argumentaciones son demasiado generales, ecológicamente deterministas y no reconocen factores que no sean prácticos (Capítulo 1). Por lo tanto, el presente trabajo pretende desempeñar el papel de profundizar en una existente brecha de conocimientos, a la vez que presenta un enfoque altamente inclusivo (haciendo hincapié en aspectos internacionales e interdisciplinarios) y teorético (Capítulo 2), lo cual podría ser en beneficio de futuras investigaciones.

Cuatro casos de estudio de distintas regiones de Europa fueron seleccionados, unidos por el hecho de ser los yacimientos palafíticos más antiguos conocidos en cada área. Se han incluido~~,~~: Egolzwil 3 (desde aprox. 4300 BC, Suiza, Pantano de Wauwil) y Hörnle I (desde aprox. 3900 BC, Alemania, Lago de Constanza) en el área prealpino norte, La Draga (desde aprox. 5250, España, Lago de Banyoles) en el suroeste de Europa y Dispilio (desde aprox. 5300 BC, Grecia, Lago de Orestias) en el sureste de Europa. Un estudio exhaustivo de los registros arqueológicos de estos yacimientos se ha llevado a cabo, basado en recursos directos, como materias primas, y recursos indirectos (intangibles), con énfasis especial en contactos regionales y el paisaje. Asimismo, fueron incluidos dos casos de estudio antropológicos~~,~~ , como son las comunidades *ribeirinho* (Brasil, llanuras aluviales del Amazonas) y Amsterdam (Países Bajos, Lago de Ij), para ofrecer la posibilidad de visualizar cuestiones que son difíciles de identificar en el registro arqueológico, y presentar distintos puntos de vista (Capítulo 3).

Después de una evaluación comprensiva de la situación representada por cada yacimiento (Capítulo 4), se formularon varias hipótesis con el fin de extraer los distintos factores en juego en la decisión de asentarse en la orilla del lago (Capítulo 5).

La primera indicación que rompe con la posibilidad de la existencia de motivos homogéneos para la ocupación de zonas húmedas es la duración de los asentamientos. Mientras los asentamientos prealpinos fueron ocupados durante periodos de tiempo muy cortos, los otros asentamientos estudiados fueron ocupados durante varios siglos. Posiblemente una mirada más profunda a los estudios de la dieta podría aclarar este tema. La caza sigue ocupando un papel práctico muy importante en Egolzwil 3 y Hörnle I. Sin embargo, en La Draga y Dispilio la caza ocupa más bien un lugar secundario, posiblemente de una importancia social o ritual. Los últimos asentamientos dependían fundamentalmente de actividades de ganadería y agricultura, ligadas a un único lugar, mientras los yacimientos prealpinos mantenían un cierto grado de independencia que les permitía abandonar y volver a ocupar sitios con frecuencia. Esta diferencia indica que el factor común de vivir cerca de un lago influía menos en las estructuras sociales de lo que se podía haber esperado.

Los casos de estudio antropológicos también pueden arrojar luz sobre la temática de dinámicas sociales. Los *ribeirinhos* están altamente adaptados a su entorno y las llanuras aluviales, contando con todas sus ventajas y desventajas, integradas tanto en la vida diaria como en el ámbito ideológico. Por el contrario, en Amsterdam el agua dejó de ocupar un significado activo en ambos contextos prácticos o simbólicos como resultado del abandono de funciones prácticas y la desaparición del factor intangible del paisaje, debido al efecto desmitificador de las alteraciones humanas. Las

razones para la ocupación de entornos lacustres pueden ser altamente diversas y es imposible sintetizar una verdad válida para todos. La importancia ideológica que podría haber sido relevante en la ocupación de estos entornos probablemente haya sido de menor importancia inicialmente, con la posibilidad de ir adquiriendo significado a lo largo del tiempo. Por ello, para los casos de estudio arqueológicos fueron elaboradas varias hipótesis.

Egolzwil 3 se ocupó inicialmente aprovechando el entorno amplio de la orilla, libre de una vegetación densa. Su posición más bien desfavorable y la escasez de ciertos recursos, como materiales líticos, fueron compensados por favorables redes de intercambio. Las raíces mesolíticas que se pueden apreciar están en contra de la teoría de que hubieran sido personas externas, recién llegadas, los habitantes de Egolzwil 3. Como se conocen restos mesolíticos en el entornoe es posible que la ocupación del lago fuera la continuación de una tradición anterior, ahora visualizada mejor en el registro arqueológico. Hörnle I muestra contactos regionales y de larga distancia mucho mejor desarrollados que los de Egolzwil 3. Su posición, en la orilla del extenso Lago de Constanza y cerca de redes de contacto aprovechando los valles de varios ríos, parecen favorecer esta característica tan presente del asentamiento dónde otras explicaciones para su fundación se quedan cortas. En La Draga, la posición cerca del lago parece ser de poca importancia. El uso pragmático de la arquitectura podría confirmar esto. Existen evidencias de estructuras elevadas sobre pilotes y estructuras en el suelo, posiblemente indicando que este sitio fue ocupado porque había espacio. La inconveniencia de pequeñas inundaciones fue compensada con la construcción sencilla de plataformas en el marga. Dispilio es el único yacimiento en el cual la pesca parece ocupar una función significativa. En combinación con las redes de contacto atestiguadas por la presencia de barcos, estos podrían ser los argumentos más importantes para la ocupación de la orilla del Lago de Orestiada. Un aspecto adicional es el hecho de que en esta región ambos yacimientos lacustres y en tierra seca son comunes en el Neolítico, mostrando que los asentamientos lacustres no son más que otro tipo más de asentamiento.

Las posibles diferencias en identidad entre los ocupantes de los lagos y los de la tierra seca, resultado de una relación intensa con el agua, son difíciles de valorar. Cada asentamiento fue integrado plenamente en su contexto y no hay indicaciones en el registro material para identidades altamente diversas. Por lo tanto, si bien la ocupación de las orillas influenciaba ciertos aspectos de la identidad, esto no significaba que un resultado fuera la exclusión de ciertas comunidades de contextos sociales más amplios. Reconociendo a los asentamientos lacustres como una parte más del abanico de posibilidades de ocupación, a la vez que aceptando ciertos matices influenciados por el agua siendo estos prácticos o más bien ideológicos, y admitiendo una versatilidad y posibles cambios en el significado de los mismos a lo largo del tiempo, estamos dando el siguiente paso hacia la visualización de realidades identitarias más intrincadas en el registro arqueológico.

La contribución del presente trabajo a la literatura existente es el hecho de que reúne y valora todos los posibles aspectos de la vida cerca del lago exhaustivamente, las razones que podrían llevar a ese tipo de ocupación pero también las implicaciones de esto en la vida diaria. Los resultados han demostrado que prácticamente todas las argumentaciones anteriores en la literatura no han sido suficientes. Adicionalmente, incluyendo yacimientos de otras partes de Europa se ha abierto una nueva línea de investigación, conectando distintas regiones y por lo tanto proporcionando nuevas posibilidades para futuras investigaciones. Además, este trabajo demuestra las posibilidades de una metodología específica, basándose en aspectos altamente interpretativos, inclusivos e internacionales.

ZUSAMMENFASSUNG

Seit fast zwei Jahrhunderten sind Seeufersiedlungen ein bedeutender Forschungszweig der europäischen Archäologie, der in den ersten Ausgrabungen an den schweizerischen Seeufern seinen Anfang nahm und sich seither weit verbreitet hat. Diese Arbeit widmet sich der Frage, was die Menschen des Neolithikums dazu bewegte, Feuchtgebiete in verschiedenen Regionen Europas zu besiedeln. In der Literatur wurden bislang Fischfangmöglichkeiten, die Kontrolle von Wasserwegen, die Nähe zu verschiedenen Ressourcen, eine gute Verteidigungslage, Bevölkerungsdruck und die einfachen Baumöglichkeiten als mögliche Gründe aufgeführt. Eingehende Untersuchungen der Thematik fehlen jedoch und die bisher vorliegenden Argumentationen sind entweder sehr allgemein gehalten, argumentieren umweltdeterministisch oder lassen Faktoren, die nicht von praktischem Belang sind, außer Acht (Kapitel 1). Die vorliegende Arbeit setzt sich mit dieser Wissenslücke auseinander. Sie entwickelt und präsentiert einen sehr integrativen (mit Schwerpunkten auf internationalen und interdisziplinären Aspekten) und theoretischen Ansatz (Kapitel 2), auf dem zukünftige Forschungen zu diesem Bereich aufbauen können.

Als archäologische Fallstudien wurden vier Fundstellen aus unterschiedlichen Regionen Europas ausgewählt, die jeweils die ältesten bekannten Seeufersiedlungen ihrer Regionen sind: Egolzwil 2 (Beginn: ca. 4300 BC, Schweiz, Wauwilermoos) und Hörnle I (Beginn: ca. 3900 BC, Deutschland, Bodensee) im nordalpinen Raum, La Draga (Beginn: ca. 5250 BC, Spanien, See von Banyoles) im südwestlichen Europa und Dispilio (Beginn: ca. 5300 BC, Griechenland, Kastoria-See) im südöstlichen Europa. Basierend auf den materiellen (z. B. Rohmaterialien) und immateriellen Ressourcen wurde eine fundierte Einschätzung des archäologischen Befundes vorgenommen, wobei der Fokus auf regionalen Kontakten und der Landschaft lag. Zusätzlich wurden zwei anthropologische Studien in die Arbeit aufgenommen, um Aspekte beurteilen zu können, die sich nur schwer aus dem archäologischen Befund ableiten lassen und unterschiedliche Blickwinkel auf Thematiken zu eröffnen: die *ribeirinhos*-Gesellschaften (Brasilien, Überschwemmungsebenen des Amazonas) und Amsterdam (Niederlande, IJ) (Kapitel 3).

Nach einer umfassenden Bewertung der an den Fundstellen vorliegen Situationen wurden verschiedene Hypothesen formuliert, um die für die Besiedlung des Seeufers entscheidenden Faktoren für die jeweiligen Siedlungen aus den archäologischen Daten herauszufiltern (Kapitel 5).

Den ersten Hinweis darauf, dass die Gründe für eine Besiedlung von Feuchtbodengebieten nicht einheitlich waren, lieferten die Nutzungsdauern der Siedlungen. Während die nordalpinen Fundstellen nur für sehr kurze Zeiträume besiedelt waren, wurden die anderen betrachteten Siedlungen mehrere Jahrhunderte lang genutzt. Eine genauere Betrachtung der Ernährung könnte dies erklären. Während die Jagd in den voralpinen Fundstellen Egolzwil 3 und Hörnle I eine bedeutende praktische Rolle einnahm, war ihre Bedeutung für die anderen Fundstellen deutlich geringer und wahrscheinlich eher sozial oder rituell motiviert. Diese Siedlungen griffen für ihre Versorgung stärker auf die Vieh- und Landwirtschaft zurück und waren damit ortsgebundener als die voralpinen Siedlungen, die sich eine gewisse Ortsunabhängigkeit bewahrten, die es ihnen erlaubte, Siedlungen häufig aufzugeben und wieder zu besiedeln. Dies zeigt, dass der gemeinsame Faktor des Lebens in Seenähe die sozialen Strukturen weniger stark beeinflusste als erwartet.

Die anthropologischen Fallstudien ermöglichen Einblicke in Themen wie z. B. soziale Dynamiken. Die *ribeirinhos* haben sich stark an ihre Umwelt angepasst und die Überflutungsebenen mit all ihren Vor- und Nachteilen in ihren Alltag und in ihre ideologische Welt integriert. In Amsterdam hat das Wasser dagegen seine aktive Bedeutung sowohl im praktischen als auch im

symbolischen Kontext verloren, als seine praktische Nutzung aufgegeben wurde und der immaterielle Faktor der Landschaft aufgrund des entmystifizierenden Effektes der menschlichen Eingriffe und Veränderung verschwand. Die Gründe für eine Besiedlung lakustriner Umwelten können äußerst vielschichtig sein und es kann kein einheitlicher Faktor für ihre Besiedlung abgeleitet werden. Die ideologischen Gründe für eine Besiedlung der lakustrinen Gebiete waren wahrscheinlich zunächst eher unbedeutend und gewannen dann im Laufe der Zeit an Bedeutung. Für die archäologischen Fallstudien wurden verschiedene Hypothesen formuliert.

Egolzwil 3 wurde wahrscheinlich aufgrund des baumfreien, weiträumigen Geländes besiedelt, das das Seeufer bot. Seine ansonsten eher ungünstige Lage und der Mangel an bestimmten Ressourcen, wie lithischen Rohmaterialvorkommen, wurden durch eine günstige Lage in Austauschnetzwerken ausgeglichen. Die mesolithischen Wurzeln der Siedlungen, die für diese Fundstelle nachgewiesen werden können, sprechen gegen eine Kolonisation durch Neuankömmlinge. Da rund um den See Hinweise auf mesolithische Aktivitäten nachgewiesen sind, basiert die neolithische Besiedlung des Seeufers eventuell auf älteren Traditionen, die jedoch erst in diesen späteren Phasen besser archäologisch sichtbar werden. Hörnle I weist sehr viel stärker entwickelte regionale und überregionale Kontakte auf als Egolzwil 3. Seine Lage in der Nähe des weitläufigen Bodensees sowie im Einzugsbereich von Handelsrouten entlang der Flusstäler scheinen dieses Charakteristikum der Fundstelle zu unterstützen. Weitere Gründe für seine Etablierung an dieser Stelle können nicht abgeleitet werden. In La Draga scheint die Lage am Seeufer von geringer Bedeutung für die Gründung der Siedlung gewesen zu sein. Der in der Architektur erkennbare pragmatische Ansatz könnte dies erklären. Vor Ort konnten sowohl Strukturen nachgewiesen werden, die auf Plattformen erbaut wurden, als auch solche, die direkt auf dem Untergrund standen. Dies könnte darauf hinweisen, dass das das Gebiet am See aufgrund der praktischer Überlegungen besiedelt wurde, dass hier Raum für die Siedlung zur Verfügung stand und man dem Risiko kleiner Überflutungen durch im Seemergel leicht zu errichtende Plattformen begegnen konnte. Dispilio ist die einzige der Fundstellen, bei der davon auszugehen ist, dass die Bewohner sich vor allem über die Fischerei versorgten. In Kombination mit den Netzwerken, die über den Nachweis von Booten belegt werden können, könnten dies gewichtige Gründe sein, um das Seeufer zu besiedeln. Dazu kommt, dass in dieser Region während des Neolithikums sowohl Feuchtbodensiedlungen als auch Siedlungen auf dem Festland üblich sind, und Seeufersiedlungen somit nur eine weitere Siedlungsform darstellen.

Potentiell vorhandene subtile Unterschiede in der Identität von Seeufer- und Festlandbewohnern, die auf der intensiven Beziehung ersterer zum Wasser beruhen, sind schwer einzuschätzen. Jede der Fundstellen war in ihren eigenen Kontext eingebettet und im archäologischen Befund finden sich keine Hinweise auf starke Unterschiede in der Identität der jeweiligen Bevölkerungen. Falls also die Ansiedlung am See Einfluss auf bestimmte Aspekte der Identität genommen hat, hat dies nicht zwangsläufig Personen eines breiteren sozialen Spektrums ausgeschlossen. Indem wir die Seeufersiedlungen als einen weiteren Teil des Spektrums der Siedlungsformen anerkennen und zugleich akzeptieren, dass bestimmte Nuancen – sei es praktischer oder ideologischer Natur – vom Wasser beeinflusst wurden und sich im Laufe der Zeit angepasst und vielleicht auch ihre Bedeutung verändert haben, machen wir einen wichtigen Schritt in Richtung der Visualisierung von komplexeren, identitären Realitäten im archäologischen Befund.

Indem sie alle denkbaren Aspekte einer Ansiedlung am See – von den Gründen für die Ansiedlung bis zu den Auswirkungen auf das Leben der Seeuferbewohner - zusammenbringt und ausführlich diskutiert, leistet diese Arbeiten einen wichtigen Beitrag zu der bereits zu diesem Thema existierenden Literatur. Die Ergebnisse zeigen, dass fast alle bisher in früheren Publikationen vorgebrachten Argumentationen zu kurz greifen. Durch die Untersuchung von Seeufersiedlungen aus unterschiedlichen Regionen Europas konnte zudem

eine Forschungsausrichtung verfolgt werden, die unterschiedliche Regionen verbindet und so neue Möglichkeiten für zukünftige Forschungen eröffnet. Darüber hinaus veranschaulicht diese Arbeit das Potential eines Forschungsansatzes, der sehr interpretative, integrative und internationale Aspekte verbindet und auf ihnen aufbaut.

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ANNEX 1

Country	Location	Name	UTM N	UTM E	Source
France	Clairvaux-les-Lacs	Clairvaux II ter	5161090	710988	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux III	5161142	710714	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux II-II bis	5161090	710988	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux IV	5161244	710539	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux IX	5160138	711105	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux V	5161297	710715	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux VI	5161232	710569	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux VII	5161293	710565	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux VIII	5159892	710673	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux X	5161266	710890	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux XI	5161191	710889	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux XIII	5160190	710975	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux XIV	5160689	711010	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux XV	5160063	711129	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux XVI	5160022	710704	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux XVII	5161115	710938	Database Palafittes 2011
France	Clairvaux-les-Lacs	Clairvaux XVIII	5160984	710462	Database Palafittes 2011
France	Clairvaux-les-Lacs	La Motte aux Magnins	5161192	710764	Database Palafittes 2011
France	Clairvaux-les-Lacs	Le Grand-Lac de Clairvaux	5161187	710709	Database Palafittes 2011
France	Doucier	Chalain 18	5172051	712377	Database Palafittes 2011
France	Doucier	Chalain, station 19	5172011	712427	Database Palafittes 2011
France	Doucier/Fontenu/Marigny	Lac de Chalain, rive occidentale	5172476	712356	Database Palafittes 2011
France	Fontenu	Chalain 1	5172869	712724	Database Palafittes 2011
France	Fontenu	Chalain 10	5172948	712755	Database Palafittes 2011
France	Fontenu	Chalain 14	5172252	712319	Database Palafittes 2011
France	Fontenu	Chalain 15	5172162	712338	Database Palafittes 2011
France	Fontenu	Chalain 16	5172142	712338	Database Palafittes 2011
France	Fontenu	Chalain 17	5172151	712368	Database Palafittes 2011
France	Fontenu	Chalain 2 A-C	5172919	712644	Database Palafittes 2011
France	Fontenu	Chalain 2/3-5	5172889	712684	Database Palafittes 2011
France	Fontenu	Chalain 20	5172060	712497	Database Palafittes 2011
France	Fontenu	Chalain 21	5172049	712597	Database Palafittes 2011
France	Fontenu	Chalain 22	5172250	712479	Database Palafittes 2011
France	Fontenu	Chalain 24	5171980	712486	Database Palafittes 2011
France	Fontenu	Chalain 25	5172431	712390	Database Palafittes 2011
France	Fontenu	Chalain 26	5172501	712411	Database Palafittes 2011
France	Fontenu	Chalain 27	5172010	712477	Database Palafittes 2011
France	Fontenu	Chalain 29	5172331	712419	Database Palafittes 2011
France	Fontenu	Chalain 30	5172470	712501	Database Palafittes 2011
France	Fontenu	Chalain 5	5172780	712493	Database Palafittes 2011
France	Fontenu	Chalain 6	5172701	712483	Database Palafittes 2011
France	Fontenu	Chalain, station 12	5172561	712391	Database Palafittes 2011

France	Marigny	Chalain 13	5172542	712341	Database Palafittes 2011
France	Marigny	Chalain 28	5172382	712250	Database Palafittes 2011
France	Marigny	Chalain 3	5172890	712574	Database Palafittes 2011
France	Marigny	Chalain 4	5172880	712514	Database Palafittes 2011
France	Marigny	Chalain, station ML V I	5172882	712274	Database Palafittes 2011
France	Aiguebelette-le-Lac	Beau-Phare	5047138	718951	Database Palafittes 2011
France	Brison-Saint-Innocent	Baie de Grésine	5068836	724500	Database Palafittes 2011
France	Brison-Saint-Innocent	Grésine-Est	5068743	724749	Database Palafittes 2011
France	Brison-Saint-Innocent	Grésine-Ouest	5068907	724346	Database Palafittes 2011
France	Brison-Saint-Innocent	Sous le Four	5068618	724748	Database Palafittes 2011
France	Chindrieux	Châtillon	5075529	721555	Database Palafittes 2011
France	Conjux	Conjux 2-3	5075133	719401	Database Palafittes 2011
France	Conjux	Conjux-Port 1	5075237	719482	Database Palafittes 2011
France	Conjux	Conjux-Port 2	5075387	719573	Database Palafittes 2011
France	Conjux	Conjux-Port 3	5075512	719529	Database Palafittes 2011
France	Conjux	Conjux-Rive 1	5075133	719401	Database Palafittes 2011
France	Conjux	Conjux-Rive 2	5075237	719482	Database Palafittes 2011
France	Conjux	Conjux-Rive 3	5075387	719573	Database Palafittes 2011
France	Conjux	La Vacherie	5075133	719401	Database Palafittes 2011
France	Conjux	Les Côtes 1	5075237	719482	Database Palafittes 2011
France	Conjux	Les Côtes 2	5075387	719573	Database Palafittes 2011
France	Novalaise	Le Gojat	5049293	718371	Database Palafittes 2011
France	Saint-Alban-de-Montbel	Petite-Ile, rive nord	5047551	718040	Database Palafittes 2011
France	Saint-Pierre-de-Curtille	Hautecombe	5070173	720961	Database Palafittes 2011
France	Tresserve	Le Saut	5063018	725267	Database Palafittes 2011
France	Tresserve	Les Bourres	5061872	725342	Database Palafittes 2011
France	Tresserve	Les Fiollets	5060587	725275	Database Palafittes 2011
Spain	Banyoles	La Draga	4663780	479961	Bosch i Lloret et al. 2011
Germany	Allensbach	Hegne-Galgenacker	5283812	506449	Database Palafittes 2011
Germany	Allensbach	Hegne-Nachtwaid	5283552	506989	Database Palafittes 2011
Germany	Allensbach	Kapplerfeld	5285901	502441	Database Palafittes 2011
Germany	Allensbach	Lohorn	5285322	503490	Database Palafittes 2011
Germany	Allensbach	Strandbad I	5284045	505987	Database Palafittes 2011
Germany	Allensbach	Strandbad II	5284142	505760	Database Palafittes 2011
Germany	Bodman-Ludwigshafen	Bodman-Blissenhalde	5290768	506410	Database Palafittes 2011
Germany	Bodman-Ludwigshafen	Bodman-Löchle	5295797	502901	Database Palafittes 2011
Germany	Bodman-Ludwigshafen	Bodman-Schachen I	5295612	503083	Database Palafittes 2011
Germany	Bodman-Ludwigshafen	Bodman-Schachen II	5295658	502991	Database Palafittes 2011
Germany	Bodman-Ludwigshafen	Bodman-Schachen/Löchle	5295681	502976	Database Palafittes 2011
Germany	Bodman-Ludwigshafen	Bodman-Weiler	5294408	502521	Database Palafittes 2011
Germany	Bodman-Ludwigshafen	Ludwigshafen-Holzplatz	5295737	503820	Database Palafittes 2011
Germany	Bodman-Ludwigshafen	Ludwigshafen-Seehalde	5295552	504699	Database Palafittes 2011
Germany	Bodman-Ludwigshafen	Ludwigshafen-Untere Gärten	5295947	503131	Database Palafittes 2011
Germany	Gaienhofen	Gaienhofen-Untergarten	5280879	499066	Database Palafittes 2011
Germany	Gaienhofen	Gundholzen-Möösle	5284040	498551	Database Palafittes 2011

Germany	Gaienhofen	Hemmenhofen-Im Bohl	5280094	497943	Database Palafittes 2011
Germany	Gaienhofen	Hemmenhofen-Im Leh	5279732	497563	Database Palafittes 2011
Germany	Gaienhofen	Hornstaad-Hörnle	5282347	500444	Database Palafittes 2011
Germany	Gaienhofen	Hornstaad-Hörnle I	5282173	500302	Database Palafittes 2011
Germany	Gaienhofen	Hornstaad-Hörnle II	5282323	500356	Database Palafittes 2011
Germany	Gaienhofen	Hornstaad-Hörnle III	5282353	500472	Database Palafittes 2011
Germany	Gaienhofen	Hornstaad-Hörnle IV	5282363	500612	Database Palafittes 2011
Germany	Gaienhofen	Hornstaad-Hörnle V	5282553	500472	Database Palafittes 2011
Germany	Gaienhofen	Hornstaad-Hörnle VI	5282623	500452	Database Palafittes 2011
Germany	Gaienhofen	Hornstaad-Schlössle I	5281253	499882	Database Palafittes 2011
Germany	Gaienhofen	Hornstaad-Schlössle II	5281531	499940	Database Palafittes 2011
Germany	Gaienhofen	Hornstaad-Schlössle III	5281187	499654	Database Palafittes 2011
Germany	Gaienhofen	Hornstaad-Schlössle IV	5281436	499683	Database Palafittes 2011
Germany	Konstanz	Dingelsdorf-Fließhorn	5286561	513227	Database Palafittes 2011
Germany	Konstanz	Dingelsdorf-Hafen	5287588	511863	Database Palafittes 2011
Germany	Konstanz	Dingelsdorf-Klausenhorn	5288310	510788	Database Palafittes 2011
Germany	Konstanz	Dingelsdorf-Seewiesen	5287319	512197	Database Palafittes 2011
Germany	Konstanz	Dingelsdorf-Unterrieß	5287857	511615	Database Palafittes 2011
Germany	Konstanz	Egg-Obere Güll I	5282603	514356	Database Palafittes 2011
Germany	Konstanz	Egg-Obere Güll II	5283250	514177	Database Palafittes 2011
Germany	Konstanz	Konstanz-Bleiche	5279514	511447	Database Palafittes 2011
Germany	Konstanz	Konstanz-Frauenpfahl	5278814	513696	Database Palafittes 2011
Germany	Konstanz	Konstanz-Hafenstraße	5278175	513277	Database Palafittes 2011
Germany	Konstanz	Konstanz-Hinterhausen I	5279110	514570	Database Palafittes 2011
Germany	Konstanz	Konstanz-Hinterhausen II	5278904	515246	Database Palafittes 2011
Germany	Konstanz	Konstanz-Inselhotel	5278899	513401	Database Palafittes 2011
Germany	Konstanz	Konstanz-Rauenegg	5278145	513506	Database Palafittes 2011
Germany	Konstanz	Litzelstetten-Ebnewiesen	5283846	513502	Database Palafittes 2011
Germany	Konstanz	Litzelstetten-Hasenwiesen	5285151	513511	Database Palafittes 2011
Germany	Konstanz	Litzelstetten-Krähenhorn	5285715	513420	Database Palafittes 2011
Germany	Konstanz	Litzelstetten-Rainwiesen	5284696	513588	Database Palafittes 2011
Germany	Konstanz	Litzelstetten-Staudershag	5286201	513297	Database Palafittes 2011
Germany	Konstanz	Mainau-Kuchel I	5283382	514026	Database Palafittes 2011
Germany	Konstanz	Mainau-Kuchel II	5283632	514146	Database Palafittes 2011
Germany	Konstanz	Mainau-Nordstrand	5283932	514516	Database Palafittes 2011
Germany	Konstanz	Staad-Hohenegg	5282213	515036	Database Palafittes 2011
Germany	Konstanz	Staad-Hörlepark	5280594	515965	Database Palafittes 2011
Germany	Konstanz	Wallhausen-Ziegelhütte	5288270	510368	Database Palafittes 2011
Germany	Konstanz	Wollmatingen-Langenrain	5280173	509035	Database Palafittes 2011
Germany	Moos	Iznang-Unter Eichen	5285012	496973	Database Palafittes 2011
Germany	Öhningen	Öhningen-Oberstaad	5277806	492523	Database Palafittes 2011
Germany	Öhningen	Öhningen-Orkopf	5277775	491354	Database Palafittes 2011
Germany	Öhningen	Öhningen-Seedümpfel	5277828	491677	Database Palafittes 2011
Germany	Öhningen	Wangen-Hinterhorn	5278619	495412	Database Palafittes 2011
Germany	Radolfzell	Markelfingen-Große Espen	5287021	500282	Database Palafittes 2011

Germany	Radolfzell	Markelfingen-Kleine Espen	5287401	499962	Database Palafittes 2011
Germany	Radolfzell	Markelfingen-Stüdle	5286561	500971	Database Palafittes 2011
Germany	Radolfzell	Markelfingen-Zeller Ried	5287671	499692	Database Palafittes 2011
Germany	Radolfzell u. Allensbach	Markelfingen-Schlafbach	5286301	501441	Database Palafittes 2011
Germany	Reichenau	Reichenau-Oberzell	5281685	506504	Database Palafittes 2011
Germany	Alleshausen	Grundwiesen	5328554	546643	Database Palafittes 2011
Germany	Alleshausen	Hartöschle	5329424	547463	Database Palafittes 2011
Germany	Alleshausen	Täschenwiesen	5327239	545596	Database Palafittes 2011
Germany	Alleshausen / Seekirch	Ödenahlen	5329749	547704	Database Palafittes 2011
Germany	Aulendorf	Steeger See	5311753	548648	Database Palafittes 2011
Germany	Bad Buchau	Bachwiesen I	5323736	545224	Database Palafittes 2011
Germany	Bad Buchau	Bachwiesen III	5323645	545270	Database Palafittes 2011
Germany	Bad Buchau	Dullenried	5323596	546373	Database Palafittes 2011
Germany	Bad Buchau	Siedlung Forschner	5322596	547730	Database Palafittes 2011
Germany	Bad Buchau	Taubried	5322187	546723	Database Palafittes 2011
Germany	Bad Buchau	Torwiesen I	5323628	545184	Database Palafittes 2011
Germany	Bad Buchau	Torwiesen II	5323472	545143	Database Palafittes 2011
Germany	Bad Buchau	Wasserburg-Buchau	5322955	547211	Database Palafittes 2011
Germany	Bad Schussenried	Aichbühl	5320705	549614	Database Palafittes 2011
Germany	Bad Schussenried	Olzreute-Enzisholz	5316371	551374	Database Palafittes 2011
Germany	Bad Schussenried	Olzreuter See	5317933	550840	Database Palafittes 2011
Germany	Bad Schussenried	Riedschachen	5320847	549712	Database Palafittes 2011
Germany	Bad Waldsee	Reute-Schorrenried	5306018	552272	Database Palafittes 2011
Germany	Blaustein	Ehrenstein	5362367	568321	Database Palafittes 2011
Germany	Ebersbach-Musbach	Musbach-Seewiesen	5314520	542295	Database Palafittes 2011
Germany	Friedrichshafen	Manzell-Zeppelinhalle	5278724	532179	Database Palafittes 2011
Germany	Friedrichshafen	Seemoos-Königsweg	5277979	533894	Database Palafittes 2011
Germany	Friedrichshafen	Seemoos-Seemooser Horn	5278185	532970	Database Palafittes 2011
Germany	Fronreute	Ruprechtsbruck-Blinder See	5303189	539094	Database Palafittes 2011
Germany	Hagnau	Hagnau-Burg	5279974	523722	Database Palafittes 2011
Germany	Hoßkirch	Königseggsee	5308641	533485	Database Palafittes 2011
Germany	Illmensee	Illmensee	5300415	528396	Database Palafittes 2011
Germany	Illmensee	Ruschweilersee	5301959	527726	Database Palafittes 2011
Germany	Immenstaad	Immenstaad-Kippenhorn	5278614	526921	Database Palafittes 2011
Germany	Immenstaad	Immenstaad-Schiffslände	5279024	527681	Database Palafittes 2011
Germany	Meersburg	Haltnau-Oberhof	5281222	521566	Database Palafittes 2011
Germany	Meersburg	Meersburg-Ramsbach	5282903	519194	Database Palafittes 2011
Germany	Oggelshausen	Bruckgraben	5322917	548362	Database Palafittes 2011
Germany	Seekirch	Achwiesen	5328484	547380	Database Palafittes 2011
Germany	Seekirch	Stockwiesen	5329101	547828	Database Palafittes 2011
Germany	Sipplingen	Osthafen	5293314	507641	Database Palafittes 2011
Germany	Sipplingen	Sipplingen-Brandsacker	5294518	505690	Database Palafittes 2011
Germany	Sipplingen	Süßenmühle-Außereiche	5292529	508698	Database Palafittes 2011
Germany	Tettnang	Degersee	5273449	549190	Database Palafittes 2011
Germany	Überlingen	Nußdorf-Constantinhalde	5288269	515361	Database Palafittes 2011

Germany	Überlingen	Nußdorf-Seehalde	5288740	514276	Database Palafittes 2011
Germany	Überlingen	Nußdorf-Strandbad	5288530	514766	Database Palafittes 2011
Germany	Überlingen	Überlingen-Mantelhafen	5290180	512094	Database Palafittes 2011
Germany	Überlingen	Überlingen-Osthafen	5289190	513746	Database Palafittes 2011
Germany	Überlingen	Überlingen-Yachthafen	5289976	512379	Database Palafittes 2011
Germany	Uhldingen-Mühlhofen	Maurach-Maximilianhalde	5287911	516165	Database Palafittes 2011
Germany	Uhldingen-Mühlhofen	Maurach-Untermaurach	5288051	515925	Database Palafittes 2011
Germany	Uhldingen-Mühlhofen	Maurach-Ziegelhütte	5287551	516585	Database Palafittes 2011
Germany	Uhldingen-Mühlhofen	Seefelden-Nachtweid	5287185	516789	Database Palafittes 2011
Germany	Uhldingen-Mühlhofen	Unteruhldingen-Stollenwiesen	5285306	517128	Database Palafittes 2011
Germany	Uhldingen-Mühlhofen u. Meersburg	Unteruhldingen-Bayenwiesen	5284472	517725	Database Palafittes 2011
Germany	Ulm	Ulm-Söflingen	5361171	570204	Database Palafittes 2011
Germany	Wald	Ruhestetten-Egelsee	5305861	512275	Database Palafittes 2011
Germany	Wolpertswende	Schreckensee	5304063	542523	Database Palafittes 2011
France	Annecy	Albigny 1	5087201	278260	Database Palafittes 2011
France	Annecy	Ile des Cygnes	5086923	277822	Database Palafittes 2011
France	Annecy	Le Pâquier	5087163	278076	Database Palafittes 2011
France	Annecy	Le Port 1-2	5086759	277618	Database Palafittes 2011
France	Annecy-le-Vieux	La Tour	5087231	279713	Database Palafittes 2011
France	Annecy-le-Vieux	Le Petit-Port 1	5087355	279555	Database Palafittes 2011
France	Annecy-le-Vieux	Le Petit-Port 2	5087301	279574	Database Palafittes 2011
France	Chens-sur-Léman	Beauregard 1	5133993	289086	Database Palafittes 2011
France	Chens-sur-Léman	Beauregard 2	5134069	289077	Database Palafittes 2011
France	Chens-sur-Léman	Beauregard 3	5134249	289203	Database Palafittes 2011
France	Chens-sur-Léman	La Fabrique Nord	5132885	288590	Database Palafittes 2011
France	Chens-sur-Léman	La Vorge Ouest	5135038	289726	Database Palafittes 2011
France	Chens-sur-Léman	Sous le Moulin	5132080	288141	Database Palafittes 2011
France	Chens-sur-Léman	Tougues	5133388	288758	Database Palafittes 2011
France	Saint-Jorioz	Les Marais	5079598	281218	Database Palafittes 2011
France	Sévrier	Le Crêt de Chatillon	5082471	279193	Database Palafittes 2011
France	Sévrier	Les Charretières	5081521	279102	Database Palafittes 2011
France	Sévrier	Les Choseaux	5081837	278630	Database Palafittes 2011
France	Sévrier	Les Mongets	5081690	278838	Database Palafittes 2011
Italy	Arona (NO)	Mercurago	5064570	405153	Database Palafittes 2011
Italy	Viverone (BI)/Azeglio (TO)	Vi1-Emissario	5029880	423552	Database Palafittes 2011
Italy	Fiavé	Fiavé - Lago Carera	5094577	641802	Database Palafittes 2011
Italy	Molina di Ledro	Molina di Ledro	5081577	636978	Database Palafittes 2011
Italy	Arcugnano (VI)	Fimon-Molino Casarotto	5039480	699011	Database Palafittes 2011
Italy	Arquà Petrarca (PD)	Laghetto Costa	5016568	715127	Database Palafittes 2011
Italy	Bardolino (VR)	Porto di Cisano	5043298	634722	Database Palafittes 2011
Italy	Cerea (VR)	Tombola	5005274	673735	Database Palafittes 2011
Italy	Lazise (VR)	Bor di Pacengo	5037313	634113	Database Palafittes 2011
Italy	Lazise (VR)	La Quercia	5039244	635066	Database Palafittes 2011
Italy	Lazise (VR)	Porto di Pacengo	5036230	633756	Database Palafittes 2011

Italy	Lazise (VR)	Villa Bagatta	5038582	634756	Database Palafittes 2011
Italy	Nogara (VR)	Dossetto	5003595	662023	Database Palafittes 2011
Italy	Oppeano Veronese (VR)	Feniletto di Vallese	5020061	666211	Database Palafittes 2011
Italy	Peschiera del Garda (VR)	Belvedere	5034980	629667	Database Palafittes 2011
Italy	Peschiera del Garda (VR)	Frassino	5032595	630090	Database Palafittes 2011
Italy	Peschiera del Garda (VR)	Golfo	5033332	632358	Database Palafittes 2011
Italy	Revine Lago/Tarzo (TV)	Santa Maria/Colmaggiore	5096318	285239	Database Palafittes 2011
Italy	Sona (VR)	Torbiera Cascina	5032582	639392	Database Palafittes 2011
Italy	Bardello (VA)	Bardello-Stoppani	5075735	477080	Database Palafittes 2011
Italy	Bardello (VA)	Palude Bardello	5075435	476541	Database Palafittes 2011
Italy	Bardello (VA)	Palude Ranchet	5075660	477075	Database Palafittes 2011
Italy	Besnate (VA)	Lagozza	5061447	480457	Database Palafittes 2011
Italy	Besnate (VA)	Lagozzetta	5061412	480399	Database Palafittes 2011
Italy	Biandronno (VA)	Isolino Virginia/Camilla/Isola di S. Biagio	5073200	478095	Database Palafittes 2011
Italy	Bodio Lomnago (VA)	Bodio centrale o delle Monete	5071459	481007	Database Palafittes 2011
Italy	Bodio Lomnago (VA)	Desor-Maresco	5071491	480787	Database Palafittes 2011
Italy	Bodio Lomnago (VA)	Gaggio Keller	5071248	481464	Database Palafittes 2011
Italy	Cadrezzate (VA)	Meridionale o del Pozzolo	5071919	472683	Database Palafittes 2011
Italy	Cadrezzate (VA)	Settentrionale o del Sabbione	5071844	472707	Database Palafittes 2011
Italy	Cavriana (MN)	Bande - Corte Carpani	5025428	624191	Database Palafittes 2011
Italy	Cazzago Brabbia (VA)	Palude Brabbia	5071121	478836	Database Palafittes 2011
Italy	Cazzago Brabbia (VA)	Ponti o Cazzago	5072059	479433	Database Palafittes 2011
Italy	Cortefranca (BS)	Valle delle Paiole	5052363	575522	Database Palafittes 2011
Italy	Desenzano del Garda (BS)	Corno di Sotto	5038460	618961	Database Palafittes 2011
Italy	Desenzano del Garda (BS)	Lavagnone	5032582	620248	Database Palafittes 2011
Italy	Iseo e Provaglio d'Iseo (BS)	Torbiere d'Iseo	5055381	580194	Database Palafittes 2011
Italy	Lonato del Garda (BS)	Polada	5035072	617676	Database Palafittes 2011
Italy	Manerba del Garda (BS)	San Sivino, Gabbiano	5043625	621626	Database Palafittes 2011
Italy	Moniga del Garda (BS)	Porto	5041955	620156	Database Palafittes 2011
Italy	Monzambano (MN)	Castellaro Lagusello - Fondo Tacoli	5025271	627970	Database Palafittes 2011
Italy	Monzambano (MN)	Castellaro Lagusello - Generali-Pezzalunga	5025253	628471	Database Palafittes 2011
Italy	Padenghe sul Garda (BS)	La Ca'	5041125	619389	Database Palafittes 2011
Italy	Padenghe sul Garda (BS)	West Garda - La Fabbrica	5039440	618097	Database Palafittes 2011
Italy	Piadena (CR)	Lagazzi del Vho	4995853	609582	Database Palafittes 2011
Italy	Polpenazze del Garda (BS)	Lucone	5045231	616156	Database Palafittes 2011
Italy	Sirmione (BS)	La Maraschina-Tafella	5035208	628466	Database Palafittes 2011
Italy	Sirmione (BS)	Lugana Vecchia	5035185	628500	Database Palafittes 2011
Italy	Sirmione (BS)	Porto Galeazzi	5036636	626027	Database Palafittes 2011
Italy	Sirmione (BS)	San Francesco	5036367	624569	Database Palafittes 2011

Italy	Solferino (BS)	Barche	5026376	620800	Database Palafittes 2011
Italy	Travedona Monate (VA)	Dell'Occhio	5072132	474046	Database Palafittes 2011
Switzerland	Meisterschwanden	Erlenhölzli	5236498	441664	Database Palafittes 2011
Switzerland	Meisterschwanden	Seerose	5237203	441429	Database Palafittes 2011
Switzerland	Seengen	Riesi	5240864	439842	Database Palafittes 2011
Switzerland	Biel	Salzhausstrasse	5221195	366816	Database Palafittes 2011
Switzerland	Biel-Vingelz	Hafen	5221376	365269	Database Palafittes 2011
Switzerland	Biel-Vingelz	Insel	5221417	364470	Database Palafittes 2011
Switzerland	Erlach	Unter den Halden	5228008	398701	Database Palafittes 2011
Switzerland	Gals	Zihlbrücke Nord	5212125	355284	Database Palafittes 2011
Switzerland	Gals	Zihlbrücke Süd	5209746	350717	Database Palafittes 2011
Switzerland	Gampelen	Reservat Witzwil/Vogelinsel	5209525	350752	Database Palafittes 2011
Switzerland	Inkwil/Bolken	Inkwilersee Insel	5228256	398786	Database Palafittes 2011
Switzerland	La Neuveville	Schafis	5215680	357555	Database Palafittes 2011
Switzerland	Lüscherz	Binggeli	5212281	359998	Database Palafittes 2011
Switzerland	Lüscherz	Dorfstation	5212241	359487	Database Palafittes 2011
Switzerland	Lüscherz	Fluhstation	5212907	360940	Database Palafittes 2011
Switzerland	Lüscherz	Kleine Station	5212298	360118	Database Palafittes 2011
Switzerland	Lüscherz	Riedmätteli	5212195	359286	Database Palafittes 2011
Switzerland	Moosseedorf	Moossee-Ost	5208532	385033	Database Palafittes 2011
Switzerland	Moosseedorf	Moossee-West	5209151	384065	Database Palafittes 2011
Switzerland	Mörigen	Bronzestation	5216538	363633	Database Palafittes 2011
Switzerland	Mörigen	Steinstation	5216457	363671	Database Palafittes 2011
Switzerland	Nidau	Moosstation	5220532	367453	Database Palafittes 2011
Switzerland	Nidau	Neue Station	5220994	366102	Database Palafittes 2011
Switzerland	Nidau	Schlossmatte/Strandboden/BKW	5221173	366415	Database Palafittes 2011
Switzerland	Nidau	Steinberg	5221259	366127	Database Palafittes 2011
Switzerland	Port	Spärsstation	5219613	368384	Database Palafittes 2011
Switzerland	Port	Stüdeli	5219905	367906	Database Palafittes 2011
Switzerland	Seeberg	Burgäschisee-Süd	5224731	399045	Database Palafittes 2011
Switzerland	Seeberg	Burgäschisee-Südwest	5224762	398976	Database Palafittes 2011
Switzerland	Seedorf	Lobsigensee	5210224	370837	Database Palafittes 2011
Switzerland	Sutz-Lattrigen	Buchtstation	5218785	364818	Database Palafittes 2011
Switzerland	Sutz-Lattrigen	Hauptstation	5217642	363965	Database Palafittes 2011
Switzerland	Sutz-Lattrigen	Kleine Station	5217431	363766	Database Palafittes 2011
Switzerland	Sutz-Lattrigen	Neue Station	5218588	364639	Database Palafittes 2011
Switzerland	Sutz-Lattrigen	Riedstation	5217830	364069	Database Palafittes 2011
Switzerland	Sutz-Lattrigen	Rütte	5218393	364410	Database Palafittes 2011
Switzerland	Sutz-Lattrigen	Solermatt	5218833	364696	Database Palafittes 2011
Switzerland	Sutz-Lattrigen	Südwest	5218223	364376	Database Palafittes 2011
Switzerland	Täuffelen-Gerolfingen	Hagneckstation	5214431	362481	Database Palafittes 2011
Switzerland	Täuffelen-Gerolfingen	Öfeli Ost	5215082	362704	Database Palafittes 2011
Switzerland	Täuffelen-Gerolfingen	Öfeli West	5214711	362486	Database Palafittes 2011
Switzerland	Thun	Marktgasse	5179633	395327	Database Palafittes 2011
Switzerland	Twann	Bahnhof	5217427	360190	Database Palafittes 2011

Switzerland	Twann	Chüngeliinsel	5213654	358305	Database Palafittes 2011
Switzerland	Twann	St. Petersinsel Nord	5215301	358998	Database Palafittes 2011
Switzerland	Twann	St. Petersinsel Südost	5214793	359368	Database Palafittes 2011
Switzerland	Twann	Wingreis/Engelberg	5218246	361757	Database Palafittes 2011
Switzerland	Vinelz	Ländti	5211148	356615	Database Palafittes 2011
Switzerland	Vinelz	Schattenwyl	5211691	358476	Database Palafittes 2011
Switzerland	Vinelz	Strandboden	5211253	356367	Database Palafittes 2011
Switzerland	Wengi bei Büren	Hindermoos/Wengimoos	5216322	377968	Database Palafittes 2011
Switzerland	Bas-Vully	Bibera 2	5203708	356087	Database Palafittes 2011
Switzerland	Bas-Vully	Le Cugnet I	5204318	355109	Database Palafittes 2011
Switzerland	Bas-Vully	Sugiez-Gare	5203040	357003	Database Palafittes 2011
Switzerland	Cheyres	En Crevel	5186709	330316	Database Palafittes 2011
Switzerland	Cheyres	Pointe de la Rosière	5187138	330865	Database Palafittes 2011
Switzerland	Delley-Portalban	Portalban I	5198256	344127	Database Palafittes 2011
Switzerland	Delley-Portalban	Portalban II	5198392	344330	Database Palafittes 2011
Switzerland	Delley-Portalban	Portalban III	5198677	344596	Database Palafittes 2011
Switzerland	Delley-Portalban	Portalban IV	5199003	345022	Database Palafittes 2011
Switzerland	Delley-Portalban	Portalban V	5198533	344273	Database Palafittes 2011
Switzerland	Estavayer-le-Lac	La Tuilière	5190986	335512	Database Palafittes 2011
Switzerland	Estavayer-le-Lac	Les Ténevières	5190825	335579	Database Palafittes 2011
Switzerland	Estavayer-le-Lac	Pianta II	5190451	334751	Database Palafittes 2011
Switzerland	Estavayer-le-Lac	Sous la Corbière	5192315	336927	Database Palafittes 2011
Switzerland	Font	Pianta I	5190356	334519	Database Palafittes 2011
Switzerland	Font	Sous l'Epenex, Station	5190219	334376	Database Palafittes 2011
Switzerland	Font	Trabietaz I	5190092	334194	Database Palafittes 2011
Switzerland	Font	Trabietaz II	5190212	334206	Database Palafittes 2011
Switzerland	Galmiz	Alti Bibere	5202122	358415	Database Palafittes 2011
Switzerland	Galmiz	Sugiez II	5202035	357233	Database Palafittes 2011
Switzerland	Gletterens	Les Grèves	5202122	358415	Database Palafittes 2011
Switzerland	Gletterens	Ostende	5202035	357233	Database Palafittes 2011
Switzerland	Greng	Mühle	5196722	342317	Database Palafittes 2011
Switzerland	Greng	Spitz	5196537	342073	Database Palafittes 2011
Switzerland	Greng	Steinberg	5197523	354323	Database Palafittes 2011
Switzerland	Haut-Vully	Fischillien	5198322	354624	Database Palafittes 2011
Switzerland	Haut-Vully	Guévaux I - II	5198080	354455	Database Palafittes 2011
Switzerland	Haut-Vully	Môtier I	5201006	353663	Database Palafittes 2011
Switzerland	Haut-Vully	Mur	5200314	352534	Database Palafittes 2011
Switzerland	Meyriez	Ruisseau du Village	5201408	354571	Database Palafittes 2011
Switzerland	Meyriez	Steinberg	5200622	352855	Database Palafittes 2011
Switzerland	Muntelier	Baie de Muntelier	5198810	355979	Database Palafittes 2011
Switzerland	Muntelier	Dorf (Fischergässli - Strandweg)	5198761	355918	Database Palafittes 2011
Switzerland	Muntelier	Dorfmatte I	5200287	357669	Database Palafittes 2011
Switzerland	Muntelier	Dorfmatte II	5200284	357779	Database Palafittes 2011
Switzerland	Muntelier	Fasnacht-Rohr	5200089	357565	Database Palafittes 2011
Switzerland	Muntelier	Platzbünden	5200247	357658	Database Palafittes 2011

Switzerland	Muntelier	Seeweg	5200090	357490	Database Palafittes 2011
Switzerland	Muntelier	Steinberg	5200329	357549	Database Palafittes 2011
Switzerland	Murten	Pantschau	5199745	357013	Database Palafittes 2011
Switzerland	Murten	Segelboothafen	5199092	356385	Database Palafittes 2011
Switzerland	Noréaz	Praz des Gueux	5184293	350230	Database Palafittes 2011
Switzerland	Vernay	En Chéseau	5194556	339053	Database Palafittes 2011
Switzerland	Vernay	Forel II	5194644	339175	Database Palafittes 2011
Switzerland	Vernay	La Crasaz I	5192615	337344	Database Palafittes 2011
Switzerland	Vernay	La Crasaz II	5192757	337517	Database Palafittes 2011
Switzerland	Vernay	Limite	5193298	337958	Database Palafittes 2011
Switzerland	Vernay	Rives du Lac	5193159	337925	Database Palafittes 2011
Switzerland	Anières	Bassy I	5129445	286209	Database Palafittes 2011
Switzerland	Anières	Bassy II	5129512	286380	Database Palafittes 2011
Switzerland	Bellevue	Bellevue	5126526	280980	Database Palafittes 2011
Switzerland	Collonge-Bellerive	Bellerive I	5126176	283524	Database Palafittes 2011
Switzerland	Collonge-Bellerive	Bellerive II	5126214	283650	Database Palafittes 2011
Switzerland	Collonge-Bellerive	Pointe-à-la Bise	5124930	283585	Database Palafittes 2011
Switzerland	Cologny	La Belotte	5124212	283456	Database Palafittes 2011
Switzerland	Corsier	Corsier-Port	5127776	285126	Database Palafittes 2011
Switzerland	Genève	Cité de Genève	5121319	281514	Database Palafittes 2011
Switzerland	Genève	Eaux-Vives	5121373	281055	Database Palafittes 2011
Switzerland	Genève	La Grange	5121331	281409	Database Palafittes 2011
Switzerland	Genève	Pâquis A	5122003	280552	Database Palafittes 2011
Switzerland	Genève	Pâquis B	5121905	280695	Database Palafittes 2011
Switzerland	Genève	Parc La Grange 4	5121230	281447	Database Palafittes 2011
Switzerland	Genève	Plonjon	5121617	281380	Database Palafittes 2011
Switzerland	Versoix	Versoix-Bourg	5129325	282115	Database Palafittes 2011
Switzerland	Egolzwil	Egolzwil 2	5225827	425304	Database Palafittes 2011
Switzerland	Egolzwil	Egolzwil 3	5226047	425558	Database Palafittes 2011
Switzerland	Egolzwil	Egolzwil 4	5226075	425409	Database Palafittes 2011
Switzerland	Egolzwil	Egolzwil 5	5226024	425433	Database Palafittes 2011
Switzerland	Eich	Spiessmösli	5223090	435958	Database Palafittes 2011
Switzerland	Gelfingen	Rohrbach	5227760	444690	Database Palafittes 2011
Switzerland	Hitzkirch	Seematte	5229611	443607	Database Palafittes 2011
Switzerland	Hochdorf	Baldegg	5225679	445248	Database Palafittes 2011
Switzerland	Luzern	Casino	5211646	448268	Database Palafittes 2011
Switzerland	Mauensee	Bognau Halbinsel	5224802	430283	Database Palafittes 2011
Switzerland	Nottwil	Eishütte	5220756	435176	Database Palafittes 2011
Switzerland	Oberkirch	Seehäuseren 1	5223838	433538	Database Palafittes 2011
Switzerland	Oberkirch	Seehäuseren 2	5223643	433534	Database Palafittes 2011
Switzerland	Oberkirch	St. Margrethen	5221992	434076	Database Palafittes 2011
Switzerland	Retschwil	Seezopf 1	5229224	442929	Database Palafittes 2011
Switzerland	Retschwil	Seezopf 2	5229064	442966	Database Palafittes 2011
Switzerland	Retschwil	Stäfligen 1	5228952	442789	Database Palafittes 2011
Switzerland	Retschwil	Stäfligen 2	5228803	442771	Database Palafittes 2011

Switzerland	Schenkon	Trichtermoos/Altstadt	5224754	433981	Database Palafittes 2011
Switzerland	Schötz	Egolzwil 1	5225143	425000	Database Palafittes 2011
Switzerland	Schötz	Schötz 1	5225152	425021	Database Palafittes 2011
Switzerland	Schötz	Schötz 2	5225078	425239	Database Palafittes 2011
Switzerland	Schötz	Schötz 4	5225179	425216	Database Palafittes 2011
Switzerland	Schötz	Schötz 6, Seespitz	5225381	425595	Database Palafittes 2011
Switzerland	Sempach	Festhütte	5220651	438649	Database Palafittes 2011
Switzerland	Sempach	Uferpromenade	5220563	438547	Database Palafittes 2011
Switzerland	Sursee	Gammainseli	5224331	433873	Database Palafittes 2011
Switzerland	Sursee	Halbinsel	5224609	433729	Database Palafittes 2011
Switzerland	Sursee	Zellmoos	5224633	433754	Database Palafittes 2011
Switzerland	Triengen	Ägelmoos	5230860	429884	Database Palafittes 2011
Switzerland	Wauwil	Wauwil 1	5225460	426147	Database Palafittes 2011
Switzerland	Auvernier	Brena	5230860	429884	Database Palafittes 2011
Switzerland	Auvernier	Brise-Lames	5225460	426147	Database Palafittes 2011
Switzerland	Auvernier	La Saunerie	5204261	338356	Database Palafittes 2011
Switzerland	Auvernier	Les Abbesses	5204508	338531	Database Palafittes 2011
Switzerland	Auvernier	Les Graviers	5204205	338175	Database Palafittes 2011
Switzerland	Auvernier	Les Ténevières	5204422	338349	Database Palafittes 2011
Switzerland	Auvernier	Nord	5204490	338441	Database Palafittes 2011
Switzerland	Auvernier	Port	5204732	338836	Database Palafittes 2011
Switzerland	Auvernier	Ruz-Chatru	5204380	338428	Database Palafittes 2011
Switzerland	Bevaix	Chauvigny	5204811	338887	Database Palafittes 2011
Switzerland	Bevaix	L'Abbaye 1	5204585	338693	Database Palafittes 2011
Switzerland	Bevaix	L'Abbaye 2	5198489	333421	Database Palafittes 2011
Switzerland	Bevaix	Le Désert	5199450	334880	Database Palafittes 2011
Switzerland	Bevaix	Le Moulin	5198927	333999	Database Palafittes 2011
Switzerland	Bevaix	Le Port 1	5198860	333848	Database Palafittes 2011
Switzerland	Bevaix	Le Port 2	5198782	333786	Database Palafittes 2011
Switzerland	Bevaix	Le Port 3	5198702	333745	Database Palafittes 2011
Switzerland	Bevaix	Les Vaux	5199466	335060	Database Palafittes 2011
Switzerland	Bevaix	Station du Châtelard	5199265	334626	Database Palafittes 2011
Switzerland	Bevaix	Sud	5199208	334985	Database Palafittes 2011
Switzerland	Bevaix	Treytel	5198432	333249	Database Palafittes 2011
Switzerland	Colombier	Le Bied	5203062	338302	Database Palafittes 2011
Switzerland	Colombier	Paradis-Plage	5203874	338198	Database Palafittes 2011
Switzerland	Cortaillod	Est	5200698	336505	Database Palafittes 2011
Switzerland	Cortaillod	La Fabrique 1	5201257	337576	Database Palafittes 2011
Switzerland	Cortaillod	La Fabrique 2	5201203	337265	Database Palafittes 2011
Switzerland	Cortaillod	La Tuilière	5200174	335674	Database Palafittes 2011
Switzerland	Cortaillod	Les Côtes	5200519	335951	Database Palafittes 2011
Switzerland	Cortaillod	Les Esserts	5200730	336376	Database Palafittes 2011
Switzerland	Cortaillod	Petit Cortaillod	5200821	336367	Database Palafittes 2011
Switzerland	Cortaillod	Plage	5200749	336466	Database Palafittes 2011
Switzerland	Gorgier	Chez La Tante 1	5196304	331127	Database Palafittes 2011

Switzerland	Gorgier	Chez La Tante 2	5196332	331247	Database Palafittes 2011
Switzerland	Gorgier	Chez-le-Bart 1	5196725	331575	Database Palafittes 2011
Switzerland	Gorgier	Chez-le-Bart 2	5196567	331502	Database Palafittes 2011
Switzerland	Gorgier	Les Argilliez	5196932	331749	Database Palafittes 2011
Switzerland	Hauterive	Champréveyres 1	5208241	345906	Database Palafittes 2011
Switzerland	Hauterive	Champréveyres 2 (Horgen)	5208193	345835	Database Palafittes 2011
Switzerland	Hauterive	Champréveyres 3 (Bronze final)	5208112	345874	Database Palafittes 2011
Switzerland	Hauterive	Champréveyres 4 (Cortaillod classique)	5208063	345803	Database Palafittes 2011
Switzerland	Hauterive	Port	5208329	346028	Database Palafittes 2011
Switzerland	Hauterive	Rouges-Terres	5208531	346422	Database Palafittes 2011
Switzerland	La Tène (Marin-Epagnier)	Epagnier 1	5207722	349396	Database Palafittes 2011
Switzerland	La Tène (Marin-Epagnier)	Epagnier 2	5207674	349275	Database Palafittes 2011
Switzerland	La Tène (Marin-Epagnier)	Epagnier 3	5207637	349114	Database Palafittes 2011
Switzerland	La Tène (Marin-Epagnier)	Les Piécettes	5207944	349301	Database Palafittes 2011
Switzerland	La Tène (Marin-Epagnier)	Pointe de Marin 1	5207496	348662	Database Palafittes 2011
Switzerland	La Tène (Marin-Epagnier)	Pointe de Marin 2	5207453	348831	Database Palafittes 2011
Switzerland	La Tène (Marin-Epagnier)	Préfargier	5207620	348964	Database Palafittes 2011
Switzerland	La Tène (Thielle-Wavre)	Derrière le Château	5209818	350598	Database Palafittes 2011
Switzerland	La Tène (Thielle-Wavre)	L'Ile	5209419	350550	Database Palafittes 2011
Switzerland	La Tène (Thielle-Wavre)	Pont de Thielle 69	5209628	350614	Database Palafittes 2011
Switzerland	La Tène (Thielle-Wavre)	Thielle-Mottaz	5208741	350437	Database Palafittes 2011
Switzerland	Le Landeron	Grand Marais	5212105	352784	Database Palafittes 2011
Switzerland	Le Landeron	Le Port	5213551	353973	Database Palafittes 2011
Switzerland	Le Landeron	Les Prés de la Tour	5213787	354677	Database Palafittes 2011
Switzerland	Neuchâtel	Fun'ambule	5206704	343275	Database Palafittes 2011
Switzerland	Neuchâtel	La Coudre-Monruz	5207608	345054	Database Palafittes 2011
Switzerland	Neuchâtel	La Rotonde	5206655	343194	Database Palafittes 2011
Switzerland	Neuchâtel	Le Crêt	5206688	343565	Database Palafittes 2011
Switzerland	Saint-Aubin - Sauges	Fin de Praz	5196184	331144	Database Palafittes 2011
Switzerland	Saint-Aubin - Sauges	Le Rafour	5195810	330847	Database Palafittes 2011
Switzerland	Saint-Aubin - Sauges	Port-Conty	5195541	330252	Database Palafittes 2011
Switzerland	Saint-Aubin - Sauges	Tivoli 1	5195375	330078	Database Palafittes 2011
Switzerland	Saint-Aubin - Sauges	Tivoli 2	5195413	330169	Database Palafittes 2011
Switzerland	Saint-Aubin - Sauges	Tivoli 3	5195295	330077	Database Palafittes 2011
Switzerland	Saint-Blaise	Bains des Dames	5208626	346674	Database Palafittes 2011
Switzerland	Saint-Blaise	Gare	5208603	346814	Database Palafittes 2011
Switzerland	Vaumarcus	Vers Rive	5193920	329299	Database Palafittes 2011
Switzerland	Stansstad	Kehrsiten	5205750	451900	Database Palafittes 2011
Switzerland	Rapperswil-Jona	Feldbach-Ost	5231864	484819	Database Palafittes 2011
Switzerland	Rapperswil-Jona	Heilig Hüsli	5229975	486016	Database Palafittes 2011
Switzerland	Rapperswil-Jona	Schwimmbad	5229850	486803	Database Palafittes 2011
Switzerland	Rapperswil-Jona	Seegubel	5231691	485480	Database Palafittes 2011
Switzerland	Rapperswil-Jona	Technikum	5229843	486123	Database Palafittes 2011
Switzerland	Rapperswil-Jona	Untiefe Ost	5229514	486086	Database Palafittes 2011

Switzerland	Rapperswil-Jona	Wurmsbach	5229513	490166	Database Palafittes 2011
Switzerland	Rapperswil-Jona/Hombrechtikon	Feldbach	5231867	484644	Database Palafittes 2011
Switzerland	Thayngen	Weier I-III	5287163	477918	Database Palafittes 2011
Switzerland	Äschi SO	Burgäschisee-Nord	5225251	399046	Database Palafittes 2011
Switzerland	Äschi SO	Burgäschisee-Ost	5224913	399459	Database Palafittes 2011
Switzerland	Bolken	Inkwilersee/Südstation	5228008	398701	Database Palafittes 2011
Switzerland	Bolken/Inkwil	Inkwilersee Insel	5228256	398786	Database Palafittes 2011
Switzerland	Freienbach	Bächau	5228757	480448	Database Palafittes 2011
Switzerland	Freienbach	Hurden Kapelle	5229055	485307	Database Palafittes 2011
Switzerland	Freienbach	Hurden Rosshorn	5229727	485451	Database Palafittes 2011
Switzerland	Freienbach	Hurden Seefeld	5228884	485104	Database Palafittes 2011
Switzerland	Freienbach	Hurden Untiefe West	5229312	485703	Database Palafittes 2011
Switzerland	Freienbach	Lützelau	5229974	484576	Database Palafittes 2011
Switzerland	Freienbach	Ufenau	5229357	483434	Database Palafittes 2011
Switzerland	Freienbach	Vor der Kirche	5228346	481994	Database Palafittes 2011
Switzerland	Affeltrangen	Chrarieriet	5274712	503213	Database Palafittes 2011
Switzerland	Altnau	Ruderbaum	5274774	520209	Database Palafittes 2011
Switzerland	Arbon	Bleiche 1	5261370	532155	Database Palafittes 2011
Switzerland	Arbon	Bleiche 2	5261388	532290	Database Palafittes 2011
Switzerland	Arbon	Bleiche 2-3	5261388	532290	Database Palafittes 2011
Switzerland	Arbon	Bleiche 3	5261636	532345	Database Palafittes 2011
Switzerland	Berg	Heimenlachen	5270674	512730	Database Palafittes 2011
Switzerland	Berlingen	Bucht östl. Dorf	5280134	502021	Database Palafittes 2011
Switzerland	Bottighofen	Neuwies	5276775	516130	Database Palafittes 2011
Switzerland	Bottighofen	Schlössli	5276951	515804	Database Palafittes 2011
Switzerland	Ermatingen	Büge	5279978	505482	Database Palafittes 2011
Switzerland	Ermatingen	West	5279978	505842	Database Palafittes 2011
Switzerland	Ermatingen	Westerfeld	5280115	505489	Database Palafittes 2011
Switzerland	Eschenz	Insel Werd	5278138	490089	Database Palafittes 2011
Switzerland	Eschenz	Seeäcker/Orkopf	5277653	491354	Database Palafittes 2011
Switzerland	Gachnang-Niederwil	Egelsee	5267382	489770	Database Palafittes 2011
Switzerland	Güttingen	Moosburg	5272612	523365	Database Palafittes 2011
Switzerland	Güttingen	Rotfarb	5273124	522776	Database Palafittes 2011
Switzerland	Güttingen	Soorwiesen	5273953	521292	Database Palafittes 2011
Switzerland	Horn	Bad Horn	5260356	535419	Database Palafittes 2011
Switzerland	Hüttwilen-Uerschausen	Nussbaumersee	5273652	486196	Database Palafittes 2011
Switzerland	Hüttwilen-Uerschhausen	Horn	5273652	486196	Database Palafittes 2011
Switzerland	Hüttwilen-Uerschhausen	Inseli	5273802	486149	Database Palafittes 2011
Switzerland	Kesswil	Seedorf	5271712	524397	Database Palafittes 2011
Switzerland	Kreuzlingen	Helebarden	5277170	515358	Database Palafittes 2011
Switzerland	Mammern	Langhorn	5277803	495076	Database Palafittes 2011
Switzerland	Mammern	Spanacker	5277973	496099	Database Palafittes 2011
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Switzerland	Münsterlingen	nördl. Klinik	5276130	517387	Database Palafittes 2011

Switzerland	Pfyn	Breitenloo	5271380	494848	Database Palafittes 2011
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Switzerland	Steckborn	Turgi	5279205	498503	Database Palafittes 2011
Switzerland	Tägerwilen	Untere Gottlieberwiese	5279040	509297	Database Palafittes 2011
Switzerland	Uttwil	Unterbäche	5271077	525134	Database Palafittes 2011
Switzerland	Muzzano	Mulini di Bioggio	5094521	493358	Database Palafittes 2011
Switzerland	Avenches	Eau-Noire	5196750	351478	Database Palafittes 2011
Switzerland	Bonvillars	Morbey	5188891	323698	Database Palafittes 2011
Switzerland	Chabrey	Pointe de Montbec I	5199992	345592	Database Palafittes 2011
Switzerland	Chabrey	Pointe de Montbec II	5200528	346558	Database Palafittes 2011
Switzerland	Cheseaux-Noréaz	Châble-Perron I	5185434	324500	Database Palafittes 2011
Switzerland	Cheseaux-Noréaz	Châble-Perron II	5185077	323843	Database Palafittes 2011
Switzerland	Cheseaux-Noréaz	Champittet I	5183980	321651	Database Palafittes 2011
Switzerland	Cheseaux-Noréaz	Champittet II	5184289	322207	Database Palafittes 2011
Switzerland	Cheseaux-Noréaz	Champittet III	5184330	322158	Database Palafittes 2011
Switzerland	Cheseaux-Noréaz	Champittet IV	5184357	322308	Database Palafittes 2011
Switzerland	Chevroux	5e chemin	5195974	341197	Database Palafittes 2011
Switzerland	Chevroux	Bout-de-la-Gouille	5195716	340596	Database Palafittes 2011
Switzerland	Chevroux	Chevroux 11	5195476	340327	Database Palafittes 2011
Switzerland	Chevroux	Chevroux 2	5195193	339746	Database Palafittes 2011
Switzerland	Chevroux	Chevroux 5	5195652	340274	Database Palafittes 2011
Switzerland	Chevroux	Chevroux 9	5196222	341306	Database Palafittes 2011
Switzerland	Chevroux	Denévaraz-en-deçà	5195513	340217	Database Palafittes 2011
Switzerland	Chevroux	Denévaraz-en-delà	5195549	340453	Database Palafittes 2011
Switzerland	Chevroux	La Bessime	5194946	339571	Database Palafittes 2011
Switzerland	Chevroux	La Petite-Ile	5195329	339919	Database Palafittes 2011
Switzerland	Chevroux	Le Châtelard	5195802	340798	Database Palafittes 2011
Switzerland	Chevroux	Village	5195513	340217	Database Palafittes 2011
Switzerland	Concise	La Gare	5191268	326856	Database Palafittes 2011
Switzerland	Concise	La Lance	5191971	327730	Database Palafittes 2011
Switzerland	Concise	La Raisse	5192543	328652	Database Palafittes 2011
Switzerland	Concise	Le Point	5191708	327375	Database Palafittes 2011
Switzerland	Coppet	Place des Ormeaux	5132820	283964	Database Palafittes 2011
Switzerland	Corcelles-près-Concise	Corcelles-la-Baie	5190636	325953	Database Palafittes 2011
Switzerland	Corcelles-près-Concise	Les Grèves	5190549	325782	Database Palafittes 2011
Switzerland	Corcelles-près-Concise	Sous-Colachoz	5190917	325909	Database Palafittes 2011
Switzerland	Corcelles-près-Concise	Station d'Onnens	5189724	325045	Database Palafittes 2011
Switzerland	Corcelles-près-Concise	Stations de Concise	5190636	325953	Database Palafittes 2011
Switzerland	Cudrefin	Champmartin	5201455	347721	Database Palafittes 2011
Switzerland	Cudrefin	Le Broillet I	5203305	350221	Database Palafittes 2011
Switzerland	Cudrefin	Le Broillet II	5202920	350451	Database Palafittes 2011
Switzerland	Cudrefin	Les Chavannes I	5202086	348679	Database Palafittes 2011
Switzerland	Cudrefin	Les Chavannes II	5202330	348469	Database Palafittes 2011
Switzerland	Cudrefin	Les Chavannes III	5202037	348358	Database Palafittes 2011
Switzerland	Dully	Les Châtaigners	5145002	292695	Database Palafittes 2011

Switzerland	Faoug	La Gare	5197050	353484	Database Palafittes 2011
Switzerland	Faoug	Port	5196907	353131	Database Palafittes 2011
Switzerland	Faoug	Poudrechat	5196420	352731	Database Palafittes 2011
Switzerland	Faoug	Poudrechat I	5196448	352817	Database Palafittes 2011
Switzerland	Faoug	Poudrechat II	5196376	352640	Database Palafittes 2011
Switzerland	Gland	Creux de la Dullive	5144414	292103	Database Palafittes 2011
Switzerland	Grandson	Corcelettes Belle-Rive	5187816	321907	Database Palafittes 2011
Switzerland	Grandson	Corcelettes I	5187925	322449	Database Palafittes 2011
Switzerland	Grandson	Corcelettes Les Violes	5187730	322195	Database Palafittes 2011
Switzerland	Grandson	Le Repuis	5187190	321204	Database Palafittes 2011
Switzerland	Grandson	Le Stand	5187091	321142	Database Palafittes 2011
Switzerland	Grandson	Les Tuileries	5186120	319663	Database Palafittes 2011
Switzerland	Lausanne	Grande Rive	5153678	316921	Database Palafittes 2011
Switzerland	Lausanne	Le Flon	5153794	316123	Database Palafittes 2011
Switzerland	Lausanne	Pierre de Cour	5153452	317217	Database Palafittes 2011
Switzerland	Mies	Les Crenées	5131317	282799	Database Palafittes 2011
Switzerland	Morges	Grande-Cité	5153854	308503	Database Palafittes 2011
Switzerland	Morges	Les Roseaux	5154435	308944	Database Palafittes 2011
Switzerland	Morges	Stations de Morges	5153899	308504	Database Palafittes 2011
Switzerland	Morges	Vers-l'Eglise	5154003	308551	Database Palafittes 2011
Switzerland	Mur	Chenevières de Guévaux I	5199919	352021	Database Palafittes 2011
Switzerland	Mur	Chenevières de Guévaux II	5199849	351785	Database Palafittes 2011
Switzerland	Nyon	L'Asse	5140631	288608	Database Palafittes 2011
Switzerland	Onnens	La Gare	5189327	324377	Database Palafittes 2011
Switzerland	Onnens	L'Ile	5188997	323870	Database Palafittes 2011
Switzerland	Prangins	Sadex	5140654	288734	Database Palafittes 2011
Switzerland	Préverenges	Préverenges I	5153690	310760	Database Palafittes 2011
Switzerland	Préverenges	Préverenges II	5154059	310297	Database Palafittes 2011
Switzerland	Rolle	Fleur d'Eau	5147112	294787	Database Palafittes 2011
Switzerland	Rolle	Ile de la Harpe	5148242	295809	Database Palafittes 2011
Switzerland	Saint-Prex	Fraidaigue I	5151523	305751	Database Palafittes 2011
Switzerland	Saint-Prex	Fraidaigue II	5151292	305542	Database Palafittes 2011
Switzerland	Saint-Prex	La Moraine	5150516	304806	Database Palafittes 2011
Switzerland	Saint-Sulpice	La Venoge	5153529	311787	Database Palafittes 2011
Switzerland	Saint-Sulpice	La Venoge Stand	5153693	311600	Database Palafittes 2011
Switzerland	Saint-Sulpice	Les Pierrettes	5154672	314690	Database Palafittes 2011
Switzerland	Tolochenaz	La Poudrière	5152843	307293	Database Palafittes 2011
Switzerland	Tolochenaz	Le Boiron	5152183	307029	Database Palafittes 2011
Switzerland	Vallamand	Château de Vallamand	5198912	350881	Database Palafittes 2011
Switzerland	Vallamand	Les Garinettes	5199359	351280	Database Palafittes 2011
Switzerland	Vallamand	Les Grèves	5199489	351502	Database Palafittes 2011
Switzerland	Veytaux	Chillon	5142216	340848	Database Palafittes 2011
Switzerland	Villeneuve	Tinière	5140258	340730	Database Palafittes 2011
Switzerland	Yverdon	Arkina	5183685	320885	Database Palafittes 2011
Switzerland	Yverdon	Baie de Clendy	5183554	320957	Database Palafittes 2011

Switzerland	Yverdon	Clendy I	5183700	321165	Database Palafittes 2011
Switzerland	Yverdon	Clendy II	5183717	321325	Database Palafittes 2011
Switzerland	Yverdon	Clendy III	5183782	321547	Database Palafittes 2011
Switzerland	Yverdon	Clendy IV	5183834	321458	Database Palafittes 2011
Switzerland	Yverdon	Clendy V	5183942	321560	Database Palafittes 2011
Switzerland	Yverdon	Clendy VI	5183566	321097	Database Palafittes 2011
Switzerland	Yverdon	Transformateur	5183487	320781	Database Palafittes 2011
Switzerland	Yvonand	Cheyres	5186298	329868	Database Palafittes 2011
Switzerland	Yvonand	Le Marais	5185462	328631	Database Palafittes 2011
Switzerland	Yvonand	Yvonand I	5185566	328933	Database Palafittes 2011
Switzerland	Yvonand	Yvonand III	5185583	328563	Database Palafittes 2011
Switzerland	Cham	Bachgraben	5225980	460251	Database Palafittes 2011
Switzerland	Cham	Eslen	5224809	458803	Database Palafittes 2011
Switzerland	Cham	St. Andreas, Strandbad	5225460	459741	Database Palafittes 2011
Switzerland	Hünenberg	Dersbach	5224384	458553	Database Palafittes 2011
Switzerland	Hünenberg	Strandbad	5224298	458593	Database Palafittes 2011
Switzerland	Hünenberg	Wildenbach	5224971	458436	Database Palafittes 2011
Switzerland	Risch	Alznach	5223626	458955	Database Palafittes 2011
Switzerland	Risch	Buonas	5221684	459046	Database Palafittes 2011
Switzerland	Risch	Hechtmattli	5223959	458801	Database Palafittes 2011
Switzerland	Risch	Oberrisch Nord	5219147	459435	Database Palafittes 2011
Switzerland	Risch	Oberrisch, Aabach	5219037	459428	Database Palafittes 2011
Switzerland	Risch	Schwarzbach Nord	5223055	458993	Database Palafittes 2011
Switzerland	Risch	Schwarzbach Süd	5222905	458990	Database Palafittes 2011
Switzerland	Risch	Unterer Freudenberg, See	5222746	459437	Database Palafittes 2011
Switzerland	Risch	Unterer Freudenberg, Strandplatte	5222748	459337	Database Palafittes 2011
Switzerland	Risch	Zweieren	5222054	459073	Database Palafittes 2011
Switzerland	Steinhausen	Chollerpark	5226109	461304	Database Palafittes 2011
Switzerland	Steinhausen	Rotenbach	5226584	460523	Database Palafittes 2011
Switzerland	Steinhausen	Sennweid Ost	5226466	460911	Database Palafittes 2011
Switzerland	Steinhausen	Sennweid West	5226547	460862	Database Palafittes 2011
Switzerland	Unterägeri	Riedern, Lehmgrube Merz	5219716	469025	Database Palafittes 2011
Switzerland	Zug	Altstadt	5223899	463294	Database Palafittes 2011
Switzerland	Zug	Brüggli	5225136	461934	Database Palafittes 2011
Switzerland	Zug	Galgen, Galgenbächli	5225289	461297	Database Palafittes 2011
Switzerland	Zug	Lorzeninsel, Strandplatte	5224864	462049	Database Palafittes 2011
Switzerland	Zug	Oberwil	5221627	462563	Database Palafittes 2011
Switzerland	Zug	Otterswil/Insel Eielen	5219517	461952	Database Palafittes 2011
Switzerland	Zug	Riedmatt	5225716	461512	Database Palafittes 2011
Switzerland	Zug	Schutzengel/Bärenbächli	5224787	462427	Database Palafittes 2011
Switzerland	Zug	Schützenmatt	5224603	462873	Database Palafittes 2011
Switzerland	Zug	Sumpf	5225754	460547	Database Palafittes 2011
Switzerland	Zug	Vorstadt, Rössliwiese	5224239	463286	Database Palafittes 2011
Switzerland	Zug	Vorstadt, Schmidgasse	5224216	463297	Database Palafittes 2011

Switzerland	Aeugst a/A.	Türlersee	5234984	462430	Database Palafittes 2011
Switzerland	Erlenbach	Widen	5239374	468937	Database Palafittes 2011
Switzerland	Erlenbach	Winkel	5238417	469547	Database Palafittes 2011
Switzerland	Fällanden	Rietspitz	5246251	474003	Database Palafittes 2011
Switzerland	Greifensee	Böschen	5246634	474860	Database Palafittes 2011
Switzerland	Greifensee	Furen	5246227	475202	Database Palafittes 2011
Switzerland	Greifensee	Starkstromkabel	5246407	474990	Database Palafittes 2011
Switzerland	Greifensee	Storen/Wildsberg	5245422	475986	Database Palafittes 2011
Switzerland	Hausen a/A	Türlersee	5235227	462785	Database Palafittes 2011
Switzerland	Hombrechtikon	Feldbach West	5231846	484463	Database Palafittes 2011
Switzerland	Hombrechtikon	Rosenberg	5231434	483580	Database Palafittes 2011
Switzerland	Horgen	Dampfschiffsteg	5234532	469580	Database Palafittes 2011
Switzerland	Horgen	Scheller	5235345	468936	Database Palafittes 2011
Switzerland	Horgen	Scheller (Bronzezeit)	5235304	468960	Database Palafittes 2011
Switzerland	Horgen	Scheller (Neolithikum)	5235380	468912	Database Palafittes 2011
Switzerland	Kilchberg	Bendlikon	5241661	466038	Database Palafittes 2011
Switzerland	Kilchberg	Mönchhof	5241998	465930	Database Palafittes 2011
Switzerland	Kilchberg	Schooren	5240703	466444	Database Palafittes 2011
Switzerland	Küsnacht	Hörnli	5239619	468677	Database Palafittes 2011
Switzerland	Männedorf	Langacher	5233656	476401	Database Palafittes 2011
Switzerland	Männedorf	Leuenhaab	5233288	476794	Database Palafittes 2011
Switzerland	Männedorf	Strandbad	5232648	477831	Database Palafittes 2011
Switzerland	Männedorf	Surenbach	5232981	477187	Database Palafittes 2011
Switzerland	Männedorf	Weieren	5233926	475887	Database Palafittes 2011
Switzerland	Maur	Schifflände	5243165	475841	Database Palafittes 2011
Switzerland	Maur	Uessikon	5241147	476775	Database Palafittes 2011
Switzerland	Maur	Weierwis	5244184	474911	Database Palafittes 2011
Switzerland	Meilen	Feldmeilen Vorderfeld	5235894	471447	Database Palafittes 2011
Switzerland	Meilen	Im Grund	5235332	472565	Database Palafittes 2011
Switzerland	Meilen	Plätzli	5235637	471841	Database Palafittes 2011
Switzerland	Meilen	Rorenhaab	5234696	474372	Database Palafittes 2011
Switzerland	Meilen	Schellen	5235015	473429	Database Palafittes 2011
Switzerland	Oberrieden	Riet	5236013	468530	Database Palafittes 2011
Switzerland	Oberrieden	Seegarten	5236264	468455	Database Palafittes 2011
Switzerland	Ossingen	Husemersee	5274463	478114	Database Palafittes 2011
Switzerland	Pfäffikon	Baselrüti	5245529	482636	Database Palafittes 2011
Switzerland	Pfäffikon	Burg	5245795	483341	Database Palafittes 2011
Switzerland	Pfäffikon	Irgenhausen	5245155	483879	Database Palafittes 2011
Switzerland	Pfäffikon	Riet	5245659	483639	Database Palafittes 2011
Switzerland	Richterswil	Schönenwirt	5228013	478638	Database Palafittes 2011
Switzerland	Rüschlikon	Rörli	5239246	466814	Database Palafittes 2011
Switzerland	Schwerzenbach	Suelen	5246817	474189	Database Palafittes 2011
Switzerland	Stäfa	Kehlhof	5231400	480505	Database Palafittes 2011
Switzerland	Stäfa	Lanzelen	5231754	479288	Database Palafittes 2011
Switzerland	Stäfa	Uerikon Im Länder	5231297	481893	Database Palafittes 2011

Switzerland	Stäfa	Uerikon Villa Steinfels	5231378	482874	Database Palafittes 2011
Switzerland	Uetikon	Schifflände	5234092	475590	Database Palafittes 2011
Switzerland	Uster	Riedikon	5242324	477923	Database Palafittes 2011
Switzerland	Wädenswil	Hinter Au	5233182	472592	Database Palafittes 2011
Switzerland	Wädenswil	Meilibach	5233272	472119	Database Palafittes 2011
Switzerland	Wädenswil	Naglikon	5233155	472432	Database Palafittes 2011
Switzerland	Wädenswil	Scheller	5232604	474031	Database Palafittes 2011
Switzerland	Wädenswil	Vorder Au	5232808	473835	Database Palafittes 2011
Switzerland	Wetzikon	Himmerich	5243305	483892	Database Palafittes 2011
Switzerland	Wetzikon	Robenhausen	5242655	483879	Database Palafittes 2011
Switzerland	Zürich	Affoltern-Südlich Aebnet	5252953	462554	Database Palafittes 2011
Switzerland	Zürich	Enge Alpenquai	5245916	465248	Database Palafittes 2011
Switzerland	Zürich	Enge Breitingerstrasse Rentenanstalt Rentenanstalt	5245742	464964	Database Palafittes 2011
Switzerland	Zürich	Enge Breitingerstrasse Zürich Versicherung	5245657	464943	Database Palafittes 2011
Switzerland	Zürich	Enge Mythenschloss	5245512	464960	Database Palafittes 2011
Switzerland	Zürich	Grosse Stadt Kleiner Hafner	5246103	465651	Database Palafittes 2011
Switzerland	Zürich	Grosse Stadt Mozartstrasse	5245964	465829	Database Palafittes 2011
Switzerland	Zürich	Kleine Stadt Bauschanze	5246221	465504	Database Palafittes 2011
Switzerland	Zürich	Riesbach Grosser Hafner	5245749	465594	Database Palafittes 2011
Switzerland	Zürich	Riesbach Siedlungskammer Seefeld	5245782	465952	Database Palafittes 2011
Switzerland	Zürich	Wollishofen-Bad	5243338	465156	Database Palafittes 2011
Switzerland	Zürich	Wollishofen-Haumesser	5243958	465189	Database Palafittes 2011
Switzerland	Zürich	Wollishofen-Horn	5242822	465486	Database Palafittes 2011
Germany	Feldafing, unincorporated area/STA	Rose Island	5311948	672576	Database Palafittes 2011
Germany	Geltendorf/LL	Unfriedshausen	5333541	645284	Database Palafittes 2011
Germany	Lake Starnberg, unincorporated area/STA	Kempfenhausen	5316296	675897	Database Palafittes 2011
Germany	Weil/LL	Pestenacker	5334000	645011	Database Palafittes 2011
Switzerland	Beinwil am See - Ägelmoos		5236430	440073	Database Palafittes 2011
Austria	Keutschach am See	Hafnersee	5159715	433547	Database Palafittes 2011
Austria	Keutschach am See	Keutschacher See	5159616	435607	Database Palafittes 2011
Austria	Attersee	Abtsdorf I	5305639	390394	Database Palafittes 2011
Austria	Attersee	Abtsdorf II, Niedermayerfeld	5305780	390296	Database Palafittes 2011
Austria	Attersee	Abtsdorf III, Niedermayerfeld	5305472	390355	Database Palafittes 2011
Austria	Attersee	Attersee (Landungssteg)	5307768	390805	Database Palafittes 2011
Austria	Attersee	Aufham	5306779	390095	Database Palafittes 2011
Austria	Mondsee	Mooswinkel	5296817	379680	Database Palafittes 2011
Austria	Mondsee	Scharfling	5295217	380045	Database Palafittes 2011
Austria	Mondsee	See	5295667	383887	Database Palafittes 2011
Austria	Nussdorf am Attersee	Nußdorf	5303742	389876	Database Palafittes 2011
Austria	Schörfling am Attersee	Kammer I	5310680	395043	Database Palafittes 2011

Austria	Schörfling am Attersee	Kammer II	5311216	394955	Database Palafittes 2011
Austria	Schörfling am Attersee	Kammerl	5320475	395160	Database Palafittes 2011
Austria	Seewalchen am Attersee	Litzlberg Insel	5309915	392651	Database Palafittes 2011
Austria	Seewalchen am Attersee	Litzlberg Nord I	5310767	393169	Database Palafittes 2011
Austria	Seewalchen am Attersee	Litzlberg Nord II	5310306	392759	Database Palafittes 2011
Austria	Seewalchen am Attersee	Litzlberg Nord III	5310033	392403	Database Palafittes 2011
Austria	Seewalchen am Attersee	Litzlberg Süd/II	5310014	392053	Database Palafittes 2011
Austria	Seewalchen am Attersee	Seewalchen I + II	5320475	395160	Database Palafittes 2011
Austria	Seewalchen am Attersee	Seewalchen III	5311605	393737	Database Palafittes 2011
Austria	Traunkirchen	Traunkirchen	5299395	409724	Database Palafittes 2011
Austria	Unterach am Attersee	Misling I	5298992	389716	Database Palafittes 2011
Austria	Unterach am Attersee	Misling II	5298018	388945	Database Palafittes 2011
Austria	Weyregg am Attersee	Weyregg I/Landungssteg	5304120	393019	Database Palafittes 2011
Austria	Weyregg am Attersee	Weyregg II/Puschacher	5304872	392942	Database Palafittes 2011
Italy	Polcenigo, Caneva (PD)	Palù di Livenza, Molinetto nord	5099070	305060	Database Palafittes 2011
Italy	Polcenigo, Caneva (PD)	Palù di Livenza, Molinetto sud	5098610	304990	Database Palafittes 2011
Italy	Polcenigo, Caneva (PD)	Palù di Livenza-Santissima	5099548	305038	Database Palafittes 2011
Slovenia	Bistra	Bistra I	5089776	449174	Database Palafittes 2011
Slovenia	Bistra	Mali Otavnik	5088599	448749	Database Palafittes 2011
Slovenia	Bistra	Veliki Otavnik I	5088831	448765	Database Palafittes 2011
Slovenia	Bistra	Veliki Otavnik II	5088898	448889	Database Palafittes 2011
Slovenia	Bistra	Veliki Otavnik III	5089145	448829	Database Palafittes 2011
Slovenia	Blatna Brezovica	Konec	5091588	449244	Database Palafittes 2011
Slovenia	Blatna Brezovica	Lipovec	5090358	448244	Database Palafittes 2011
Slovenia	Blatna Brezovica	Na mahu	5090788	448069	Database Palafittes 2011
Slovenia	Blatna Brezovica	Smrečnica	5090588	448034	Database Palafittes 2011
Slovenia	Blatna Brezovica	Veliki mah	5092688	448894	Database Palafittes 2011
Slovenia	Blatna Brezovica	Za Mežnarijo	5090678	449264	Database Palafittes 2011
Slovenia	Blatna Brezovica	Za strugo	5091408	449743	Database Palafittes 2011
Slovenia	Blatna Brezovica	Zornica	5091488	449044	Database Palafittes 2011
Slovenia	Dol pri Borovnici	Črešnja	5087777	449074	Database Palafittes 2011
Slovenia	Goričica pod Krimom	Gladke	5089628	452393	Database Palafittes 2011
Slovenia	Goričica pod Krimom	Šivčev prekop	5090208	452243	Database Palafittes 2011
Slovenia	Ig	Gornje mostišče	5091449	463552	Database Palafittes 2011
Slovenia	Ig	Kepje	5090885	464488	Database Palafittes 2011
Slovenia	Ig	Kepje 2	5091538	463254	Database Palafittes 2011
Slovenia	Ig	Kolišča na Igu, južna skupina	5090885	464488	Database Palafittes 2011
Slovenia	Ig	Kolišča na Igu, severna skupina	5091449	463552	Database Palafittes 2011
Slovenia	Ig	Maharski prekop	5091036	464320	Database Palafittes 2011
Slovenia	Ig	Parte	5091558	463840	Database Palafittes 2011
Slovenia	Ig	Parte - Iščica	5091559	463884	Database Palafittes 2011
Slovenia	Ig	Parte 2	5091338	463679	Database Palafittes 2011
Slovenia	Ig	Parte 3	5092127	463939	Database Palafittes 2011
Slovenia	Ig	Parte 4	5092217	463909	Database Palafittes 2011
Slovenia	Ig	Partovski kanal	5091417	463109	Database Palafittes 2011

Slovenia	Ig	Partovski kanal II	5091358	463329	Database Palafittes 2011
Slovenia	Ig	Resnikov prekop	5090586	464601	Database Palafittes 2011
Slovenia	Ig	Spodnje mostišče	5091058	464101	Database Palafittes 2011
Slovenia	Ig	Spodnje mostišče 2	5091028	464019	Database Palafittes 2011
Slovenia	Ig	Spodnje mostišče 6	5090988	464429	Database Palafittes 2011
Slovenia	Ig	Spodnje mostišče 7	5090928	464479	Database Palafittes 2011
Slovenia	Ig	Strojanova voda	5091005	464603	Database Palafittes 2011
Slovenia	Kamnik pod Krimom	Založnica	5090178	454002	Database Palafittes 2011
Slovenia	Ljubljana	Na Špici	5098626	462160	Database Palafittes 2011
Slovenia	Notranje Gorice	Gmajna	5093208	454043	Database Palafittes 2011
Slovenia	Podplešivica	Zamedvedica	5093777	452023	Database Palafittes 2011
Slovenia	Verd	Hočevarica	5090058	448119	Database Palafittes 2011
Slovenia	Verd	Stare gmajne	5089833	448194	Database Palafittes 2011
Slovenia	Verd	Stare gmajne 2	5089788	448054	Database Palafittes 2011
Germany	Ergolding/LA	Fischergasse	5383356	290457	Database Palafittes 2011
Germany	Essenbach/LA	Koislhof	5386652	294640	Database Palafittes 2011
Italy	Bracciano	La Marmotta	4663011	272075	Fugazzolla 1989
Albania		Sovjan	4509935	475514	Cabanes 2008
Albania		Maliq	4506304	474553	Cabanes 2008
Albania		Dunavec	4505485	478879	Cabanes 2008
Greece		Anarghiri XI	4503829	557744	Chrysostomou/Jagoulis/Maeder 2015
Greece		Anarghiri XIIIa	4495673	554226	Chrysostomou/Jagoulis/Maeder 2016
Greece		Anarghiri XIII	4495673	554226	Chrysostomou/Jagoulis/Maeder 2017
Greece		Anarghiri I	4495383	549987	Chrysostomou/Jagoulis/Maeder 2018
Greece		Sotiras V	4503829	557744	Chrysostomou/Jagoulis/Maeder 2019
Greece		Aghios Panteleimon Necropolis of Tombs	4508378	563325	Chrysostomou/Jagoulis/Maeder 2020
Greece		Anarghiri Ixa	4503829	557744	Chrysostomou/Jagoulis/Maeder 2021
Greece		Anarghiri Ixb	4503829	557744	Chrysostomou/Jagoulis/Maeder 2022
Greece		Limnochori II	4495223	547664	Chrysostomou/Jagoulis/Maeder 2023
Greece		Anarghiri III	4503829	557744	Chrysostomou/Jagoulis/Maeder 2024
Greece		Anarghiri IV	4503829	557744	Chrysostomou/Jagoulis/Maeder 2025
Greece		Limnochori III	4495223	547664	Chrysostomou/Jagoulis/Maeder 2026
Greece		Rodonas II	4498557	548863	Chrysostomou/Jagoulis/Maeder 2027
Greece	Orestias	Dispilio	4481136	524368	Facorellis et al. 2014
Macedonia		Madzari	4648714	548261	Naumov 2016
Macedonia		Zelenikovo	4642397	552858	Naumov 2016
Macedonia		Mrdaja	4558963	646569	Naumov 2016
Macedonia		Trn	4555089	532758	Naumov 2016
Macedonia		Mogila	4549924	531070	Naumov 2016
Macedonia		Nakolec	4526033	507898	Naumov 2016
Macedonia		Crkveni Livadi	4558737	473308	Naumov 2016
Macedonia		Ustie na Drim	4558737	473308	Naumov 2016
Macedonia		Vbrnik	4558737	473308	Naumov 2016
Macedonia		Dolno Trnovo	4554573	484357	Naumov 2016

Macedonia		Ohridati	4553199	482970	Naumov 2016
Macedonia		Bay of Bombs	4542166	483407	Naumov 2016
Macedonia		Bay of Bones	4538778	482338	Naumov 2016
Macedonia		Bay of Goats	4541244	484328	Naumov 2016
Macedonia		Bucila	4530667	479218	Naumov 2016
Macedonia		Zlastrana	4573370	488535	Naumov 2016
Bulgaria		Kiten	4675980	564636	Angelova/Draganov 2003
Bulgaria		Sozopol	4696277	557593	Angelova/Draganov 2003
Russia	Smolensk	Serteya River	6165749	396143	Mazurkevich/Polkovnikova/Dolbunova 2014
Russia	Pskov	Sennitsa Lake	6188975	339684	Mazurkevich/Polkovnikova/Dolbunova 2014
Russia	Pskov	Usviaty Lake	6177978	359382	Mazurkevich/Polkovnikova/Dolbunova 2014

ANNEX 2

Lithic provenance Egolzwil 3 (Figure 10)				
Material	Provenance	UTM X	UTM Y	Percentage
101	Olten to Aarau	389041	5228541	47.10%
102	Olten/ Chalchofen	388454	5229553	29.60%
146/002	Laegern	441169	5237351	7.2%
271	Buettenhardt (SH)	448699	5250951	1.1%
419	Dossenbach/Dinkelberg	387054	5247367	0.3%
652	Lupsingen, Baselland	377495	5230770	0.1%
252	Sanilhac (F)	591703	4908058	0.1%
Kalk	Oberbuchsiten to Egerkingen	383872	5227640	0.1%
349	Degerfelden	405688	5269604	0.1%
QzHä	Oberhalbstein	545578	5159998	0.1%
159	Kleinkems/Isteiner Klotz (D)	389644	5280447	0.1%
359	Oberiberg, Alluvial	483131	5208410	0.1%
142	Pleigne/Loewenburg (JU)	372864	5254772	0.1%
620	Tiefenberg/Breitachtal (D); Rissmorains	595217	5260170	0.1%
112	Paron (F)	510570	5328536	0.1%
Grüngestein	Monte Viso	350730	4947572	0.1%

Lithic provenance Hörnle I (Figure 19)				
Material	Provenance	UTM X	UTM Y	Percentage
Jurahornstein	Fresh mountian material (Alb/Randen)	468553	5295045	~65%
Jaspis	Residual deposits Hegau	481202	5293657	~35%
Engener Hornstein	Mühlhausen-Ehingen (Engen)	483019	5300098	0.04%
Plattenhornstein	Schiener Berg (Öhningen)	494070	5280848	0.01%
Rijckholtfeuerstein	Rijckholt	692441	5631139	0.01%
Brauner gebänderter Silex	Romigny-Lhéry	555813	5448859	0.01%
Brauner gebänderter Silex	Mont-les-Etrelles	715794	5259813	0.01%
Muschelkalk und Jurahornstein	Lampenberg	406326	5253031	0.01%
Graue homogene Silexvariant	Lessinic Alps	653682	5099853	0.01%
Bergkristall	Alpen	565680	5178297	0.01%

Lithic provenance La Draga (Figure 28)				
Material	Provenance	UTM X	UTM Y	Importace from 1 (min) to 5 (max)
Radiolarite Quartzite and other metamorphic rocks	Fluvia alluvial plain	483570	4669533	1
Sandstone and limestone	Banyoles lakeshore	479514	4663712	2

Metamorphic rocks (marble?)	Macizos de Guilleries	461771	4638287	2
Volcanic material	Volcanic area of La Garrotxa	461207	4668402	2
Silex	Narbonne-Sigean	493219	4769968	5
Jasper	Montjuic	429684	4578907	2
Granite	Macizo de les Gavarres	497092	4640086	3

Lithic provenance Dispilio (Figure 37)				
Material	Provenance	UTM X	UTM Y	Importace from 1 (min) to 5 (max)
Chert and silicified carbonate	Pindus Mountains	504865	4427425	5
Granite and sandstone	Aliakmon River	514067	4482379	2
Serpentine	Maniaki	520505	4483282	2
Obsidian	Melos	266913	4063256	1

ANNEX 3

Sites in regional overview Egolzwil 3 (Figure 12)						
Number	Site	UTM X	UTM Y	Site type	Dating	Literature
1	Salzhausstrasse	366816	5221195	Single finds	Neolithic	UNESCO Nomination File 2010
2	Moosstation	367453	5220532	Single finds	Neolithic (Cortaillod)	UNESCO Nomination File 2010
3	Moossee-West	384065	5209151	Settlement	Middle and Final Neolithic	UNESCO Nomination File 2010
4	Moossee-Ost	385033	5208532	Settlement	Middle and Final Neolithic	UNESCO Nomination File 2010
5	Burgaeschisee-Nord	399046	5225251	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
6	Burgaeschisee-Ost	399459	5224913	Single finds	Neolithic (Cortaillod)	UNESCO Nomination File 2010
7	Inkwilersee Insel	398786	5228256	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
8	Oberbipp	398613	5235158	Dolmen	3500-2800 BC	Ramstein et al. 2014
9	Egolzwil 2	425304	5225827	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
10	Egolzwil 4	425409	5226075	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
11	Bognau Halbinsel	430283	5224802	Settlement	Neolithic (Egolzwil)	UNESCO Nomination File 2010
12	Egolzwil 5	425433	5226024	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
13	Spiessmoesli	435958	5223090	Settlement	Neolithic (Egolzwil)	UNESCO Nomination File 2010
14	Seematte	443607	5229611	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
15	Erlenhoelzli	441664	5236498	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
16	Wildenbach	458436	5224971	Settlement	Neolithic (Egolzwil and Cortaillod)	UNESCO Nomination File 2010
17	Eslen	458803	5224809	Settlement	Neolithic (Egolzwil and Cortaillod)	UNESCO Nomination File 2010
18	Im Grund	472565	5235332	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
19	Schellen	473429	5235015	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
20	Rorenhaab	474372	5234696	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
21	Strandbad	477831	5232648	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
22	Feldbach West	484463	5231846	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
23	Hurden Kapelle	485307	5229055	Settlement	Neolithic (maybe Cortaillod)	UNESCO Nomination File 2010
24	Hurden Untiefe West	485703	5229312	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
25	Schnidejoch	376018	5136359	Single finds	4500 BC	Hafner 2015
26	Ötzi	640456	5182255	Mummified deceased	3300 BC	(e.g. Fleckinger 2002)

Sites in regional overview Hörnle IA (Figure 21)						
Number	Site	UTM X	UTM Y	Site type	Dating	Literature
1	Transformateur	320781	5183487	Isolated finds	Neolithic (Cortaillod)	UNESCO Nomination File 2010
2	Praz des Gueux	350230	5184293	Isolated finds	Neolithic (Cortaillod)	UNESCO Nomination File 2010
3	Marktgasse	395327	5179633	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
4	Segelboothafen	356385	5199092	Settlement	Middle Neolithic	UNESCO Nomination File 2010
5	Pantschau	357013	5199745	Settlement	Middle Neolithic	UNESCO Nomination File 2010
6	Strandboden	356367	5211253	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
7	Ländti	356615	5211148	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
8	Bahnhof	360190	5217427	Settlement	3838-3074 BC	UNESCO Nomination File 2010
9	Hauptstation	363965	5217642	Settlement	3835-3013 BC	UNESCO Nomination File 2010
10	Schötz 1	425021	5225152	Settlement	Neolithic (Egolzwil, Cortaillod, Horgen)	UNESCO Nomination File 2010
11	Wauwil 1	426147	5225460	Isolated finds	Neolithic (Egolzwil)	UNESCO Nomination File 2010
12	Seerose	441429	5237203	Isolated finds	Neolithic (Cortaillod)	UNESCO Nomination File 2010
13	Grosse Stadt Kleiner Hafner	465651	5246103	Settlement	Neolithic (Egolzwil)	UNESCO Nomination File 2010
14	Scheller	468960	5235304	Settlement	Neolithic (Pfyn)	UNESCO Nomination File 2010
15	Feldmeilen Vorderfeld	471447	5235894	Settlement	Neolithic (Pfyn)	UNESCO Nomination File 2010
16	Plätzli	471841	5235637	Settlement	Neolithic (Pfyn)	UNESCO Nomination File 2010
17	Schellen	473429	5235015	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
18	Im Grund	472565	5235332	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
19	Rorenhaab	474372	5234696	Settlement	Neolithic (Cortaillod)	UNESCO Nomination File 2010
20	Weieren	475887	5233926	Settlement	Neolithic (Pfyn)	UNESCO Nomination File 2010
21	Langacher	476401	5233656	Settlement	Neolithic (Pfyn)	UNESCO Nomination File 2010
22	Uerikon Im Länder	481893	5231297	Settlement	Neolithic (Pfyn)	UNESCO Nomination File 2010
23	Schiffländе	475841	5243165	Settlement	Neolithic (Pfyn)	UNESCO Nomination File 2010
24	Uessikon	476775	5241147	Isolated finds	Neolithic (Pfyn)	UNESCO Nomination File 2010
25	Burg	483341	5245795	Settlement	Neolithic (Pfyn)	UNESCO Nomination File 2010
26	Ruderbaum	520209	5274774	Isolated finds	Neolithic (Pfyn)	UNESCO Nomination File 2010
27	Landschlacht	519622	5275436	Isolated finds	Neolithic (Pfyn)	UNESCO Nomination File 2010
28	Konstanz-Hafenstraße	513277	5278175	Isolated finds	Neolithic (Pfyn)	UNESCO Nomination File 2010
29	Hagnau-Burg	523722	5279974	Settlement	Neolithic (Pfyn)	UNESCO Nomination File 2010
30	Haltnau-Oberhof	521566	5281222	Settlement	Neolithic (Pfyn)	UNESCO Nomination File 2010
31	Egg-Obere Güll II	514177	5283250	Isolated finds	Neolithic (Pfyn)	UNESCO Nomination File 2010
32	Hemmenhofen-Im Bohl	497943	5280094	Settlement	Neolithic (Hornstaad)	UNESCO Nomination File 2010
33	Hemmenhofen-Im Leh	497563	5279732	Isolated finds	Middle Neolithic	UNESCO Nomination File 2010
34	Hornstaad-Hörnle	500444	5282347	Settlement	Neolithic (Hornstaad)	UNESCO Nomination File 2010
35	Hegne-Nachtwaid	506989	5283552	Settlement	Neolithic (Pfyn)	UNESCO Nomination File 2010
36	Litzelstetten-Krähenhorn	513420	5285715	Settlement	Neolithic (Pfyn)	UNESCO Nomination File 2010
37	Litzelstetten-Staudershag	513297	5286201	Isolated finds	Middle Neolithic	UNESCO Nomination File 2010
38	Ludwigshafen-Holzplatz	503820	5295737	Isolated finds	Neolithic (Pfyn)	UNESCO Nomination File 2010
39	Ludwigshafen-Seehalde	504699	5295552	Settlement	3867-2417 BC	UNESCO Nomination File 2010

40	Engen	482036	5296953	Burial	4000-3800 BC	Hald and Wahl 2016
41	Hartöschle	547463	5329424	Settlement	Neolithic (Schussenried)	UNESCO Nomination File 2010

Sites in regional overview La Draga (Figure 30)						
Number	Site	UTM X	UTM Y	Site type	Dating	Literature
1	Leucate	502450	4745601	Settlement	Cardial	Palomo et al. 2014
2	Plansallosa	467255	4677764	Settlement	Epicardial	Palomo and Gibaja 2001
3	Cova dels Encantats	464578	4669388	Sepulchral cave	Montboló	González-Alcalde 2006
4	Mariver and Encantades de Martís	481741	4670278	Sepulchral cave	Epicardial, Montbolé	Terradas et al. 2013
5	Cova de l'Arbreda	478342	4669178	Secondary settlement	Cardial	Bosch i Lloret 1994
6	Cova de Molet III	478342	4669178	Secondary settlement	Cardial	Bosch i Lloret 1994
7	Cova del Reclau Viver	478338	4667851	Secondary settlement	Cardial, Epicardial	González Alcalde 2006
8	Porqueres	479501	4663795	Isolated finds	Bell Beaker	Boschi i Lloret et al. 2000
9	200 m South of La Draga	480079	4663349	Isolated finds	Prehistoric	Boschi i Lloret et al. 2000
10	Punta Freixenet	479583	4663351	Isolated finds	1417-1276 BC	Terradas et al. 2013
11	Fàbrica Agustí	480820	4662570	Burial	Middle Neolithic	Tarrús i Galter 1984
12	Closes a Pujarnol	477756	4660692	Dolmen	Chalcolithic	Boschi i Lloret et al. 2000
13	Cova de l'Avellaner	462221	4658092	Sepulchral cave	Final Epicardial	Bosch i Lloret 1994
14	Font del Ros	404721	4661274	Settlement	Epicardial	Martín et al. 2010
15	Cova d'en Pau	445493	4597723	Secondary settlement	Cardial, Epicardial, Montboló	Bosch i Lloret 1994

Sites in regional overview Dispilio (Figure 39)							
Number	Site	UTM X	UTM Y	Site type	Dating	Literature	Country
1	Ustie za Drim	472701	4558254	Settlement	Late Neolithic	Naumov 2009	Macedonia
2	Dolno Trnovo	482911	4552326	Settlement	Neolithic	Naumov 2009	Macedonia
3	Rajce	463880	4547726	Settlement	Neolithic	Carte Archéologique 2008	Albania
4	Rashtan	458815	4543313	Settlement	Neolithic	Carte Archéologique 2008	Albania
5	Bay of Bones	482338	4538778	Lakeside settlement	Neolithic	Naumov 2016	Macedonia
6	Topolcani	539010	4560560	Settlement	Neolithic	Naumov 2009	Macedonia
7	Mogila	531070	4549924	Settlement	Early Neolithic	Naumov 2009	Macedonia
8	Dobromiri	541640	4548733	Settlement	Neolithic	Naumov 2009	Macedonia
9	Golema Tumba Trn	534445	4546608	Settlement	Late Neolithic	Naumov 2009	Macedonia
10	Mala Tumba Trn	535290	4545502	Settlement	Late Neolithic	Naumov 2009	Macedonia
11	Suvodol	547623	4546487	Settlement	Neolithic	Naumov 2009	Macedonia
12	Gurgur Tumba	533928	4538936	Settlement	Neolithic	Naumov 2009	Macedonia
13	Opticari	532809	4536610	Settlement	Early Neolithic	Naumov 2009	Macedonia
14	Tumba Bara	531837	4535056	Settlement	Neolithic	Naumov 2009	Macedonia
15	Porodin	532461	4534417	Settlement	Early Neolithic and Middle Neolithic	Naumov 2009	Macedonia
16	Veluska Tumba	531490	4533517	Settlement	Early Neolithic and Middle Neolithic	Naumov 2009	Macedonia

17	Podgori	482288	4517686	Settlement	Early Neolithic	Carte Archéologique 2008	Albania
18	Sovjan	475514	4509935	Settlement	Neolithic	Carte Archéologique 2008	Albania
19	Maliq	474553	4506304	Lakeside settlement	Late Neolithic - Eneolithic	Carte Archéologique 2008	Albania
20	Dunavec	478879	4505485	Lakeside settlement	Middle Neolithic	Carte Archéologique 2008	Albania
21	Burimas	490708	4506570	Settlement	Eneolithic	Carte Archéologique 2008	Albania
22	Barc	483080	4495484	Settlement/Necropole	Middle Neolithic to Bronze Age	Carte Archéologique 2008	Albania
23	Dersnik	472062	4489967	Settlement	Middle Neolithic	Carte Archéologique 2008	Albania
24	Vlushe	441542	4484593	Settlement	Mesolithic and Late Neolithic	Carte Archéologique 2008	Albania
25	Kamnik	465140	4457805	Settlement	L	Carte Archéologique 2008	Albania
26	Armenohori	539366	4516660	Various settlements	Neolithic	Andreou 1996	Greece
27	Anarghiri IXb	557744	4503829	Lakeside settlement	Early Neolithic to Bronze Age	Chrysostomou et al. 2015	Greece
28	Avgi	514502	4478150	Settlement	Middle Neolithic	Stratouli 2004	Greece
29	Megalo Nisi Galanis	563646	4479536	Settlement	Late Neolithic	Andreou 1996	Greece
30	Megali Toumba Ayiou Dimitriou	578435	4480336	Settlement	Early Neolithic to Bronze Age	Andreou 1996	Greece
31	Aiani	569541	4446576	Settlement	Late Neolithic	Andreou 1996	Greece
32	Servia	585132	4448585	Settlement	Neolithic	Andreou 1996	Greece
33	N. Nikomedeia	601657	4485796	Settlement	Early Neolithic	Andreou 1996	Greece
34	Yannitsa B	618129	4515648	Settlement	Early Neolithic	Andreou 1996	Greece
35	Makriyalos	635758	4474493	Settlement	Late Neolithic	Andreou 1996	Greece

ANNEX 4

Radiocarbondating of Egolzwil 3 (data from de Capitani 2013). Marked in gray are the dates depicted in the graphic

	Sample	Year of dating	Date BP	Date cal. ANE 2-Sigma
K-115	Charcoal	1952	4700±150	3646-3340
K-121	Charcoal	1952	4920±130	3934-3539
K-118	Treebark	1952	4980±140	3970-3642
K-116	Wood sample	1952	5280±280	4452-3785
B-2726	Hazelnut	1952	5270±70	4170-3990
VRI-28	Charcoal	1952	5620±130	4710-4270
ETH-131	Food remain	1996	5420±80	4350-4150
B-4775	Charcoal	1996	5420±60	4350-4230
B-4774	Charcoal	1996	5450±60	4350-4170
B-4772	Charcoal	1996	5390±100	4350-4130
ETH-31032	Oak	2005	5258±60	*4309-3975*
ETH-31033	Oak	2005	5295±60	*4316-3982*
ETH-31028	Oak	2005	5315±60	*4324-3992*
ETH-31031	Oak	2005	5230±60	*4236-3951*
ETH-31029	Oak	2005	5280±60	*4260-3971*
ETH-31030	Oak	2005	5230±60	*4236-3951*
ETH-42975	Oak	2011	5420±40	*4352-4082*
ETH-42976	Oak	2011	5390±40	*4339-4068*
ETH-43304	Oak	2011	5580±45	*4495-4343*
ETH-43305	Oak	2011	5365±45	*4330-4054*
ETH-43306	Oak	2011	5430±45	*4360-4079*

Dendrodating from Hörnle IA (data from Billamboz 2006)

Structure	Wood	Year of felling cal BC	Construction phase
z80	Oak	3906/3909	A4
z81	Beech	3903/3906	A4
z82	Oak	3905	A4
z83a	Hazel and alder	3903-3906	A4
z84a	Alder	3905	A4
z85	Beech	3904/3906/3912	A4
z86	Beech	3906	A4
z88	Beech	3904	A4
z60	Ash	3908/3909	A3
z61	Ash	3909	A3
z61a	Beech	3909	A3
z62	Ash	3909	A3
z63	Ash	3909/3910	A3
z63b	Beech	3908	A3

z64	Ash	3908-3910	A3
z64a	Beech and maple	3908/3909	A3
z65	Ash	3908/3909	A3
z66	Ash	3908/3909	A3
z66a	Ash	3908/3909	A3
z67	Ash	3907-3909	A3
z68	Beech	3908	A3
z69	Beech	3908/3909	A3
z1	Oak	3910	A2
z1a	Maple	3911	A2
z2	Oak	3911/3912	A2
z2a	Alder	3911	A2
z3	Oak	3910	A2
z4	Oak	3910/3911	A2
z4a	Beech	3911	A2
z5	Oak	3910-3912	A2
z5a	Oak and hazel	3910/3911	A2
z5b	Hazel and alder	3910/3911	A2
z5c	Beech	3911	A2
z6	Oak	3910-3912	A2
z6a	Beech	3911	A2
z6b	Alder	3910	A2
z7	Ash	3911	A2
z7a	Beech	3911/3912	A2
z8	Ash	3911/3912	A2
z8a	Oak	3910/3911	A2
z12	Oak, ash and beech	3910-3913	A2
z15	Oak	3910-3912	A2
z16	Oak	3911/3912	A2

Structure	Wood	Year of felling cal BC	Construction phase
z27	Ash	3916/3917	A1
z28	Ash	3915	A1
z30	Ash	3914/3916	A1
z31	Ash	3916/3917	A1
z31a	Ash	3917	A1
z32	Ash	3917	A1
z32a	Ash	3915/3916	A1
z34	Ash	3915	A1
z39	Ash	3915	A1
z43	Ash	3916/3917	A1
z48	Ash	3916/3917	A1

Structure	Wood	Year of felling cal BC	Construction phase
z17	Oak	3911	A2
z21	Oak	3911/3912	A2
z22	Oak	3911-3913	A2
z22a	Ash	3910	A2
z23	Oak	3910-3912	A2
z24	Oak	3912	A2
z24a	Oak	3911	A2
z25	Oak	3910-3912	A2
z25a	Beech	3911	A2
z29	Oak and ash	3911	A2
z33a	Maple and hazel	3910-3913	A2
z35	Beech	3910/3912	A2
z35a	Maple	3910	A2
z36	Oak	3911	A2
z36a	Beech	3910/3911	A2
z37		3910-3916	A2
z37a	Oak and beech	3910-3912	A2
z38	Oak	3910/3911	A2
z40	Beech	3911	A2
z41	Oak and beech	3910-3912	A2
z42	Oak and beech	3911	A2
z42a	Beech	3910-3913	A2
z43a	Beech	3911	A2
z44	Ash and beech	3911/3912	A2
z45	Oak	3911	A2
z45a	Beech	3911	A2
z45b	Beech	3912	A2
z46	Oak	3911	A2
z47	Oak	3911/3912	A2
z49	Ash and beech	3911/3912	A2
z52	Oak	3911	A2
z57	Oak and beech	3911	A2
z58	Beech	3911/3912	A2
z9	Ash	3915	A1
z10	Ash	3915	A1
z11	Ash	3915	A1
z13	Ash	3915	A1
z14	Ash	3915	A1
z18	Ash	3915	A1
z19	Ash	3915	A1
z20	Ash	3915	A1
z26	Ash	3916/3917	A1

z50	Ash	3917	A1
z51	Ash	3917	A1
z51a	Ash	3916	A1
z53	Ash	3914/3915	A1
z54	Ash	3915	A1
z55	Ash	3915/3916	A1
z56	Ash	3915/3916	A1
z15	Oak	3910-3912	A2
z16	Oak	3911/3912	A2
z17	Oak	3911	A2
z21	Oak	3911/3912	A2
z22	Oak	3911-3913	A2
z22a	Ash	3910	A2
z23	Oak	3910-3912	A2
z24	Oak	3912	A2
z24a	Oak	3911	A2
z25	Oak	3910-3912	A2
z25a	Beech	3911	A2
z29	Oak and ash	3911	A2
z33a	Maple and hazel	3910-3913	A2
z35	Beech	3910/3912	A2
z35a	Maple	3910	A2
z36	Oak	3911	A2
z36a	Beech	3910/3911	A2
z37		3910-3916	A2
z37a	Oak and beech	3910-3912	A2
z38	Oak	3910/3911	A2
z40	Beech	3911	A2
z41	Oak and beech	3910-3912	A2
z42	Oak and beech	3911	A2
z42a	Beech	3910-3913	A2

Structure	Wood	Year of felling cal BC	Construction phase
z43a	Beech	3911	A2
z44	Ash and beech	3911/3912	A2
z45	Oak	3911	A2
z45a	Beech	3911	A2
z45b	Beech	3912	A2
z46	Oak	3911	A2
z47	Oak	3911/3912	A2
z49	Ash and beech	3911/3912	A2
z52	Oak	3911	A2
z57	Oak and beech	3911	A2
z58	Beech	3911/3912	A2
z9	Ash	3915	A1
z10	Ash	3915	A1
z11	Ash	3915	A1
z13	Ash	3915	A1
z14	Ash	3915	A1
z18	Ash	3915	A1
z19	Ash	3915	A1
z20	Ash	3915	A1
z26	Ash	3916/3917	A1
z27	Ash	3916/3917	A1
z28	Ash	3915	A1
z30	Ash	3914/3916	A1
z31	Ash	3916/3917	A1
z31a	Ash	3917	A1
z32	Ash	3917	A1
z32a	Ash	3915/3916	A1
z34	Ash	3915	A1
z39	Ash	3915	A1
z43	Ash	3916/3917	A1
z48	Ash	3916/3917	A1
z50	Ash	3917	A1
z51	Ash	3917	A1
z51a	Ash	3916	A1
z53	Ash	3914/3915	A1
z54	Ash	3915	A1
z55	Ash	3915/3916	A1
z56	Ash	3915/3916	A1

Radiocarbondating of La Draga (Palomo et al. 2014)

	Sample	Sector	Phase	Date BP	Date cal. ANE 1-Sigma	Date cal. ANE 2-Sigma
UBAR314	Wood	A	I	6410±70	5466–5338	5488–5224
Beta137197	Wood	B	I	6290±70	5365–5206	5464–5057
Beta137198	Wood	B	I	6270±70	5322–5078	5461–5037
OxA20233	Seed	A	I	6179±33	5207–5069	5219–5023
OxA20231	Seed	B	I	6163±31	5205–5055	5213–5020
OxA20232	Seed	B	I	6121±33	5203–4989	5206–4959
Beta278255	Bone	C	I	6270±40	5298–5220	5323–5074
Beta315052	Seed	D	I	6270±30	5297–5223	5314–5209
Beta278256	Bone	C	I	6170±40	5206–5060	5219–4998
Beta315049	Seed	D	I	6130±40	5205–4995	5209–4960
HD15451	Seed	A	II	6060±40	5021–4907	5193–4840
UBAR313	Seeds set	A	II	6010±70	4994–4801	5199–4719
GAK-15223	Charcoal	A	II	5710±170	4722–4362	5000–4231
UBAR-245	Charcoal	A	II	5920±140	4986–4615	5205–4492
UBAR311	Charcoal	A	II	5970±110	4993–4721	5206–4604
UBAR312	Charcoal	A	II	6570±460	5979–5022	6426–4536
UBAR315	Bones set	A	II	6700±710	6382–4847	7449–4232
OxA20234	Seed	A	II	6127±33	5203–4995	5208–4997
OxA20235	Seed	A	II	6143±33	5205–5021	5208–4999
Beta298438	Bone	D	II	6010±40	4948–4839	4998–4794
Beta315050	Seed	D	II	6180±40	5209–5064	5284–5000
Beta315051	Seed	D	II	6210±40	5223–5065	5294–5053

Radiocarbondating of Dispilio (Facorellis/Sofronidou/Hourmouziadis 2014)

	Sample	Date BP	Date cal. ANE 1-Sigma	Date cal. ANE 2-Sigma
RTT-5035	Charcoal	3720±45	2198–2036	2281–1977
LTL-1085A	Charcoal	3773±55	2290–2060	2450–2030
LTL-1519A	Charcoal	3828±55	2430-2150	2460-2140
RTT-5031	Charcoal	4860±45	3699–3544	3761–3526
RTT-5032	Charcoal	5125±50	3980–3810	4040–3790
RTT-5034	Charcoal	5180±60	4050–3820	4230–3800
LTL-1084A	Charcoal	5253±55	4230–3980	4230–3970
RTT-5033	Charcoal	5395±45	4331–4183	4343–4067
LTL-1086A	Charcoal	5774±60	4690–4550	4780–4490
GrN-30956	Charcoal	6040±30	4991–4858	5016–4844

LTL-1520A	Charcoal	6133±65	5210–5000	5290–4850
GrN-30963	Charcoal	6200±50	5220–5060	5300–5030
GrN-30961	Charcoal	6210±80	5290–5060	5340–4950
RTT-5037	Charcoal	6220±60	5290–5070	5320–5020
RTT-5038	Charcoal	6220±50	5290–5070	5310–5050
DEM-656	Wooden pile	6269±29	5298–5224	5314–5212
DEM-321	Wood	6270±38	5299–5224	5324–5079
RTT-5036	Charcoal	6270±50	5310–5210	5360–5070
GrN-30958	Charcoal	6300±25	5313–5230	5320–5220
DEM-657	Wooden pile	6338±29	5361–5301	5375–5223
GrN-30960	Charcoal	6360±50	5460–5300	5470–5230
RTT-5039	Charcoal	6380±50	5470–5310	5480–5230
GrN-31012	Charcoal	6385±15	5371–5325	5465–5317
GrN-30959	Charcoal	6400±15	5464–5331	5467–5324

ANNEX 5

Plants consumed at Egolzwil 3 (data from Bollinger 1994)			Plants consumed at Hörnle I (data from Maier and Vogt 2001)	
Bugle	*Ajuga replans L.*		Dill	*Anethum graveolens*
Napa cabbage	*Brassica rapa*		Burweed	*Arctium cf. Minus*
Calaminth	*Calamintha sylvatica Bromf.*		Thyme-leaf sandwort	*Arenaria serpyllifolia*
Sedge	*Carex sylvatica Huds.*		Wild turnip	*Brassica campestris*
Goosefoot	*Chenopodium album*		Wild flax	*Camelina sativa aggr.*
Enchanter's nightshade	*Circaea lutetiana L.*		Shepherd's purse	*Capsella bursa-pastoris*
Old man's beard	*Clematis vitalba L.*		Goosefoot	*Chenopodiu album*
Hazelnut	*Corylus avellana L.*		Manyseed goosefoot	*Chenopodiumpolyspermum*
Black bindweed	*Fallopia conv.*		Field chickweed	*Cirsium arvense*
Wild strawberry	*Fragaria vesca*		Common dogwood	*Cornus sanguinea*
Yellow archangel	*Lamiastrum galeobdolonagg.*		Hazelnut	*Corylus avellana*
Common nipplewort	*Lapsana comm.*		Tansy mustard	*Descurainia sophia*
Name	*Latin name*		Willowherb	*Epilobium cf. Hirsutum*
Crab apple	*Malus sylvestris agg.*		Strawberry	*Fragaria vesca*
Apetalous sandwort	*Moehringia trinervia (L.) Clariv.*		Common hemp-nettle	*Galeopsis tetrahit*
Opium poppy	*Papaver somniferum*		Spotted dead-nettle	*Lamium maculatum*
Bladder cherry	*Physalis alkekengi L.*		Nipplewort	*Lapsana communis*
Spiked rampion	*Phyteuma spicatum L.*		Flax	*Linum usatissimum*
Knotweed	*Polygonum avic.*		Wild apple	*Malus sylvestris*
Acorn	*Quercus sp.*		Common mallow	*Malva sylvestris*
Creeping buttercup	*Ranunculus repens*		Wild oregano	*Origanum vulgare*
Rose	*Rosa spec.*		Opium poppy	*Papaver somniferum*
Dewberry	*Rubus caesius L.*		Cherry	*Physalis alkekengi*
Bloody dock	*Rumex sanguineus L.*		Pea	*Pisum sativum*
Elder	*Sambucus nigra L. / racemosa L.*		Buckwheat and knotweed family	*Polygonum*
Nightshade	*Solanum dulcamara L.*		Blackthorn	*Prunus spinosa*
Prickly sow-thistle	*Sonchus asper*		Acorn	*Quercus sp.*
Hedge woundwort	*Stachys sylvatica L.*		Rosehip	*Rosa canina*
Chickweed	*Stellaria media*		Dewberry	*Rubus caesius*
Verbena	*Verbena off.*		Blackberry	*Rubus fruticosus*
Dog-violet	*Viola reichenbachiana Jord. Ex Boreau*		Raspberry	*Rubus idaeus*
			Elder	*Sambucus nigra*
			Rattleweed	*Silene vulgaris*

			Black nightshade	*Solanum nigrum*
			Linden	*Tilia sp.*
			Nettle	*Urtica dioica*
			Hairy corn salad	*Valerianella dentata*
			Corn salad	*Valerianella locusta*
			Heath speedwell	*Veronica officinalis*
			Water elder	*Viburnum opulus*

Plants consumed at La Draga (data from Bosch i Lloret et al. 2000 and 2011			Plants consumed at Disipilio (data from Kouli/Dermitzakes and Ntinog 2002	
Water-plantain	*Alisma plantago-aquatica*		Black alder	*Alnus glutinosa*
Celery (swamp-variety)	*Apium repens-tipuis*		Carrot family	*Apiaceae*
Strawberry tree	*Arbutus unedo*		Goosefoot	*Chenopodiaceae*
Winge	*Cenococcum geophilum*		Common ivy	*Hedera helix*
Algae	*Chara sp*		Rock rose	*Helianthemum*
Goosefoot	*Chenopodium album*		Common hop	*Humulus lupulus*
Swamp sawgrass	*Cladium mariscus*		Walnut	*Juglans*
Common dogwood	*Cornus sanguinea*		Legume family	*Leguminosae*
Hazelnut	*Corylus avellana*		Flowering plants (such as lettuce, dandelions, etc.)	*Liguliflorae*
Galingale	*Cyperus longus*		Apple	*Maloideae*
Laurel	*Laurus nobilis*		Turpentine tree	*Pistacia terebinthus*
Water mint	*Mentha arvensis/aquatica*		Plantain	*Plantago lanceolata*
Apetalous sandwort	*Moehringia trinervia*		Primrose	*Primula vulgaris*
Common poppy	*Papaver rhoeas/dubium*		Almond	*Prunus cf. Amygdalus*
Opium poppy	*Papaver somniferum*		Blackthorn	*Prunus sp*
Bladder cherry	*Physalis alkekengi*		Acorn	*Quercus sp.*
Peas	*Pisum sativum*		Buttercup	*Ranunculus acris*
Knotweed	*Polygonum cf persicaria*		Sicilian sumac	*Rhus coriaria*
Cherry	*Prunus cf. avium-cerasus*		Rose	*Rosa sp.*
Blackthorn	*Prunus sp*		Rose family (such as plums, cherries, peaches, etc.)	*Rosaceae*
Acorn	*Quercus sp.*		Sorrel	*Rumex acetosa*
Creeping buttercup	*Ranunculus sp*		Salad burnet	*Sanguisorba minor*
Apple	*Rosaceae/Maloideae*		Stonecrop	*Sedum*
Blackberry	*Rubus fruticosus*		Germanders	*Teucrium*
Dandelion	*Taraxacum officiniale*		Common nettle	*Urtica doica*
Verbena	*Verbena officinales*			
Beans	*Vicia faba*			
Mushrooms	*e.g. Ganoderma adspersum, Coriopsis gallica, Daedalea quercina*			
Grapevine	*Vitis vinifera*			