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Archaeological Sites and Land Use Planning in Finland

ABSTRACT: The Finnish Antiquities Act is a very strong law, mandating the protection of all ancient sites immediately after they have been found. However, it is very inefficient in preserving the surrounding environment or landscape of the ancient sites. All land use in Finland is governed by plans. The Local Master plans are the most important for defining the allowed land use in the vicinity of ancient sites. This paper explores how ancient sites and their environment have been treated in these plans. The analysis showed that a significant portion of the ancient sites covered by the Local Master plans are situated in environments that can be characterised as modern. In addition, the places that are situated in economically less important and less modern environments are those that will be best preserved in the future.

KEYWORDS: Ancient remains, cultural landscape, cultural environment, land use planning, local master plans.

INTRODUCTION

Ancient monuments are the oldest historical layers of the landscape. It is not only the visible structures that are part of the landscape, but also those structures which are hidden under soil or water. A very important question is: how can we preserve those ancient features of the landscapes, and how do we manage to pass them on as an inheritance to our descendants? There are archaeological sites which cover the last 10,000 years in Finnish soil. The oldest remains are dated to the end of the last Ice Age, and the youngest are close to the present day. In Finland, archaeological sites are protected by the Antiquities Act of 1963. The Act extends automatic protection to all ancient monuments and sites. According to the law, they must be taken in to account in land use planning (Schauman-Lönnqvist 2009: 125-130; Maaranen 2004: 46).

The Finnish Antiquities Act is a very strong law. It automatically protects, without separate measures required, all antiquities which are within the definition of the act, and prohibits action that might endanger the preservation of these antiquities. It also takes into account the requirements the Valletta Treaty (entered into force in Finland on 25 May 1995). However, the Finnish Antiquities Act is already over 50 years old, and in many ways it is obsolete. In 2003 the Archaeological Society of Finland organised a seminar about the Act. In some presentations it was stressed that the law is very strong and provides good tools for the protection of antiquities (Purhonen 2005: 12-16), however the flaws of the Antiquities Act were also brought into question (Schauman-Lönnqvist 2009: 17-21; Lähdesmäki 2005: 22-266; Lavento 2005: 26-35).

The matter came up again in 2013, 50 years after the law came into force. It was pointed out

that the law is problematic when applied to land use planning. If we accept the idea of the cultural environment as a unified whole, we cannot deal with ancient monuments as separate dots and layers, as currently other different elements of the cultural environment are protected by different laws (e.g. Enqvist 2013: 9; cf. Kumpulainen & Silen 2016). One of the weakest points of the Act has turned out to be the fact that the definitions are inadequately defined (Halinen 2013: 20-25; Enqvist 2016: 133-144). The Antiquities Act also has shortcomings in its relation to constitutional property rights, the Land Use and Building Act (132/1999, amendment 222/2003 included), and the Environmental Protection Act (527/2014). Due to this, the National Board of Antiquities has set a working group to consider what the Act's strengths and weaknesses are, and how it should be developed (Haapala 2012: 16-17; Maaranen 2016: 18).

In addition, because the development of archaeological research has increased at a rapid pace since 1963, our understanding of the ancient sites has changed. The Antiquities Act considers ancient sites simply as structures and layers, but when it comes to the surrounding landscape of the site the law does not provide any tools for preserving it (Schauman-Lönnqvist 2009: 128). This is despite the fact that the landscape is often a crucial part of the ancient site, and the monument cannot be fully understood without its original context, as the question of why the site was situated where it was cannot be answered without it (Barford 2000: 85-91). Therefore, it is important to ensure that the archaeological heritage in the landscape is dealt with properly, through sustainable development and land use planning (Fairclough 2002: 25-37).

Landscape can be viewed horizontally, as a contemporary document that illustrates the past, or it can be viewed vertically, as a historical document that shows us how we arrived at the present. Landscape structure can be used to explain the present landscape, but it could also be used as an archive for reconstructing the past landscape (Howard 2011: 16). Landscapes are continuing to change, because there are many simultaneously occurring natural and cultural processes which affect them (Antrop 2008: 59). Freezing them at some point in time is not possible, and therefore the change should be managed so that their characteristic attributes do not disappear, even if the details do. Landscapes are one of the components that create our identity (Dejeant-Pons 2002: 13–24; Howard 2011). Therefore, the loss of landscape diversity is experienced as threatening. The meaning of the landscape as one of the most important pieces of our identity is commonly acknowledged (Fairclough 2002: 25–37).

The fact that landscapes are becoming uniform all over the Europe is the result of similar and mutual social and political processes in different countries. Because of this trend, it is generally accepted that the unique aspects of the European landscape need protection. In order to protect the European landscape, the Council of Europe has developed the European Landscape Convention, which aims at promoting European landscape protection, management, and planning. The Convention has also established the principle that landscape is a common cultural resource, and that the maintenance of landscape diversity is an important goal. (Fairclough 2002: 25-37.) The signatory states are committed to implement the Convention both at the national and international levels, and also at local and regional levels, by establishing and implementing policies aimed at good care of landscape. They are expected to set out the tasks and measures for which each level is responsible, and lay down the rules of such measures where town planning and regional planning instruments are concerned (Antrop 2008: 57-58; Dejeant-Pons 2002: 13-24). In Finland, the treaty came into force in 2006, and at the time that this article was written, in 2015, there were 38 signature countries.

In Finland, land use is steered by the Land Use and Building Act, passed in 2000 (MRL 132/1999). It constitutes the legal procedures in land use planning processes. According to this Act, the cultural environment should be taken into account in planning and construction, and other activities changing the environment should be done in a manner that does not lead to the decrease of the value of the cultural environment (Ekroos & Majanmaa 2005: 15, 56, 110–110).

According to the Land Use and Building Act, land use in Finland is directed by land use plans.

If the planning bodies have enough good will to protect the cultural heritage and environment, the Land Use and Building Act provides the tools to do so. If there is good will, it would be reasonable to assume that measures that cause considerable impacts on the environments of ancient sites should also be avoided. In the end, it depends on the politics and the economic potential of the area, which goals and standpoints are emphasised, and how well the protection of the cultural landscape is carried out in the land use planning (Mäntysalo 2000: 117–118).

It is important to recognise how well the principles of the Convention have been brought into practical use. In this article, the focus is on the type of land use the planners have directed to the areas where ancient features and sites are located. This study tries to find out the changes that are happening now, and suggest what they indicate for the future. The research area is the most southerly part of Finland, the region of western Uusimaa. It covers eight municipalities/towns, each of them with their own land use strategy. The material for the analysis consists of the local master plans for land use that were written between the years 2000-2014 in western Uusimaa, and the archaeological sites which are covered by those plans. Only underwater sites were omitted.

The local master plans were chosen for this analysis because of the strategic decisions on land use made in them. Only those plans which were started after the present Land Use and Building Act came into force, and which have been approved before the end of the year 2014, have been analysed. However, it is important to keep in mind that a plan is just an estimation of the future state of the place where it is to be implemented (Mäntysalo 2000: 72). The local master plans are regional development strategies drawn up by the regional councils (Ministry of the Environment 2005). It is always possible that the plans are cancelled, or will never be implemented, for example due to changes in economic or demographic circumstances.

The database for archaeological remains is the national register of archaeological sites, which is kept by the Finnish National Board of Antiquities. The register is not always completely up to date, but it is used both by the land use planners and the archaeological authorities during the planning process.

LAND USE PLANNING IN FINLAND

The Finnish land use planning system is organised hierarchically, and divided into four administrative levels. The higher planning levels steer the lower levels. At the highest level, there are the national land use guidelines, which have been approved by the Council of State. The guidelines concern, for example, issues which have more than just regional bearing on regional structure, or those which have a significant impact on national cultural or natural heritage (Ekroos & Majanmaa 2005: 101). The main guidelines concerning cultural heritage are listed in the inventory of nationally important cultural historical environments (RKY 2009). In those areas, planning and developing must be done in a manner preserving their cultural value.

The regional land use plans are guided by the national land use guidelines (Fig. 1). Each of the 18 regions of mainland Finland is covered by its own regional land use plan. They are long-term development strategies that are presented on maps. The regional land use plans define a general framework for the more detailed local plans, which are drawn up by the municipalities, and they transfer national and regional land use goals to the local level. The nationally important cultural historical environments are shown on these regional land use plans, along with other constraints. The regional plans must be taken into account when planning and preparing local plans (Ekroos & Majanmaa 2005: 121–130).

Local master plans are the general land use plans of municipalities. They outline general development in municipalities and give the guidelines for local detailed plans. A local detailed plan is the lowest plan level, which designates areas for different purposes and directs construction and other land uses. These plans define the number of buildings permitted on a property and the placement of the buildings (Ekroos & Majanmaa 2005: 180).

At all the plan levels, ancient sites and monuments must be addressed on the scale that the plan

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Figure 1. Hierarchy of the Finnish land use planning system

requires. For regional plans, they are often listed only in an appendix, but on the more precise plans they are shown as accurately as the scale of the map allows. Even though the Antiquities Act does not protect the landscape of the ancient sites, the landscapes can be protected by the choices made in the land use planning. (Schauman-Lönnqvist 2009: 129.) The surroundings of the archaeological sites are best protected if the land use plan confirms the cultural heritage values of the landscape, for example when the area is designated for recreation, farming or forestry.

WESTERN UUSIMAA AND ITS ARCHAEOLOGY

Western Uusimaa is located on the coast of the Baltic Sea in Southern Finland. It is not an administrative region, but the western part of the Uusimaa Region. However, it has its own distinctive identity and history. It is characterised by its proximity to the Capital City Region. In particular, the eastern parts of the region are very closely connected to the Helsinki region, and the land use planning in these eastern municipalities (Lohja, Kirkkonummi, Vihti, Siuntio) is strictly bound to the decisions made in Helsinki.

Western Uusimaa is mostly an agricultural area, with the exception of the most eastern parts. The landscape is primarily rural in appearance. Even though the area is located by the Baltic Sea, there is only one economically significant harbour, which is in the town of Hanko. In addition, there are some smaller scale ports, such as of the Inkoo harbour and the port of Kantvik in Kirkkonummi, but their influence on the landscape is small.

The topography of western Uusimaa is interesting. It is hilly, being characterised by the First and Second Salpausselkä formations, which are large moraine ridges formed during the last glacial, running across Southern Finland in a southwest-northeast direction. The Salpausselkä formations have also determined the location of settlement and communication routes throughout history. The road to the Häme region along the Salpausselkä ridge existed already in the Middle Ages (1150–1500 AD), and the topography has determined the direction of other roads as well (Kuusisto & Rinkinen 2010: 22– 34; Kuusisto & Rinkinen 2012: 12–13).

The oldest dwelling sites in western Uusimaa are dated to the Mesolithic period (8850–5200 BC). There are no older traces of human activity in Finland, because of the scouring effects of the last Ice Age and its glacier. It is obvious that the region was settled soon after the glacial ice melted and the land uplift made the area habitable (Halinen 2015: 19–28). Although originally located in a coastal setting, the oldest known settlement remains are nowadays situated at the height of 45–50 m a.s.l. and at least ten kilometres away from the present coastline, due to land uplift.

The Bronze Age (1500–500 BC) in Finland is best known for the burial cairns in the coastal area. In the western Uusimaa region they were also usually situated along the coast, and in the archipelago of the ancient coast (Tuovinen 2002: 202–204). Even today, most of them are located in the coastal zones of the Inkoo, Kirkkonummi, Raasepori and Siuntio municipalities. During the Iron Age (500 BC– 1150 AD), the inhabited area expanded south to the Hanko peninsula and the archipelago, and north to the Lohja lake district. Even so, the most densely populated areas were still located in the former municipalities of Karjaa and Tenhola (nowadays parts of Raasepori) (Jansson 2011: 147).

The Middle Ages in the coastal areas of Uusimaa are characterised by colonisation from the central parts of Sweden (Uppland and Södermanland), and from the archipelago of Finland proper. The administrative units began to be established in the first part of the 14th century. The Swedish crown strengthened its position in the area through the 14th century, when the castle of Raseborg was built (Haggrén 2011: 154). In the late Middle Ages, the populated area expanded further, and in the 17th century the first mines were founded, especially in the Karjaa region. The mining industry also created secondary means of livelihood, such as charcoal production.

Military sites can also be seen along the whole coastal area. Different types of defensive structures have been built through the ages on the coast, but



Figure 2. On the left, western Uusimaa on the map of Finland; and on the right, the ancient sites of the research area covered by the local master plans of land use (green dots = ancient sites covered by the local master plans for the study area; violet dots = medieval churches in the area. Dots outside the mainland are situated on islands).



Figure 3. Typical landscape of western Uusimaa at Raasepori: fields, forests and unploughed stony islands in the fields. The Hjälmäng Stone Age settlement site is in the background. Photo: Teija Tiitinen.

the earliest remaining structures date to the beginning of the 17th century. The most recent military structures listed as ancient monuments date from World War II. The most important of these is the Harparskog defensive line in the Hanko peninsula.

THE STARTING POINTS OF THE ANALYSIS

This study examines the decisions that have been made in the land use plans that steer the land use in the surroundings of the selected archaeological sites. It is also important to find out which kind of effect they will have on the environments of the sites, and how they are going to change the landscapes of these areas.

The four questions of the analysis are:

1. In what kind of environment are the archaeological sites now situated?

- 2. What kind of activities have been planned in the land use plans for the areas where the ar-chaeological sites are located?
- 3. How close to the archaeological sites are the structures of the modern built environment located in the plans?
- 4. How significant are the changes that the decisions on land use plans cause in the landscapes of the archaeological sites?

The aim of the analysis is to find out how land use planners have respected the essence and history of the ancient monuments. The strategic decisions, which are visualised in the plans, reveal how our society appreciates its cultural heritage and history. Even though the plans are made by authorities and the decisions are based on the regulations, the plans must be approved by a municipal council. The councils are implementing the general values and principles of society. However, the authenticity of the environment of the remains was not evaluated, because the focus in this article is on the present day and on the decisions regarding land use policies.

In the analysis, the evaluation of the forthcoming changes in environment and landscape has been made in a flexible way in regard to ancient sites from different periods. For example, if a Stone Age (covering both Mesolithic and Neolithic, c. 8850-1500 BC) settlement is zoned so that it will be surrounded by modern buildings, it has been evaluated as a negative development in this article. Modern buildings in the vicinity of a Stone Age site make it difficult to understand why the ancient site was once established just in that particular area. On the other hand, if a medieval village is still located at the same site as an existing, historical village, and the land use plan is directing that some new buildings be constructed there, it has been evaluated just as the natural continuation of land use for the area, since it does not prevent understanding the nature of the ancient site. Likewise, if the Stone Age settlement was already in an urban area before the new land use plan was made, new buildings no longer make the landscape less understandable, as it has already lost its original character. Because there is no established model for objectively evaluating landscape change in the surroundings of ancient monuments, the results of this evaluation can be considered as subjective.

ARCHAEOLOGICAL SITES IN THE LOCAL MAS-TER PLANS OF WESTERN UUSIMAA

According to the national register of the archaeological sites, there are 1420 ancient sites (on dry land) in western Uusimaa that are protected by the Antiquities Act. The other cultural heritage sites - like the military structures from World War II - have been registered in this database only during the last ten years. Before this, most of these structures were still the property of the Finnish Defence Force, and were not seen as cultural heritage sites. There were 192 cultural heritage sites in the register at the time of the analysis (in Spring 2014). These sites have been added to land use plans only from the early 2010s. Thus, only a few archaeological cultural heritage sites have been added to the local master plans discussed in this article, and therefore they have been omitted from the analysis. At the moment, the national register also lists 762 uncertain archaeological sites and 399 stray finds of artefacts in the western Uusimaa region, but because they are not marked on the land use plans, they have been left out of this analysis. However, if a site was registered as an ancient monument at the time when the land use plan was drawn, but its heritage status changed later, it is included in this study. This contradiction between

	National regis archaeologica	ter of I sites	Local maste	r plans	Percent of total
Date					
Prehistoric		18		3	16.
Stone Age		294		53	17.
Early Metal Age		15		3	20.
Bronze Age		232		19	8.
Iron Age		219		38	17.
Middle Ages		52		13	7.
Historic		456		73	13.
Multiperiod		15		5	33.
Modern		20		1	5.
Undated		99		28	17.
Total		1420		236	16.

Table 1. Ancient remains covered by the local master plans in western Uusimaa region.

	Environment											
Date	Village	Built area	Field in built area	Field	Field islet	Forest	Island	Other	Total			
Prehistoric		1	1			1			3			
Stone Age	2	1	1	40	3	2	2	2	53			
Early Metal Age					1	2			3			
Bronze Age	2		3		1	13	1		20			
Iron Age	3	2	3	3	7	18	2		38			
Middle Ages	5	1	1		2	1		4	14			
Historic	15	2	11	3	8	22	5	7	73			
Multiperiodic			1	2		2			5			
Undated		2			1	18	5		26			
Total	27	8	21	48	23	78	15	13	235			

Table 2. The current environment of the ancient remains.

the national register and the plans can be explained by the fact that the database is a living and changing entity, but the plan is a permanent document in the form agreed upon at the time when the plan was approved.

There are 230 analysed archaeological sites covered by the local master plans. Since six of the sites are located in areas which have already been zoned twice, they have been presented in tables as two different cases. Therefore, the sum of the sites which are presented in the tables is 236. Fifteen of the remains are not marked on the plans at all. This can be due to their discovery only after the plan was approved, but it may also have happened by mistake. Six of the ancient sites are located in areas which have been marked as needing more precise planning. They are so-called "white areas" on the map, where a local master plan process will take place in the near future. Three of the sites are represented by a number of plan symbols. This is because the ancient site is so large that it extends into several land reservation areas. Depending on what aspect is being evaluated, the number of the sites varies in the different tables. For example, the sites which are located in the "white areas", are included only in those tables that give background information about the research area.

The local master plan areas contain ancient sites from different archaeological periods in the approximately same proportion as in the whole western Uusimaa region (Table 1). Sites dated to the Stone Age, the Iron Age, and the Middle Ages are the most common in the local master plan areas, both in absolute and relative terms. The number of Stone Age sites is perhaps surprisingly large, possibly because the locations of the Stone Age sites are unrelated to modern activities.

THE MODERN ENVIRONMENT AND LAND-SCAPE OF THE ARCHAEOLOGICAL SITES IN THE LOCAL MASTER PLAN AREAS

In order to be able to evaluate the impending changes in the environment of the remains, their present situation should be examined first. The ancient sites in this analysis were divided into seven categories based on their present environment. In addition, the category "other environment" was formed, because some environments exist in the research material only once, e.g., a mansion, ironworks, or a tollbooth. In this category there are thirteen sites. (Table 2.)

Forest is the most common environmental context for the ancient sites in the local master plan areas. As much as 33 percent of the sites are in forested areas. Most of them date to the historical period (1200-1900 AD) and are related to forest economic activities, such as charcoal kilns or tar pits. They may also be related to grazing, such as stone walls or other stone structures. However, the settlement sites from historical times are often close to the modern villages, or located in the same spot of land. In addition, the Bronze Age sites - mostly cairns - are usually situated in wooded areas. Many of them are still located in the archipelago or very close to the sea shore. In other words, they still are in landscape settings which are very similar to those they were built in.

The second largest number of ancient sites are situated in fields, and on non-ploughed stony islets in the fields. Stone Age dwelling sites are the dominant type fond in the fields. However, the situation for the field islets is slightly different, because they contain ancient sites from all periods, although Iron Age sites and sites from the historic period dominate the group of ancient monuments found in field islets.

No less than 76 percent of the Stone Age sites are situated in fields, even though Stone Age dwelling sites are most commonly thought of as being located in forests. The image of the forested Stone Age is emphasised in popular archaeology (as shown in Fig. s in Kotivuori 2003: 9; Muurijärvi 1992: 23; Halinen 2015: 75). However, it must be remembered that this analysis includes only those remains that are marked on the local master plans, which are usually made for the areas which have active land use nowadays. If the research material would have consisted of all Stone Age settlements from the western Uusimaa region, the result might have been different.

There are only eight sites in urban areas, and they represent almost all archaeological periods in this region, although most of them are not dated later than the Iron Age. The occurrence of sites in urban areas seems to be a random phenomenon, since these sites do not have any common denominator. Most of the 22 sites in suburban woodland date from the historic times (c. 1500–1800 AD). Most of them are also related to settlements such as villages, mansions, and crofts, and three cases are related to production sites.

MODERN ELEMENTS IN THE PRESENT ENVI-RONMENT AND LANDSCAPE OF THE ARCHAE-OLOGICAL SITES

The current condition of the landscape of the ancient sites covered by local master plans was also evaluated, by observing the existence of modern elements in the vicinity of the sites and their distance from the built environment. Based on this analysis, the modern elements are most often situated in the landscapes of Stone Age sites. This is understandable, if we remember that a great deal of them are situated in the fields, which are often close to populated areas. The Bronze Age remains seem to have only few modern elements nearby. For the surroundings of the Iron Age or more recent sites, the proportion of modern elements is quite high. Modern buildings characterise the surroundings of 25 percent of these sites. (Table 3.)

Modern elements are even more prominent when they are studied as a part of the visual landscape. The proportion of modern elements (like modern buildings) in the landscapes of Stone Age sites is over 50 percent. It seems that modern elements have a very important role in the landscapes of all ancient sites. This is slightly surprising, be-

	Modern ele	ments in en	vironment	Modern ele	Total		
	No	Yes	Yes %	No	Yes	Yes %	
Prehistoric	1	2	66.6	1	2	66.6	3
Stone Age	33	20	38.5	23	30	56.6	53
Early Metal Age	3	0	0	3	0	0	3
Bronze Age	18	2	10	15	5	25	20
Iron Age	28	10	26.3	28	10	26.3	38
Middle Ages	11	3	23.1	9	5	38.5	14
Historic	52	21	29.1	45	28	38.9	73
Multiperiod	2	3	60	2	3	60	5
Undated	24	2	7.7	20	6	23	26
Total	172	63	26.8	146	89	38.7	235
Red shaded ce	lls indicate th	ne age categ	ories in which mode	rn elements	comprise at	least 25% of the	

Table 3. The current landscape and environment of ancient remains from different ages.

	Modern eleme	ents in environ	ment	Modern eleme	Total		
	No	Yes	Yes %	No	Yes	Yes %	
Settlement areas	70	35	33.3	48	57	54.2	105
Graves	12	6	33.3	8	10	55.5	18
Churches	1		0.0	1		0.0	1
Stone structures	62	17	21.5	59	20	25.3	79
Roads	1		0.0	1		0.0	1
Cult places	1			1		0.0	1
Earth structures	1	1	50.0	1	1	50.0	1
Groups of remains	8		0.0	6	2	25.0	8
War history sites	3	3	50.0	3	3	50.0	6
Supplies of raw material	5		0.0	5		0.0	5
Memorial art	2		0.0	2		0.0	2
Industrial sites	1		0.0	1		0.0	1
Production areas	6	1	12.2	5	2	28.6	7
Total	173	63		141	95		235
Red shaded cells i	ndicate the age o	rategories in v	vhich modern	elements cor	nprise at leas	t 25% of the c	ases

Table 4. The current landscape and environment of ancient remains of different types.

cause only in eight cases were the sites situated in an urban environment. In other words, this means that nowadays different urban elements are also common in other types of environments.

If we look at the different types of ancient monuments, the modern elements are most visible in the landscapes of settlement sites and graves. The location of Stone Age settlements in the fields makes them vulnerable to changes in the landscape. Likewise, the settlement sites from historic times, which are very frequent within the study material, are quite often situated close to modern activity areas. The majority of them are in environments where modern building is strongly affecting the landscape. When it comes to the landscapes of graves, it is difficult to explain why the relative proportion of modern elements is so high. With the exception of one Bronze Age grave and two historical graveyards in Hanko town, the grave sites are all dated to the Iron Age. Because the modern construction work only started recently in their vicinity, this relationship cannot be explained by the historical context, unlike in the case of medieval villages, where the vicinity of modern villages can be explained by the historical continuity. The fact that the Iron Age graves are situated in the vicinity of the modern built environment seems to be a coincidence without an explanation. (Table 4.)

THE DIFFERENT ACTIVITIES PLANNED FOR THE ANCIENT SITE AREAS IN THE LOCAL MASTER PLANS

The provisions and zoning symbols used in the local master plans in Finland were defined by the Environmental Ministry, with a few exceptions. Zoning regulates the types of activities that can take place in a certain area. It also orders the ways that buildings can be situated (Ympäristöministeriö 2000). In this study, a slightly broader coding system was used in the analysis of the environments and landscapes of ancient sites. If the more detailed categories were used, the compilation of statistics would have led to the division of the data into too many small classes, and the overall picture would have been blurred. The main group was created by combining all symbols referring to residential and commercial built environments into the same category: B Likewise, all symbols referring to different kinds of farming and forested land were combined into the same category FF. land use categories used in the study are as follows (note that the abbreviations derive from the original Finnish):

- B Residential and commercial buildings
- BF Centralized farming infrastructure
- FF Land dedicated to farming or forestry

- F1 Prime farming land
- FX Land reserved for farming
- FFR Farming/forestry with sports and recreational services
- FL Farming land with special landscape/ overlook value
- N Land reserved for nature conservation
- RB Recreational areas integrated into built areas
- RR Remote recreational area for camping or hiking
- RS Sports and recreational facilities

Despite the simplified classification system, there are still eleven different categories covering different kind of land use. In addition, there are six ancient sites that are located in the "white" areas (areas where a more precise plan is required), which do not have any zoning symbol at the moment, unless on an earlier local detailed plan in force. Three of the analysed sites are in areas where more than two main land uses meet (e.g., an area for built areas (B) / an area for farming with special values of farming fields (F1) / and an area for farming (FX)). These sites have been classified as the class "several symbols", as shown in Figure 1. There are also some areas which have two different zoning symbols. If the second symbol is used just to define the first one, it has been classified according to the first symbol (e.g., an area for farming and forestry (FF) / an area for farming with special values of land-scape (FL)). However, in those cases where there are two symbols, and the other one allows buildings in the area, the case has been classified as "residential area". There are ten such cases in the research material. (Fig. 4.)

The largest group is formed by the sites that are situated in areas which are used predominantly for agriculture and forestry (FF = FF/FFR/FLB). Most of them (45 percent) are stone structures from the Bronze or Iron Ages. In total, there are 32 such sites. There are also 17 settlement sites in these areas (13 percent of the total). The rest of the sites situated in areas which are planned for agriculture and forestry are distributed quite evenly amongst the different categories of ancient sites. They include monuments of military history of different dates, and graves, as well as a few sites of unknown function.

The second largest group of ancient sites is situated in the areas zoned for residential activities (B). There are 55 sites altogether, representing 23 percent of the entire dataset. They are divided into three categories: settlement sites, graves, and all kinds of miscellaneous stone structures such as clearance cairns





	Current situat	tion			After implementation						
Туре	Mean	Mean Median		max	Mean	Median	min	max	n		
Settlement areas	101	50	0	1000	118	0	0	1000	105		
Graves	155	70	0	520	171	0	0	1000	19		
Churches	20	20	20	20	50	50	50	50	1		
Stone structures	209	130	0	1000	200	50	0	1000	79		
Roads	300	300	300	300	50	50	50	50	1		
Cult places	40	40	40	40	50	50	50	50	1		
Earth structures	205	205	120	290	0	0	0	0	2		
Groups of remains	186	75	30	600	168	25	0	500	8		
War history sites	106	20	0	500	183	25	0	1000	6		
Supplies of raw material	212	120	40	570	150	50	0	500	4		
Memorial art	250	375	100	1000	350	25	0	1000	3		
Industrial sites	0	0	0	0	0	0	0	0	1		
Production areas	135	60	30	500	114	50	0	600	7		
	Red shaded	cells indicate	cases where th	nere will be a s	ignificant redu	uction in distar	ice.				

Table 5. The distance between ancient sites and buildings:

current situation vs. after the plan is implemeted.

or stone walls. Eight of the settlement sites are dated to historic times. In these cases, it is probable that the ancient settlement has influenced the location of the modern one. This is even more obvious in the areas which are zoned for farmsteads. There are fourteen such cases in the analysed data. The second most common category in the areas zoned for residential activities are Stone Age settlement sites, but these cases differ from the historic settlements in that there is no association between the ancient settlement and the modern habitation. In most of these cases, the existing built environment is very modern (from the reconstruction era after the Second World War, c. 1950-), without any direct connection to earlier times. Confusingly, the analysis has shown that for all those sites that are situated in the residential areas (B, eleven cases), the planners have placed/planned buildings exactly on the very spot where the ancient site is situated. In the other words, there is an obvious contradiction between the activity zoned to the area and the protection values. There are also areas where modern building activity had already reached the area long before the planning process had started. In these cases, the relation between the buildings and ancient sites does not indicate anything about the planners' willingness to protect the ancient remains.

In the areas designated for farming with special values for farming fields (F1), there are 21 ancient sites (10 percent of the dataset). The majority of them are settlement sites (17), of which 14 are dated to the Stone Age. A field is a problematic location for preserving a Stone Age settlement, as the structures there are undergoing constant modification caused by the ploughing, but on the other hand the landscape may be similar to how it was in the Stone Age. However, changes in the landscape and in the environment will not be so extensive in the future. Three of the settlement sites are dated to historic times, and in those cases there is continuity through to modern times. In addition, those ancient sites that are situated in the F1 areas are quite close to the centres of farms. From the point of view of the preservation of the landscape and environment of the ancient site, being in a F1 area is relatively good, because construction in those areas is avoided and changes in the landscape are unlikely.

In the residential areas at the centres of farms (BF areas), the majority of the ancient sites are from the historic times. Most of them are settlement sites or villages, including the Medieval settlements. They all have a clear continuity from the past to the present. Their location at the centre of a farm complex is well suited to these sites, but when the plan is implemented the importance of the area must be recognised and the new buildings must be constructed so that the culture historical values of the site do not suffer.

A relatively large group, 39 sites in total, are those which are in areas reserved for recreation (RB areas) and outdoor activities (RR). In the areas reserved for outdoor activities, many of the sites are from historic times. Most of them are settlements, historical period military sites, or different kinds of sites related to various economic activities. The majority of the areas zoned for outdoor activities and recreation are forests. Both the RB and RR areas are suitable for the protection of ancient sites and their environments. In addition, they can easily be used for education and tourism.

THE DISTANCE BETWEEN THE ANCIENT RE-MAINS AND THE MODERN BUILT ENVIRON-MENT

Because the local master plans usually cover areas of active land use, it was expected that the sites in those areas would be quite close to modern buildings and built environment. When the mean value of the distance between all the 235 ancient sites and their nearest buildings was calculated, the result was 150 metres. The distances were measured from maps, and no fieldwork was done to confirm the data. Thus, the present locations used for the buildings were those recorded when the maps were drawn. (Table 5.)

It can be deduced that buildings more than 100 metres from an ancient site do not have a direct impact on the landscape of the site. However, if we use the median as the measure of the central tendency, instead of the mean, the picture is slightly different. The median distance is only 70 metres. The impact of the built environment on the ancient sites is, therefore, quite significant. It means that the majority of the ancient sites in the western Uusimaa region which are covered by the local master plans are already located in a quite modern environment, and the modern built environment strongly affects the impression one gets of the ancient site. This should be noted especially in those areas that are to be covered later by a local detailed land use plan.

If we look at the situation after the land use plan will be implemented, the zoning has a very important role in determining how the landscape will look. The plans direct the land use in such a manner that the distance between buildings and ancient sites will become even less than it is today. The distance to the nearest residential area (B) shortens, and the median will be only 10 metres. Figure 3 shows the distances between the ancient sites and the nearest buildings on the plans. Both in the B areas and in the BF areas, most of the sites are almost side-by-side with buildings. The sites will be left either in the yards, or even totally or partly underneath the buildings. In most cases, these are settlement sites of historical times, where the habitation has continued and the development therefore has been natural.

In the areas designated for farming and forestry (FF), in the areas for farming with special values for farming fields (F1), in the recreational areas (RR), and in the areas for nature conservation, the distances between the ancient sites and buildings or modern built environment are noticeably longer, as



Figure 5. The distance between buildings and ancient sites when the plans are implemented. The maximum distance is always 1000 metres, even though the real distance is longer.





Figure 6. The changes in the environments of ancient sites on different main use areas on the local master plans. Red colour displays the cases where the changes are going to be significant.

was to be expected. In these areas, the modern built environment has a minor impact, and it will be easier to preserve the elements of the landscape that support the understanding of the ancient sites. (Fig. 5.)

Those sites that have been left out of the land use plans are all located in close proximity to either existing buildings, or buildings which are regulated in the plan. This presents major challenges for both the archaeologists and the local authorities who regulate the land use in municipalities.

Of all the different site types, the settlement sites are situated closest to modern habitation. The mean value between them and modern buildings is 100 metres, and the median is only 50 metres. When the zoning in the plans is implemented, the distance is going to become even shorter. Likewise, the grave sites are relatively close to modern habitation, and the distance is getting closer, as in the case of the settlement sites. The other types of ancient sites tend to follow the same trend. The median values of the distance between them and modern buildings will decrease when the plan is implemented.

THE ENVIRONMENTAL CHANGES ON THE AN-CIENT SITES CAUSED BY ZONING

The key starting point for the creation of a zoning plan is often to change the character of the planning area. The goal is usually to get more space for active land use. The change in the land use may have a severe impact on the landscape and environment. The change in the areas that are reserved for different land use purposes was analysed by comparing the present state to the forthcoming situation. Virtually all changes are connected to the B areas (residential areas). The B areas will expand into their surroundings, or to an area that was earlier reserved for another activity and will then become reserved for building. As shown in Figure 4, there are 35 cases where the current land use (agriculture, recreation, and so on) will be replaced by a building activity. At the moment, in fourteen cases the ancient site is in the forest, in eight cases the site is situated in an urban forest environment, in seven cases on a field, and in six cases in a field islet. Thus, forest and agricultural environments are to diminishing locally.

Before this study, it was expected that most of the ancient sites situated in the areas where the future changes are going to be insignificant would date from the Stone Age. This turned out to be true, but the difference between the sites from the metal-using periods and the Stone Age is surprisingly small. Regardless of the age of the ancient site, there will be significant changes in their environment and landscape when the zoning is implemented (Table 6, Fig. 4). In spite of that, the relative amount of change in the environment is the largest for the Iron Age sites when compared to all the analysed sites. A total of nearly 32 percent of all the ancient sites covered by the local master plans are located in areas where the changes in landscape will be significant in the coming years. A relatively large part of the Stone Age sites (19 percent) are likewise situated in areas which have been zoned for future construction. (Fig. 7.)

58 percent of the Bronze Age sites are located in places where no significant changes to the landscape are expected. Supposedly, the reason for this is related to them being mostly Bronze Age burial cairns, located on the sea coast during the Bronze Age. The majority of these locations are still outside the areas of active land use. In the places where the height differences of the ground are large and the land uplift is slow, the landscape may still be quite similar to what it was when the cairns were built. Even though almost half of the Iron Age sites are located in places where no substantial landscape changes are anticipated, the environment and landscape will change significantly at 31 percent of the Iron Age sites in the future.

The major changes are going to happen in the environments of graves and settlement sites (Table 6), although a quite large number of them are located in urban or semi-urban areas, and the modern elements have thus already taken over the surrounding landscape. Different kinds of stone structures are also quite frequently in the areas which have been zoned for active land use. The majority of these structures are dated to historical times.

The most significant landscape changes are going to occur at the sites that are situated in the B areas. Zoning will also heavily affect the BF areas, although the changes will be smaller than in the B areas. In the areas which have been mainly zoned as forests (FF/RB/RR), or as fields that are significant for the landscape (F1), the changes in landscape and environment are going to be limited. Approximately half of the ancient sites of western Uusimaa that are covered by local master plans are situated in these areas of minor environment changes. This gives us a chance to protect their landscape and environment. The surroundings of the site can remain the same, without new landscape elements disturbing our understanding of the placement of the ancient site. On the other hand, the other half of the sites are located in environments that are changing constantly. In some cases the change is slow, but for others it will happen fast, and the changes to the landscape of the ancient site will be dramatic.

	Settlement	Graves	Churches	Stone	Roads	Cult places	Earth	Groups of	War history	Supplies of raw	Memorial			
	areas			structures			structures remain	remains	sites	material	art	Industrial sit	Production a	Total
В	24	6	1	19					2	1			1	54
BF	13			1										14
FF	24	7		36				7	2	1			3	80
F1	17	1		1				1					1	21
Not in plan		1		1						1	1			4
RB	7	3		8		1			1	2	1		1	24
RR	2			9	1		1						1	14
RS	1													1
Several uses	1							2						3
White areas	5			1										6
Not in plan	9			3					1			1		14
Total	103	18	1	79	1	1	1	10	6	5	2	1	7	235
Red shaded cells	indicate the ca	ses where th	ne most sign	ificant chan	ges will occu	ır when the	plans are im	plemented.	Blue shaded	l cells indica	te the cases	where no si	gnificant ch	anges are

Table 6. The location of the different types of ancient remains on the different land use areas of the local master plans.



Figure 7. The expected changes in the landscapes and environments of the ancient sites.

CONCLUSIONS

The local master plans for land use in western Uusimaa do not represent the whole of Finland very well. The region is one of the most rapidly developing areas in Finland, and therefore the land use there is also more intensive than in most parts of the country. However, a large part of the known ancient site types are situated in the region, and they also represent very well the ancient sites elsewhere in the country, with the exception of some types of sites that have been found only in northern Finland so far (e.g. Halinen 2015: 116–117). Therefore, we can assume that the zoning of the areas of ancient sites in western Uusimaa reflects the situation in Finland, at least to a degree. (Fig. 8.)

The analysis showed that a remarkable proportion of the ancient sites covered by the local master plans are situated in surroundings where the modern elements can easily be seen. About a half of the Stone Age, Iron Age, and historical sites are situated in places where the landscape changes will be significant when the new zoning is implemented in the years to come. It is a cause of concern that in 38 cases the zoning will allow construction in the immediate vicinity of ancient sites. It is obvious that the zoning in these cases has not followed the spirit of the Land Use and Building Act. In addition, there is a clear contradiction between the zoning decisions and the protection of the ancient sites and monuments.

Although it is usually stated in the goals of land use plans that cultural values will be protected, this often does not become reality. At least this seems to be the situation with respect to ancient sites. In many cases, the areas surrounding the sites are already dominated by the built environment. In such cases, the zoning only strengthens the existing situation. At the same time, acceptance of the situation also increases the modern elements in the vicinity of ancient remains. On the other hand, the analysis also showed that the majority of the ancient sites in the areas covered by local master plans in western Uusimaa are situated in environments where the changes are going to be small. This is a positive finding. The biggest landscape problems are in the areas where the Iron Age sites are situated. When the lower level land use plans are developed, special attention should be paid to those Iron Age sites which are still located in the most authentic settings. Because such sites are rare, their landscapes should be protected. The settlement areas from historic times should also be treated very carefully. Those environments should

be planned in a manner that preserves the characteristic elements of the historical villages.

The decisions being made in land use planning seem to protect the major part of the ancient sites and monuments in western Uusimaa. There are 11 sites that will be destroyed when the local master plans are implemented; that is 5 percent of all the ancient sites covered by the land use plans. It is quite a large number, but on the other hand 95 percent of the sites will survive if the recommendations of the plans are followed. Instead of the actual destruction of sites, a bigger problem seems to be that the sites have been considered only as separate monuments instead of having been understood as composite entities including the surrounding landscape and physical environment. It is obvious that the value of cultural heritage has not been recognised as an important resource. In zoning, the focus is on economic and technical issues. The landscapes and environment of the ancient sites and monuments are best preserved in the economically less important areas.

Also, it is clear that the ancient sites in the land use plans still are just spots on the map without any larger landscape context. When the Antiquities Act is to be renewed, it might be appropriate to replace the separate laws with one unified cultural environment law (cf. Enqvist 2013, 9). The Museum of Central Finland provided a good example of unifying the different elements of the cultural environment when the background information was collected for The Regional Land Use Plan of Central Finland (Kumpulainen & Silen 2016). In that project, the background information was collected by using GIS data in a very innovative way to visualise the central areas of cultural environments. The method that was used in this project has enabled the understanding of the history of the landscape in this area in a new way. Now it is possible to separate those areas where the variety of different cultural elements and time layers are richest. On the other hand, it is also possible to find those areas where the environment is most authentic. This is valuable informa-



Figure 8. Lohja, Moisio village. The village is in the vicinity of the town of Lohja. The village was settled for the first time during the Stone Age, but it is better known for its medieval phase. At the moment, it has a rural feel, but large areas have been zoned for new building. In the future, the landscape is going to look very different, and its nature is going to be urban. In the background, there is a medieval manor house near the lake. Photo: Teija Tiitinen.

tion for land use planning. It would be unrealistic to think that all landscapes containing ancient sites could be preserved as they currently exist. Therefore, it is important that as least those areas which have been evaluated as representing central cultural environments will be treated by land use plans in a culturally sustainable way. It is certainly the case that the level of archaeological guidance and input in the zoning process should be higher in the future. If this does not happen, we will lose a remarkable part of the oldest cultural landscapes in Finland.

THE LOCAL MASTER PLANS USED IN THE ANALYSIS

Municipality, Local master plan / Approved by municipal council

Hanko, Kantakaupungin yleiskaava / 14.3.2012

Inkoo, Inkoon yleiskaavan muutos – Ingarskila-Ålkila / 28.8.2006

Inkoo, Kopparnäsin yleiskaava / 26.5.2005

Karjaa, Mustionjokilaakson osayleiskaava / 11.6.2007

Karkkilan, Karkkilan keskustaajaman ja kaakkoisosan osayleiskaava / 10.4.2014

Kirkkonummi, Gesterbyn ja Sepänkylän osayleiskaava / 10.3.2014

Kirkkonummi, Jorvaksen ja Inkilän osayleiskaava / 10.3.2014

Kirkkonummi, Kuntakeskus 1. vaihe / 26.3.2009

Lohja, Härjänvatsan osayleiskaava / 11.2.2005

Lohja, Keskustan osayleiskaava / 22.10.2013

Lohja, Karnaisten osayleiskaava / 24.8.2008

Lohja, Nummi-Pusulan eteläosien yleiskaavan muutos / 12.9.2007

Lohja, Nummi-Pusulan itäosan osayleiskaava / 21.10.2011

Lohja, Sammatin pohjoisosien osayleiskaava / 16.4.2007

Lohja, Särkijärven osayleiskaava / 3.3.2006

Lohja, Taajamaosayleiskaava / 30.4.2013

Raasepori, Bromarvin kirkonkylän osayleiskaavaehdotus / 17.9.2013

Raasepori, Ekenäs, Östra skärgården / 25.3.2010

Raasepori, Gropfjärd–Dragsvik osayleiskaava / 24.4.2006

Raasepori, Mustionjokilaakson osayleiskaava / 28.9.2005

Siuntio, Kuntakeskuksen yleiskaavan muutos / 21.11.2013

Siuntio, Storsvikintien ja Kantatien et. alueen osayleiskaavojen tarkastus / 20.1.2007

Vihti, Nummelan eteläosien osayleiskaava / 15.1.2014

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