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Landscape Dynamics

–Spatial analyses of villages and farms on Gotland AD 200-1700

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Abstract
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This dissertation deals with the long-term dynamics and fluctuations of settlements on Gotland for the period from AD 200 up until early modern times. The settlement structure on Gotland is most often described as very stable and consisting of solitary farms, established in the Iron Age. A contrasting view is presented by analyses of a vast source material from different periods.

The source material consists of both physical remains, noted in the Swedish national Archaeological Sites Information System, FMIS and large scale historical maps, as well as other written sources. For the first studied period, the locations of some 2 000 houses are known, since they were constructed with sturdy stone walls and are thus preserved. The source material for the following periods is scarcer, but some hundred Viking Age sites are identified, mainly by the find places of silver hoards. By retrogressive analyses of historical maps, from the decades around the year 1700, and other written sources, later periods are analysed. All available data are gathered in geodatabases, which enables both generalised and detailed spatial and statistical analyses.

The results of the analyses show a more varied picture, with great fluctuations in the number of farms; the existence of villages is also clearly indicated in a large part of the settlements. The villages are centred on kinship and the lack of strong royal power or landed gentry meant they were not fixed in cadastres, as fiscal units, as villages were on the Swedish mainland.

Two peaks, followed by major dips, were identified in the number of settlements and thus in the population. The first peak occurred during the late Roman Iron Age/Migration period, which was followed by a reduction in the Vendel period of possibly up to 30-50%. After this, a recovery started in the Viking Age, which culminated during the heydays of Gotland in the High Middle Ages, with population numbers most probably not surpassed until late in history. This upward trend was broken by the diminishing trade of Gotland, the Medieval agrarian crisis, The Danish invasion and later events. All this resulted in a decline, probably as great as after the Migration period.

Keywords: Gotland, Archaeology, History, Historical maps, Roman Iron Age, Migration Period, Middle Ages, Village, Village formation, Farm , Settlement archaeology, Spatial analyses, GIS, Prediction modelling.

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Cover: Villages in the parish of Vall on Gotland. Fair copy of the map LSA, H82-1:1.
Back cover: The Iron Age village of Vallhagar.

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English revised by Judith Crawford.

This book is dedicated to
my wife Berit, my daughter Sara
and my father Matts

Contents

Preface

I have had a keen interest in history ever since childhood, thanks to my father's profound historical interest. At bedtime and Sunday mornings, he used to read me the 19th century series of historical short stories *Fältskärns berättelser* by Zacharias Topelius, which is set in Finland during the thrilling 17th and 18th centuries in the common history of Sweden and Finland. Later, archaeology came in as a main interest, which led me to Gotland. The island is an ideal place to live and raise children on, especially if you are an archaeologist, working with landscape archaeology and preserved ancient remains like I do. My fancy for computers led me into the field of GIS and mapping in the 90s, mainly thanks to Sven-Olof Lindquist and Inger Österholm. These interests made the theme for my thesis more or less self-evident, particularly since I have had the privilege to work with Dan Carlsson for many years, and with whom I have had many discussions concerning the cultural landscape on Gotland and whose knowledge concerning this is vast. These are some of the persons, who have had a major influence on the course of my professional life.

As life, a thesis cannot be accomplished without the aid and assistance of many helping hands. First, I would like to thank my wife, Berit and daughter Sara, for keen support and giving me the time and space I needed to finish this, and for tolerating my mental and physical absence from time to time. In addition, my father, Matts Svedjemo has giving me much aid in several ways, when I have been in Uppsala, where he now lives.

For professional assistance, I am in debt of gratitude to several persons, foremost my supervisor Frands Herschend, for guiding me through this process and always having time to read and discuss my work. Christoph Kilger, Helene Martinsson-Wallin have had many wise and competent comments. I would also like to thank Nils Blomkvist for his interest in my work and whose opinion I value highly. I am also grateful to Jens Lerbom, who took the time to read and comment on my manuscript.

One key issue in a thesis it to keep track on all references, and no matter how scrupulous you are, errors tend to sneak in. Holger Kusel has spent many hours helping me correcting them and if there still are errors, I am all to blame, since I have made edits afterwards. I also would like to thank Dag Sörbom at the Department of Statistics at Uppsala University, who I have consulted regarding the section about Logistic Regression Analysis.

Also, many of the students who have attended my courses in GIS throughout the years, have contributed by doing the time-consuming work of vectorising many of the parish maps needed for this work. Thank you all!

Besides input and help given by colleagues and others, vital help has been given by different scholarships and research foundations. Without these foundations, much interesting research would never come about. Grants were generously given by the following foundations: Berit Wallenbergs stiftelse, Torsten Söderbergs stftelse, Gunvor and Josef Anérs stiftelse, Wilhelmina von Hallwyls Gotlandsfond, Helge Ax:son Johnsons stiftelse and Sällskapet De Badande Vännerna (DBW).

Chapter 1
Introduction

The old, medieval Gotlandic regional law, the *Gutalag*, does not mention *by* (village), only *gård* (farm) and in the first cadastral maps, each farm is a fiscal unit of its own. As a fiscal concept, village is absent on Gotland. This is probably a major reason why the view that no villages have ever existed on Gotland, at any point in time, is established in modern research. Gotland is most often referred to as a region where the settlement structure has always been the solitary farm, *ensamgård*. Lindquist (1987:164) for example, clearly states: '*På Gotland har inte funnits byar varken i topografisk, kameral eller funktionell mening -bara ensamgårdar*'. (*Villages have never existed on Gotland; not in any topographical, fiscal or functional sense–there are only solitary farms*). The most common view seems to be that these solitary farms were established in the latter part of the early Iron Age, with little change in number or structure until the 18th century.

In studying the first historical maps of Gotland, drawn at around 1700, it is clear that the farms are often situated close to each other, forming groups. These groups have been noticed by many, but analysed in any depth by few. In addition, not all relevant sources have been taken into account, which has led to unsatisfactory interpretations. The interpretations of the origin of the groups mostly deals either with the divisions of a single solitary farm implying a rapid population growth in the Middle Ages, or of large estate-like farms, divided into many smaller ones at some point in time. Other explanations involve already existing farms moving together during the Viking Age, etc. On Gotland, it is also very common for the parcels of land of different farms to have been scattered and intermixed, which is often explained with reference to land being sold or inherited, or to land belonging to deserted farms taken over by neighbouring farms etc.

This contrasts to the view of most parts of the mainland, where adjacent, related farms are recorded as one fiscal unit in the cadastres, and the village is seen as the most common form of settlement structure in historical times. In many parts of the country, however, villages are very often small, consisting of only two or three farms. The regulated village proper is described in the written regional laws, written down in the 13th and 14th centuries. The reality existing some centuries later and not always corresponding to the laws is described and is depicted in the first cadastral maps from the 17th century. In these maps, the village is the fiscal unit, under which the individual farms, included in the village, are listed and described.

Nevertheless, one wonders whether villages are in reality lacking on Gotland in historical times just because the fiscal unit, under which farms are registered in cadastres, is not the village. A closer study of the oldest cadastral maps over Gotland, combined with other sources, indicates other possible interpretations: on the maps several adjacent farms form units in several respects. In studying the clusters in greater detail, it is seen that the parcels of land of the farms are scattered and intermixed, often forming defined territories, similar to what can be seen in the villages on the mainland maps. The land surveyors on Gotland, also mentions that farms can make up *byalag* (a village community), cooperating with each other, even if they are listed and described as individual fiscal entities. The concept of village is also known on Gotland from other sources, such as ethnographic descriptions and material of non-fiscal nature. Villages were also acknowledged as the prevailing settlement structure during the Middle Ages by some older scholars before the Second World War.

From a fiscal point of view, as we know from older fiscal sources and the first cadastres up until modern times, it is true that villages have never existed on Gotland, but the concept of village cannot be confined to include only villages as seen in the fiscal material. This material most often embraces only historical villages as

Opposite side: The reconstructed Iron Age stone house at Gervide in the parish of Sjonhem

they are identified in written sources, like the regional laws, old tax records or cadastres. There is more to villages than this. The village must primarily be seen as a social and functional form of organisation, defined more by the local community, than the authorities' fiscal perspective. This is also indicated by the land surveyor's descriptions of *byalag,* mentioned above. It implies that the land surveyors of the time often regarded a group of farms as a village, and made a distinction between the fiscal entities and villages as a form for collaboration.

It is not only a question of semantics - what to call things – since the choice of words and how things are defined effects how things are perceived. To use the concept of solitary farm (*ensamgård*), implies little cooperation between farms, both in a functional and social aspect, while the term village implies the opposite, which I believe is the case on Gotland. The available sources, therefore, indicate that villages existed in some form on Gotland, in historical times. But is this also true for prehistoric times?

On Gotland, the traces of settlements from the latter part of the early Iron Age, c. AD 200 – 600, are still visible above ground since the walls of the houses were built of stone, and some 1 800 stone house foundations are still preserved in the landscape of today. If the spatial distribution of these Iron Age stone house foundations is studied, it is seen that they often form groups of different sizes and densities, not unlike the patterns seen in the historical maps. Older scholars often referred to these clusters as several farms situated in villages, and the settlement structure of the island was considered to consist of villages and solitary farms. During the last forty years, however, villages have been seen as non-existent and the clusters are briefly described as either large farms, remains of farms that are not coeval, or groups of farms in collaboration, but they are never really analysed. The famous Iron Age village of Vallhagar, excavated in the late 1940s as a Scandinavian joint project, under the leadership of the archaeologist Mårten Stenberger, is today often regarded as the only Iron Age village on Gotland, and as an anomaly.

On the Swedish mainland[1], the solitary farm was also for a long time considered the sole form of settlement structure during the Iron Age, with some odd exceptions. This view was mainly based on the interpretation of the archaeological evidence available at the time, which was mainly visible in grave fields, since very few remains of settlements were known, but also to some degree because of how the way the concept of village was defined, as mentioned above. Recently, large-scale excavations on the mainland have revealed an abundance of traces of settlements from different periods of the Iron Age, in structures that hardly can be interpreted as solitary farms. This includes Öland, which also has the same type of remains of stone house foundations from the latter part of the early Iron Age as Gotland.

These new data and analyses on the mainland and on Öland, have initiated a new debate about the concept of village, which has led to new insights and definitions, which many but not all archaeologists seem to embrace. The prevalent settlement structure is now most often recognised as being villages even during the Iron Age, at least in the central areas of present day Sweden. Even a very brief study of these settlement structures found on the mainland and Öland, show obvious similarities with the structures of the stone house foundations found on Gotland. This indicates that villages were common also on Gotland during this period, and it is time to continue this discussion from a Gotlandic perspective.

Objective and research questions

There is thus strong reason to believe that villages in some sense have existed also on Gotland, both in prehistory and during historical times, if not in fiscal terms. The main objective of this thesis is to investigate and analyse the spatial distribution and structure of physical remains of settlements and historical sources from the latter part of the early Iron Age up until early modern times, by using large databases of spatial information. A central question must also be to explain why the development on Gotland took a different path in these matters than in most other regions of Sweden. In what respect was the society on Gotland different, and what characteristics led to the circumstance that fiscal villages never emerged? The answer to such a question is probably found within the society itself and to some degree in its relations to the surrounding world. Consequently, in addition, the variation over time in social structure, organisational forms and means of support and trade will be studied.

1. Except the county of Skåne that in most matters are more connected to Denmark, both archaeologically and in the academic discourse.

Another objective is to analyse the long-term fluctuation of the villages and farms and landscape utilisation. The prevailing descriptions of the settlement structure over time on Gotland, most often comprise the picture of a linear development, in which the single farms seen in historical cadastres are extrapolated back in time. A society with very little change in the number of farms and organisation forms is often depicted, which most probably is not correct. On the mainland, new research and excavations have revealed much greater variations in the population and number of farms than was previously estimated and there is no reasons to believe that these trends are absent on Gotland. The society on Gotland has several unique features, which in some respects has led to a unique development.

The vast external contacts during the studied periods, must have resulted in a great exposure to the surroundings, which presumably made the society on Gotland more vulnerable and sensitive to events in the world around. This does not tally with a very stable development and little change. The true picture is presumably more varied and complex than most scholars have previously advocated. Therefore, the number of farms and households will also be analysed and for some periods, where the source material permits, the frequency will be estimated. It is thus time to paint a new picture of the development of Gotland's cultural landscape.

Sources, methods and some general source criticism

A series of nationwide spatial databases and digital archives have been released during the past decade with information about ancient remains, geological information and historical maps, which makes it possible to do extensive landscape and settlement analyses on all scales in Geographical Information Systems, GIS. Such analyses performed on Gotland will probably alter the overall picture of the development of the cultural landscape and settlement structure, since most previous analyses of the island have been made on small subsets of the data, or for areas of limited size. The results have then been generalised to cover the entire island (cf. Carlsson 1979, Lindquist 1981, Windelhed 1984b and Östergren 1989). When using only limited areas and/or subsets of data in analyses, there is a danger that the areas and subsets picked for analyses are not representative for the whole, and do thus not give a correct picture when generalised.

These databases, with data for the whole island make the time ripe for large-scale analyses of settlement patterns and structures on Gotland, especially diachronic studies concerning changes in the structure and distribution over time. Since the databases consist of a source ma-

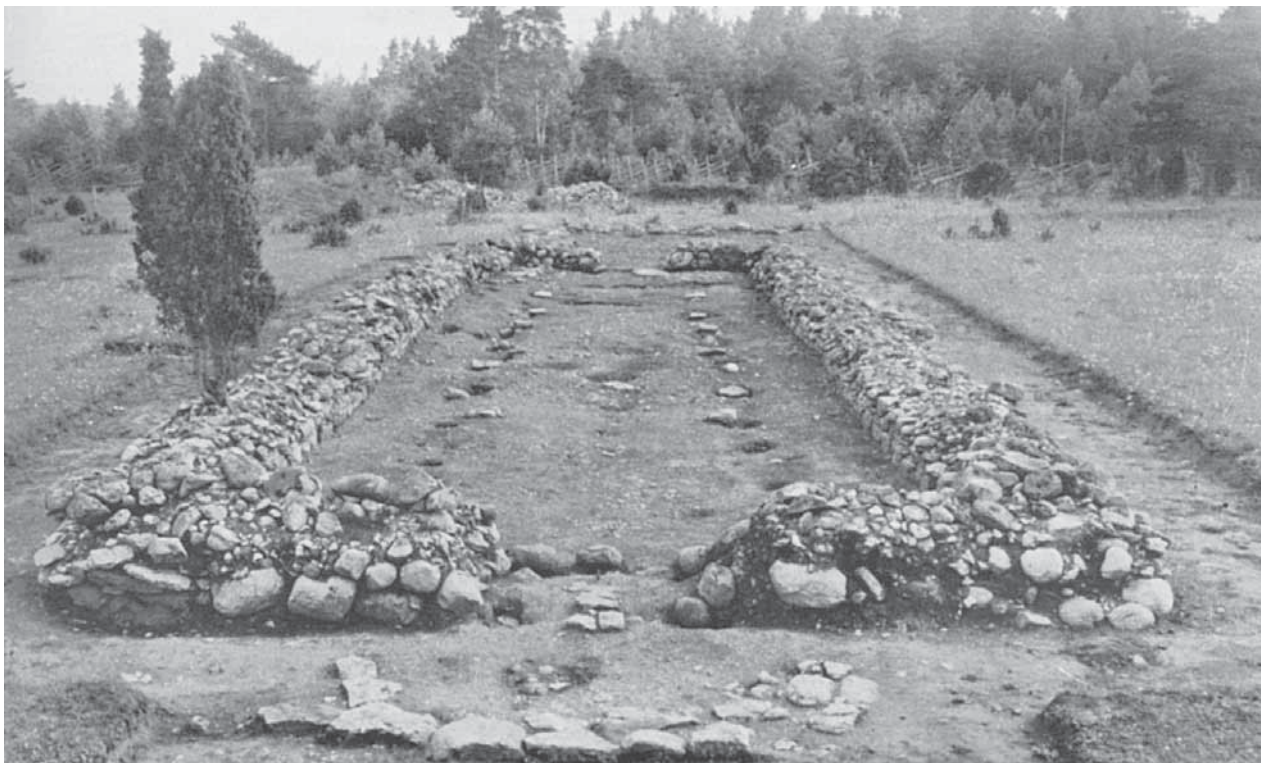


Figure 1.1. Stone house foundation under excavation. House nos. 18 at Vallhagar. (From Gjevall 1955:215 fig.71)

terial with considerable differences, with varying representativeness, it requires a large toolbox, with a variety of methods. In the present work, visual, statistical and what can be called geometrical methods will be used. The different methods will be described in more detail in conjunction with the various analyses.

The geodatabase with information on ancient remains is the Archaeological Sites Information System, *FMIS*, which is the GIS based version of the old ancient monuments register, *FMR*, which was based on paper maps and notebooks. *FMIS* was released almost a decade ago by Riksantikvarieämbetet, RAÄ (The Swedish National Heritage Board). It covers all of Sweden and today it contains over 1.7 million ancient remains at around 600 000 locations (RAÄ 2013a), and is constantly growing. In FMIS, there are more than 30 000 records for Gotland, with many more individual ancient remains.

The material remains on Gotland and Öland are unique for studies of different aspects of the later Roman Iron Age and Migration period, AD 200 to AD 600, and especially questions concerning settlement structures. This period will henceforth be referred to as the **mid millennium** period. During this period, the people on both islands built the walls of their houses as massive stone constructions, which to a large degree are still present in the landscape. The reason for this is that prior to the mechanised farming, the effort needed to remove them was most often greater than the gain. On Öland, they are called *Jättegrav* and on Gotland *Kämpagrav*, both meaning Giant's grave. According to the folklore they where graves for giants or legendary warriors (*kämpe*). Henceforth they will be referred to as **Iron Age stone house foundations** or **simply stone house foundations**.

Linked to the Iron Age houses are also ancient remains of another type, called *stenvast* or *stensträng* (stone wall, enclosure wall), which are the remains of enclosure walls made of stone. They consist of low stone walls that can be several hundred metres in length, made of relatively large stones, often around 0.5 metres in diameter. They are most often interpreted as stone walls, which enclosed the infields, thus preventing the livestock and wild animals from grazing in the fields or meadows (cf. Carlsson 1979). However, some interpret them partly in other terms and see them as also having ritual or cosmological functions (see Cassel 1998 and Nihlén & Boëthius 1933). Many still remain in the landscape and some were most probably partly utilised and rebuilt in later periods, which can be a bit of a problem, when using them in analyses of the Iron Age.

Today only fragments of the once existing cultural landscape of the mid millennium can be seen above ground. The location of some 2 000 stone house foundations and 450 km of stone walls are to be found in *FMIS.* Some of the now vanished remains can be seen in large-scale historical maps, where they may be depicted; some additional 250 have been identified this way.

The information in *FMIS* is quite unstructured and needs much data cleansing and preparation to be fit for use in the present work, a description of this will be presented further on. In order to analyse the spatial structures of the settlement remains, both geometrical and visual means are used. A geometrical method involves grouping house foundations at a certain distances into clusters. These clusters will then be analysed using statistical and visual means, to identify the different units.

Even if there are many Iron Age stone house foundations preserved in the present landscape, later activities have taken a large toll, and the majority once existing are believed to be removed, chiefly destroyed through the impact of ploughing since the 19th century. By using data mining techniques and employing logistical regression analyses in so-called predictive modelling, the former extension of the Iron Age settlement areas will be modelled; a calculation will also be made of how many Iron Age stone house foundations have vanished.

Many of the find locations for Viking Age silver hoards can also be found in *FMIS*. Due to major surveying projects, most of these sites have been scrutinized with metal detectors for metal finds, except iron, and the finds have been reported. These hoards are many times, but not always, found on Viking Age settlement sites. The find material from these surveys will be analysed in order to identify possible settlement sites. The spatial distribution and settings of these sites will be analysed in conjunction with a few other sites that already have been identified as Viking Age settlements. Since only 109 sites have been identified, only a minor examination will be made, primarily by comparing the location of these Viking Age sites with the location of mid millennium sites and the sites of later periods to see the differences in location. For the Vendel period, the source material for settlement studies is scarce in *FMIS*, and the settlement remains of the period will be discussed briefly with few analyses.

Another major database, also accessible online, is the database *Arken* released by *Lantmäteriverket* (the Swedish mapping, cadastral and land registration authority) some years ago. This is the digital version, with the scanned maps and files, of their historical map archives dating from the early 17th century up until the first decades of the 20th century. The archives cover most of the mapping done in Sweden and contain well over one million files (Lantmäteriverket 2011b). However, they have not been further processed for any use in GIS, but only stored as image files and accessible via the Internet (historiskakartor.lantmateriet.se).

The maps of greatest interest for the present work are the first maps over all farms on Gotland, drawn in the scale of 1:8 000 in the years around 1700, which cover the entire island. These maps will henceforth be referred to as the Gotlandic maps of 1700, **GM1700**, and will be described in more detail later. Later land redistribution maps, *Storskifte* and *Laga skifte*, are also consulted in some cases. Moreover, these first maps have extensive textual descriptions of the farms and parcels of land depicted in them, as do the *Storskifte*- and *Laga skifte* maps, but they are of a different character.

In the GM1700, there is one textual description for each farm in which all its parcels of land are described, with its name and a brief description, mostly only consisting of the soil type, yield and acreage. Besides this, there is a brief description of the farm itself, and of how the present owner acquired it. A sample of a map and the textual description is seen in fig 1.2. On Gotland, we are also fortunate to have all these text descriptions of our oldest maps transcribed and summarised in digital form; these are accessible in pdf-files. This work was done by a private researcher, Jakob Ronsten and they are published on a CD-rom (Ronsten 2011b). Even if the production of the entire map series took more than a decade, around the turn of the century 1600-1700, their date will be generalised to the year 1700.

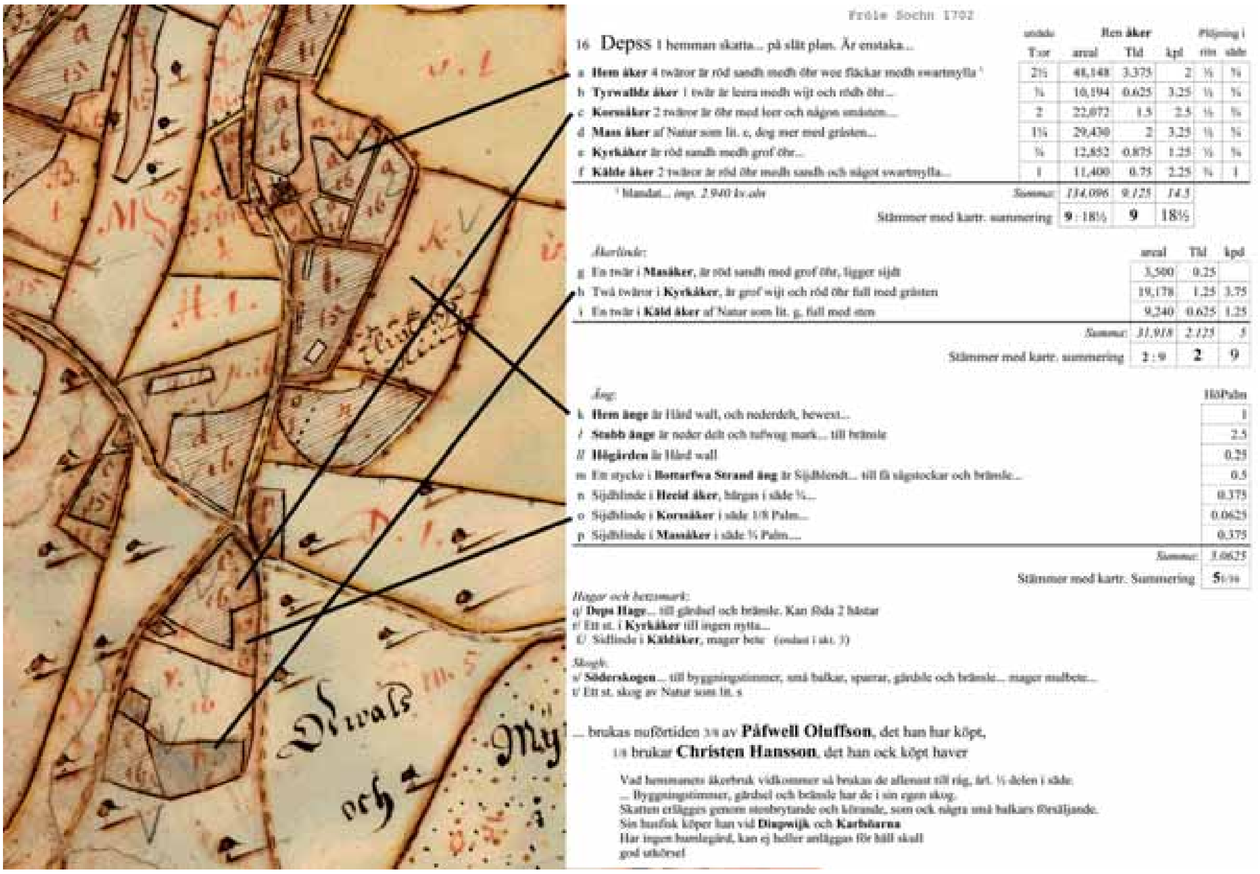


Figure 1.2. Detail of a map from the GM1700 and a transcript of the text belonging to the map. By a alpha-numerical coding system, the map and the text are linked together. In some of the fields, patches of wasteland are depicted, which many times can be identified as ancient remains. Sometimes the shape and relative position of the patches makes an interpretation of an Iron Age stone house foundation very likely. This has been confirmed in several cases by the fact that the depicted patch of wasteland is still present in the modern field, and contains an Iron Age stone house foundation. (© Lantmäteriet, published with permission I2012/921)

The GM1700 maps for every parish on the island are georeferenced against the modern economical maps. Spatial information about the location of every farm toft in the year 1700 is established and is stored in a geodatabase together with data concerning the farms, which was gathered from various parts of Ronsten's transcripts and summaries. Since the maps contain many tens of thousands of depicted parcels of land (pieces of land), with complex shapes, as can be seen in fig. 1.2 above, it was not possible to vectorise all maps to facilitate spatial analysis of the parcels of land. Slightly more than half of the parishes, 51 spread across the entire island, were vectorised and each parcel of land was attributed with type of land and to which farm it belonged. By giving parcels of land of each farm a unique colour in the GIS, it is easy to depict the spatial distribution of the infields of each farm in a parish. These maps are then visually interpreted and groups of farms with mixed parcels of land, or connected names, can be identified, indicating a common origin, and thus constituting a probable village, which will be discussed in chapter 2. These villages can then be analysed statistically in the same manner as the mid millennium villages.

The extensive source material, used in this work, consisting of large databases from different time periods, require statistical analysis to be fully understood and presented. Accordingly, one of my central methods is to use statistics as a basis for further reasoning. Many times, presenting statistical descriptions or analyses might help in the interpretations. Statistical analysis, which most often only consists of descriptive statistical methods, is a good way of getting to know the data you are working with; it is moreover an excellent way to present it. Furthermore, it is a suitable starting point for the hermeneutic reasoning and analyses, which always must be performed in any research within the humanities. The important part is the reasoning and analysis of the pattern, or non-patterns revealed by the statistical analyse, since statistical tests and analysis do not constitute a 'black box' which gives the final answers to the research questions. Sometimes this can be the case, but very seldom. Presenting statistics, can in many cases also reduce the number of 'it looks like...' or 'it seems like...' or 'it might be...' in archaeological work, but of course it cannot eliminate them, since the archaeological source material has a built-in uncertainty. The use of statistical analyses and presentations can also reveal many weaknesses; the complexity and irregular nature of the fragmental archaeological source material does not facilitate simple interpretations and explanations are not so self evident. This will be demonstrated in some of the analyses in this work.

In addition to these databases with culture-historical content, *Sveriges geologiska undersökningar*, *SGU* (Swedish geological surveys) launched the new geological geodatabase for Gotland in 2009-10, which is important for the present work.

Besides these larger databases, there are also smaller databases created for various analyses.

All databases used in the present work will be more thoroughly presented in connection with the different analyses in which they are used, and so will most of the more specific source critical aspects of each analysis. Here I will only address some general and probably for many, but not for everybody, well known source critical aspects concerning the nature of *FMIS.* It is important to remember these shortcomings, which affect the present work and all other analyses made with *FMIS* data.

Some source critical aspects on FMIS

The *FMIS* database is a fantastic national asset for which we archaeologists and also the general public should be very grateful, but it has its drawbacks and shortcomings. It is partly accessible as a public online version (fmis.raa.se). *FMIS* is the result of a digitalisation project of the old analogue *Fornminnesregistret*, *FMR* (Ancient Remains Register). This project started already in 1984 with the digitalisation of the text describing the sites. The register for the whole of Sweden was finalised at the end of 2005. Until 2002, there were several different projects with a variety of methods and different responsible organisations, which led to inadequate quality. In 2002, a national strategy was set up to master these problems and finalise the database, which was done in 2005. After this, efforts have been made to increase the quality (Rentzhog 2009:23f), but there are still many errors in *FMIS*.

Because *FMIS* is a digitalisation of an old written register, the data structure of *FMIS* is very primitive and unstructured, since no all-embracing effort to redesign it was made from the start in the 1980s. It must however be remembered that it is a database for use within cultural resource management and is not designed for re-

search. A redesign of *FMIS* now, with the amount of information already in the system, would probably be very expensive and time-consuming, but it might be done in the future.

The surveying for ancient remains on a national basis was started in 1937/38, in connection with the mapping for a new economical map series. Until 2003, the information was collected in small paper notebooks and on paper maps in *Fornminnesregistret*, *FMR* (Fornsök 2013a:Bakgrund). The surveying was performed twice throughout the entire country, except for the mountain areas. The second survey, referred to as *Revideringsinventeringen*, (the revised survey) started in 1974. Besides, there have been a number of smaller, specialised surveys in different areas (RAÄ 1999b:bilaga 5:11).

The conversion to digital format meant that approximately half a million notebook pages were scanned. Most of them transcribed as different attributes in 560 000 database records and some 550 000 geometrical features from the paper maps were digitised in GIS layers. Not all descriptions in text were transcribed as attributes and some descriptions thus only exists as an image of the handwritten notebook page (RAÄ dnr 100-2604-2006:3ff), which means that the text for all records cannot be queried in *Fornsök*. Furthermore, the descriptions that are transcribed as attributes in the database contain a lot of typing errors and misspellings, which means that free text queries for specific words or terms do not always provide relevant results. There are also misclassifications of records, which mean that they are listed as some other type of feature etc. This means that without alternative query terms and extensive scrutiny, many relevant ancient remains are missed. In this work, the scrutiny is done, but there are still most likely relevant records that are missed. They are probably not many, but they exist.

Apart from the errors in the database, which is not surprising considering the amount of data and the sometimes forced work pace in the digitising project, the surveying process itself generated an uneven quality. One problem is the changes in standards concerning the surveyed types of remain. At a workshop regarding *FMIS* some years ago, Rikard Sohlenius from RAÄ showed an example illustrating one of the problems with the *FMIS* in a very clear way, which is worth repeating. Fig. 1.3 shows the distribution of the type of site termed *Bytomt/gårdstomt* (village toft/farm toft) in the county of Småland, which is divided into three different *län* (administrative county). These administrative counties were surveyed at different points in time. As can be seen, the distribution of this type of sites is very uneven. In the 1970s, when Kalmar län was surveyed, this type of remains was not considered important and was only entered into the *FMR*/*FMIS* in some rare cases. In the late 1990s, it was highlighted and actively looked for and all cases were entered into *FMR*/*FMIS*. It is obvious that any regional studies of Småland based on this data, would yield a considerably biased result.

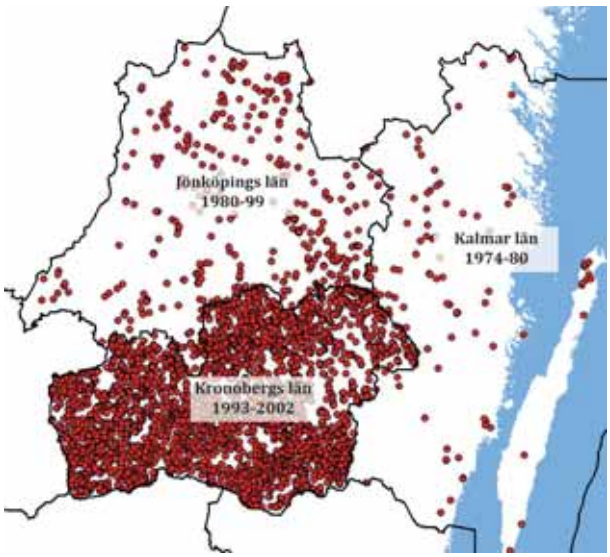


Figure 1.3. The records of the FMIS type bytomt/gårdstomt (village toft/farm toft) in the three administrative counties in the county of Småland. The years refer to when the counties were surveyed for ancient remains the second time.

For the present study of Gotland, this is no problem, since the historical data over farm tofts rely on data from historical maps, and not from *FMIS*. The entire database of deserted farms on Gotland made by Malin Eriksson in 2010, which will be discussed more later, has been entered into *FMIS,* and I have access to her work files.

Representativeness is not only affected by new knowledge changing the focus of the types of remains that are entered into *FMIS*. The fact that surveyors of the ancient remains have different interests and knowledge influences interpretations and the way features are classified. Some of the sites used in this work were visited in the field, since the description or location, indicated that they were something else than Iron Age stone house foundations. In some of the cases, it was clear that the suspicion was correct and the record removed from the database. Also surveying conditions and season, type of vegetation, weather, etc affects the surveys and thus the content in *FMIS*. A survey in the middle of the

summer, when the grass is high and the leaves are green does not have as good a prospect as a survey in early spring, when the snow is gone, but before the flowering season. Almost without exception, when you make a detailed survey in an already surveyed area, you find additional remains of different types.

It is essential to know that *FMIS* does not provide the whole picture for any type of ancient remains and that there are errors; but for most of the manifest types, the vast majority in an area are registered in the database in a correct fashion. To my knowledge, the size of these errors and misclassifications has not been investigated, at least not for Gotland, but it is probably not more than a few per cent, which in the present work, does not affect the results.

What constitutes and defines a farm and a village?

In Swedish, there exists only one word for a village/hamlet of any size, which is *by*. Even though the Swedish villages often were very small, with only a few farms, and linguistically it would be more appropriate to refer to them as hamlets, the term village will be used, since this is the term normally used in translations to English. The villages were normally only of a larger size in some parts of Sweden, like on the plains in Skåne and Västergötland and also in Dalarna (Helmfrid 2000:63). In these areas, the villages could amount to 40-50 farms, but also small villages/hamlets existed.

The Scandinavian word *by* has undergone conceptual changes during the centuries. As *by* is used in the old medieval regional laws it means an independent settlement, no matter how many farms it consisted of. Even a solitary farm was referred to as a *by*. This is also how the word is used on most rune stones, meaning a single farm, but it begun to be used as denotion of settlements with one or more farms during the Viking Age (Andrae 1960:86f).

The discourse around the concept of *by,* and what it signifies has from time to time been lively in different Swedish academic disciplines. Before the 1960s, the most common notion was that villages had existed even before the Viking Age/Middle Ages, as one form of settlement structure (Fallgren 1993:60). When the field of settlement archaeology opened up in Sweden, a result of the following debate between human geographers and archaeologists in the 60s and 70s was that an image of a village-less Iron Age became established. Solitary farms (*ensamgårdar*) were regarded as the sole form of Iron Age settlement structure in large parts of present day Sweden (Broberg 1990:24f; Fallgren 1993:60). Only a few scholars, with little impact, advocated the existence of villages in the central parts of Sweden (Fallgren 1993:60). In more recent years the pendulum has swung back and a less rigid view of what constitutes a village is at hand, so both villages and single farms are now seen as natural settlement patterns in all periods. This debate and all its standpoints will not be accounted for here, since this is done several times before (cf. Dahlbäck 1977; Frölund & Wilson 1993; Fallgren 1993; Broberg 1994 and Fallgren 2006). Here, just some short remarks will be made of some aspects.

The debate of the 60s and 70s concerning the establishment/formation of villages (*bybildning*) was misleading in some ways. Firstly, the discussed village concept was never clearly defined, so the debate was actually more about the regulation of villages instead of the establishment/formation of villages (Fallgren 1993:60). The medieval, regulated village was the template and comparisons were made with Danish Iron Age villages, like Hodde and Vorbasse. These villages had a very dense structure, where the farms lay close together, which became the standard of how an Iron Age village should look. Since no such villages were known in Sweden, it was taken as additional support for the primacy of the solitary farm (Fallgren 2006:87).

Secondly, the archaeological data on which the debate largely rested is outdated. During this period, there was very little empirical data from excavated Iron Age settlements in Sweden. Thus, visible grave fields were used to signify settlements. Based on the number of graves on the grave fields in each historical village territory, the conclusion was that the population was not large enough for any villages; there must have been solitary farms (Ambrosiani 1964:205ff). Moreover, one of the axioms made in the studies proved to be wrong. The assumption was that the percentage of graves and other ancient remains destroyed by ploughing was low and could be neglected, but new results indicate that the number of graves has been much higher than previously was assumed (Broberg 1994:35). This makes the calculations uncertain, with a large margin of error. In addition, the substantial number of settlements from all periods that

have been buried through ploughing, which have been found in presently cultivated fields during the last couple of decades has completely altered the premises for such calculations.

A third reason is the generalisations made of results from a smaller area. Ambrosiani's (1964) analyses covered the eastern parts of the valley of Lake Mälaren and later Hyenstrand (1974) expanded it to cover the whole area around Lake Mälaren. These models were then uncritically picked up by others and became generalised and made valid for more or less the whole country, except some parts (Fallgren 1993:60).

This established a view of a village-less Sweden up until the late Viking age/Middle Ages. This view gradually faded away and in the 1980s, human geographers started to talk about 'multi nuclear' settlements as a forerunner to the Viking Age/medieval village (Boberg 1994:36).

After the many large excavations made with modern methodology in conjunction with large-scale infrastructure projects in the last decades, there is today an abundance of settlement data from all periods available for analysis. This material has been available for studies, which has led to a new insight and definition of the village concept in Swedish archaeology on the Swedish mainland. Consequently, in more recent work you very often find the interpretation of settlements forming villages even if they do not look like Hodde or Vorbasse (cf. Lindkvist & Wikborg 2007:407f; Göthberg 2007:439). Villages are now believed to have been a common form of settlement structure in more or less all of Sweden (Gräslund 2004:12ff).

The Swedish concepts of hemman, mantal and part

First, it is best to explain and clarify some historical terms and Swedish concepts that are used. Many of these concepts are not specific for Gotland, but are general concepts used in all of Sweden.

Hemman is another word for a farm; to be classified as a *hemman* the farms must be large enough to be assigned a *mantal*. A *mantal* (hide) is an assessment of the supporting capacity of a farm; one mantal is a full farm, corresponding to the acreage that would support a family and its dependants. If it was too small, the farm was not regarded to be self-contained and was not classified as a *hemman*.

The *mantal* was the bases for the taxation or lease. In the studied period, up until the early 18th century, the lowest *mantal* was ⅛.

Hemmansklyvning is the term used when a farm was split into two, or more, new independently owned and cultivated farms, each with a *mantal*. The farm still belonged to a village or was a solitary farm, but the new part of the farm could have its own, but 'unofficial' name in the older cadastres; it may also be referred to by just a number in the village. This is normally what the process of dividing a farm refers to on the mainland. According to Ersson, a *Sämjodelning* can be seen as virtually the same as *hemmansklyvning*, although not in a judicial sense (Ersson 1991:8).

The term *partklyvning* was used when a farm was divided into two or more *part*s, owned and cultivated as separate farms, even when the *mantal* was not divided; in this sense, the farm was still kept together. The two parts of the farm still constituted one taxation object. This principle was applied on Gotland, as seen in the cadastres. Thus, one farm with a *mantal* could be divided among several farmers, and according to Nils Lithberg, each part could have its own name (Lithberg 1932:21), but these were unofficial and not noted in the older cadastres; the names may also have been of a temporary nature. On Gotland, normally the term *partklyvning* was used for all division of farms in any period, even in later days, when the *mantal* was divided. In all respects but the fiscal, a *part* of a farm on Gotland must be seen as equal to a complete farm on the mainland, and operated as such. In a divided farm, each part was independent and one part could be deserted, even if the other part was not. If it was a freeholder farm, it could be sold and inherited.

If a farm on Gotland was divided into several parts, these parts could be of different sizes and might also be of different *jordnatur* (fiscal nature), freeholder or crown farm. An example of this is the farm Hajdeby in the parish of Kräklingbo, which in 1699 was a full farm, divided into two parts; one part consisting of ¾ of the total farm and was owned by a freeholder and the remaining ¼ was owned by the crown, with a *landbo* (tenant). The different parts have their own fields and meadows. Some of the pastures and woods are owned and utilised jointly and some are owned separately. This is the same as the farms in a mainland village would look like, with separately owned fields. The reason why one part was owned by the crown is most like-

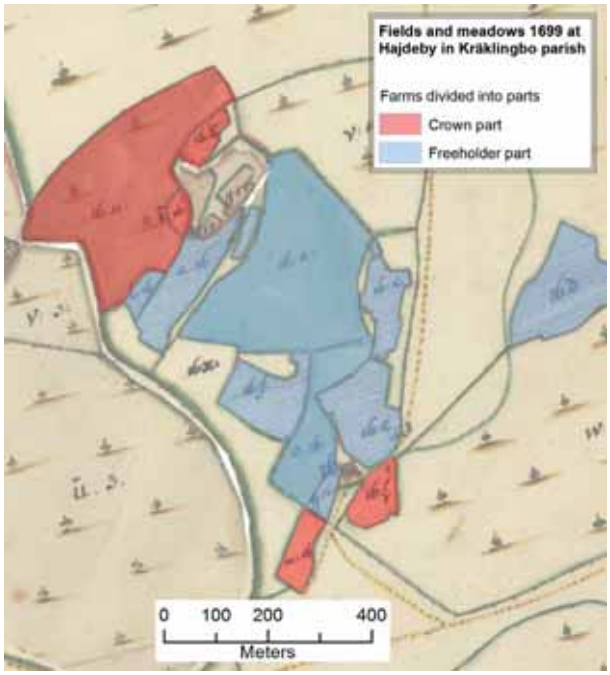


Figure 1.4. Fields and meadows belonging to the farm Hajdeby in the parish of Kräklingbo. The farm was divided into two parts. The parts are of different fiscal nature, both parts of the farm own and cultivate different fields. Some of the pasture and woods are owned jointly and some are owned separately. (© Lantmäteriet, published with permission I2012/921)

ly due to the circumstance that an owner of this part had not paid the farms taxes for some years and thus the ownership was transferred to the crown, according to the law.

This kind of division of farms, *partklyvning,* also existed on the mainland; it is not so uncommon in the older cadastres to see farms divided, but with a common *mantal* (hide), among several farmers. The difference between *hemmansklyvning* and *partklyvning* is more on a bureaucratic and fiscal level, which is of less importance in this work. It is the same process in both cases; a division of farms into several independent new farms.

Discussion and definitions of the concepts of household, farm and village

The villages have not been the fiscal unit on Gotland in historical times. It is however not unusual that the Iron Age stone house foundations and historical farms form clusters, which has been noted by many scholars who have tried to explain them in different ways. The different views of the national and international debates around villages have also influenced the research on Gotland, which has led to different interpretations and answers over the years, which will be discussed in the next chapter. In this chapter, some of the central concepts that are used will be problematised and discussed, which will result in a number of definitions. These are the concepts of household, farm, village and *bygd,* which are not always easy to distinguish from each other.

The concept of *bygd*, is well established in the Swedish language and it is frequently used, both colloquially and in Swedish historiography, and it is not easily translated into English. The direct translation to English is district, but the meaning in the Scandinavian languages is more complex. It is hard to make any formal definition of *bygd*, but a more general description is an area in which people live and have a feeling of affinity amongst themselves; a sense of belonging together. This can be manifested in many ways, in collaboration and social bonds, in ways of dressing or building houses etc. A *bygd* is often delimited by natural features and topography covering a wider or a more limited area. In present-day Gotland, a *bygd* is often defined by a parish, but a parish might also have more than one *bygd*; the term *bygd* thus works on many levels. For example, the parish of Fröjel is divided into upper and lower Fröjel, each constituting a *bygd* delimited by a forested area. In this book, I will most often use the term of neighbourhood community to denote *bygd* in its social dimension, but I will also use other terms for a larger settlement area.

Households and farms

Where is the line drawn between a village with several farms and a farm with several households, or a sparse village and a neighbourhood community (*bygd*), in archaeological or fiscal material? The border is fuzzy and a strict distinction between the concepts is hard to maintain both in historical and archaeological material, but especially in an archaeological material in which only small fragments of the whole picture are at hand to analyse. This makes it extremely difficult to reach any clear answers and many times only hints of the past organisation and structure can be seen. Since the different concepts are not easy to delimit they are often used in a very unclear fashion by many scholars. Here follows some examples of such obscurities, which will be accounted for in more detail later.

Nihlén identifies some larger clusters of Iron Age stone house foundations as consisting of several households, like Botvalde in the parish of Stånga (RAÄ Stånga 31). His interpretation is based on the grouping of the four houses around

a courtyard. He also argues that the farm has four parts (Nihlén & Boëthius1933:36f) and thus implying that a part and a household are the same.

The large villages Lithberg mentions in 1915, were when he clarified the matter in 1932, not considered to be villages in the sense of several independent farms. Instead, he describes them as large farms consisting of several households, or *matlag* as he calls them, which might be translated to meal cooperation in English. But they were operated as one economical unit, which he defined as a large-scale household. He compared it with how Norwegian and Icelandic farms were organised up until the late 19th and early 20th century (Lithberg 1932:25f).

The way Anders Carlsson (1983:31) defines the concept of household is rather vague; he discusses both Lithberg's notions of the large-scale household and at the same time Ersson's ideas around *partklyvning.* He concludes that a farm on Gotland consisted of an average of two households in the Viking Age. It is unclear if he means each household as a separate, independent part or that all households at a farm consisted of one economical unit, as Lithberg suggests. Most likely he means that all households together on a farm, form one economical unit, which he refers to as a *bebyggelseenhet* (settlement unit) probably corresponding to a farm.

The unclear use of the concepts is not all to be blamed on the scholars, since it is most often very hard to know the difference in an archaeological material, as well as in historical sources. Some of the analyses and reasoning in the coming chapters will have the same difficulties in many cases and accordingly, the concepts sometimes are interchangeable, and impossible to separate.

The usage of the term household is thus not always clear, but in most cases it seems not to be used as a synonym for a self-contained unit, but rather as a subpart of a larger economical unit, the farm or *brukningsenhet* (working unit), regardless of period. It is in this sense we will use the term for all periods, suggests the following definition: *A household is not an independent and self-contained economical unit in all respects, but part of a larger unit. A farm with more than one household is in certain aspects considered as one economical unit.* A household might be seen as a consumption unit.

The definition of a farm/part of a farm is more or less the opposite; a usable definition is formulated by Fallgren (2006:28): '*The term farm (or part of a farm[authors comment]) means a permanent and independent economical unit, where the people mainly support themselves by stock-raising and farming*' [Translated from Swedish by the author]. Permanent implies that it is not seasonal, but it must not necessarily exist for a long time. The farm is more of a production unit.

In other parts of Scandinavia too, some farms are interpreted as consisting of several households during the Iron Age. In studying many Danish villages, Herschend comes to the conclusion that starting in the Early Roman Iron Age, it became more common to extend the farm with more households, rather than dividing it into several new farms (Herschend 2009:220). His interpretation is mainly based on how the preserved traces of fences divide the space between the buildings into different yards, indicating different farms in the clusters. In Denmark, the prehistoric villages are excavated in such a way that large areas are removed of all turf, revealing all postholes and constructions underneath, which mean much more of the physical remains are revealed and the interpretation can be based on more data.

On Gotland are many Iron Age stone house foundations preserved in the landscape and visible above ground but only one village excavated. It was only the visible stone house foundations, not the space in-between, which were excavated. Consequently, the analyses in this work are based on the visible remains made out of stone, and most clusters of Iron Age stone house foundations do not have a great amount of stone enclosure/boundary walls preserved within the clusters themselves, which makes interpretations more difficult.

Fences can be made of perishable material, like wood, not only within clusters but also at other places in the systems of enclosure walls and fences. At several places, it can be observed that stone walls cease abruptly without any obvious reason. This is also observed on Öland by Fallgren, who interprets it as the enclosure system continued, but was made of other materials (Fallgren 2006:34). On Gotland, some clusters are seen with visible stone walls extending between the house foundations, for instance at Vallhagar, which indicates many farms within the clusters. Also in smaller clusters, the system of stone enclosure walls indicates many independent small farms rather than one large farm, maybe with several households, as shown in the figures 1.5a-b.

One thing which might indicate several households is to find several hearths in different locations in one house, which might indicate that the house was divided into several rooms

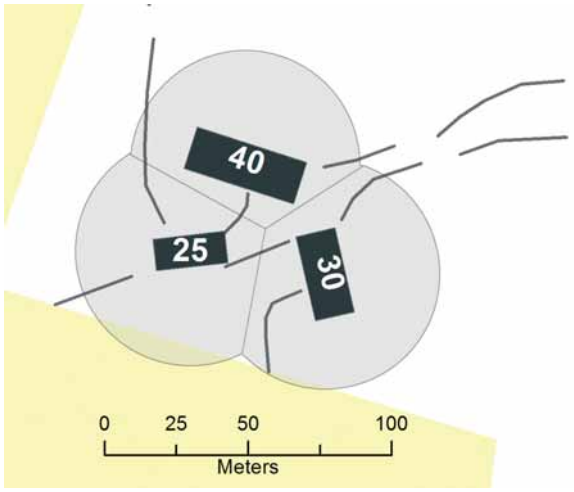


Figure 1.5a. A cluster divided into three farms, mainly based on the system of enclosure walls. It clearly shows a cattle track leading to the ends of all three houses, indicating that the houses are divided into different sections, for livestock and dwelling, and each house contains all the functions needed for a farm. The stone walls also divide the surrounding land into three fields, one for each farm. (RAÄ Lojsta 4).

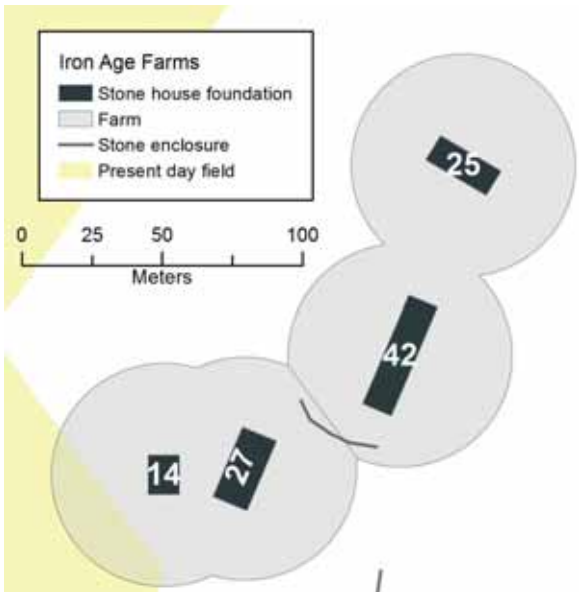


Figure 1.5b. A Four-cluster divided into two farms, mostly based on the general layout and enclosure system. The two house foundations to the left seem to be a group of its own. The remains of stone walls cut through the group. The distance between the outermost houses is 170 metres and that must be too far for one farm (RAÄ Halla 26).

(=households). There might also be hearths in several houses, which are interpreted as belonging to one farm. One source critical issue here is of course the question if the hearths are all coeval. Both the fact that the houses can be used for a long time, and also that the Iron Age stone house foundations often superimpose older settlements, as will discussed later, is problematic. This is particularly difficult when Iron Age stone house foundations were excavated prior to the introduction of radiocarbon dating, which is the majority of cases.

It is common to find large hearths divided into several parts, constructed in different ways, indicating that the parts were intended for specific tasks, but such hearths do not imply several households, just several functions. Such hearths are found at Vallhagar in buildings 1, 7 and 13 with three hearths each, but only two of the buildings were interpreted as dwelling houses by Stenberger (1955c:1147). Several other houses had two hearths (buildings 9, 10, 11, 17, 18, 19), of which only two buildings, 11 and 18, were interpreted as dwelling houses by Stenberger. Two buildings with just one hearth are also interpreted as dwelling houses, which are building 16 and possibly also building 2 (1955c:1147). There are hearths in almost every house at Vallhagar, which makes interpretations concerning the number of households difficult (see Vallhagar I 1955:100-254). Hearths are not only used for cooking, and the type of social organisation and collaboration around different functions is unknown. Stenberger assumes in his interpretation of Vallhagar that certain functions were communal, without specifying this any further (Stenberger 1955a:1149).

At Känne in Burs (RAÄ Burs 55), a house of extreme length (67 m) was divided into two sections by a wall; each section contained hearths. In the southern section, one ten metre long hearth was found, which was divided into three parts. The northern section had two hearths. The excavator Nihlén interpreted these two sections as two rooms with separate functions (Nihlén & Boëthius 1933:82f), but an interpretation based on the results from Vallhagar does not rule out an interpretation of two households.

One example of this outside Gotland is on Öland, where a large cluster with several joined houses is interpreted as being divided into two farms, based on the hearths and how walls divide the houses into different rooms (Herschend 2009:255 fig 80b).

Edgren and Herschend have in their calculations of the size of an average Gotlandic farm, estimated farms to consist of around four houses and two households, based on data from the excavations of Eketorp on Öland and Vallhagar on Gotland (Edgren & Herschend 1982:18). The analysis in the present work, based on a thorough analysis of all preserved stone house foundations on Gotland will yield a somewhat different result, which will be presented in chapter 3.

The difference depends on what the calculations are based on. The point of departure of Edgren and Herschend is the material of Eketorp, which most probably is an anomaly to Gotlandic conditions.

The existence of several independent hearths in some houses has also been interpreted as the presence of slaves or thralls. An indication of this might be that in some houses, hearths are found to be placed in a room beyond the byre

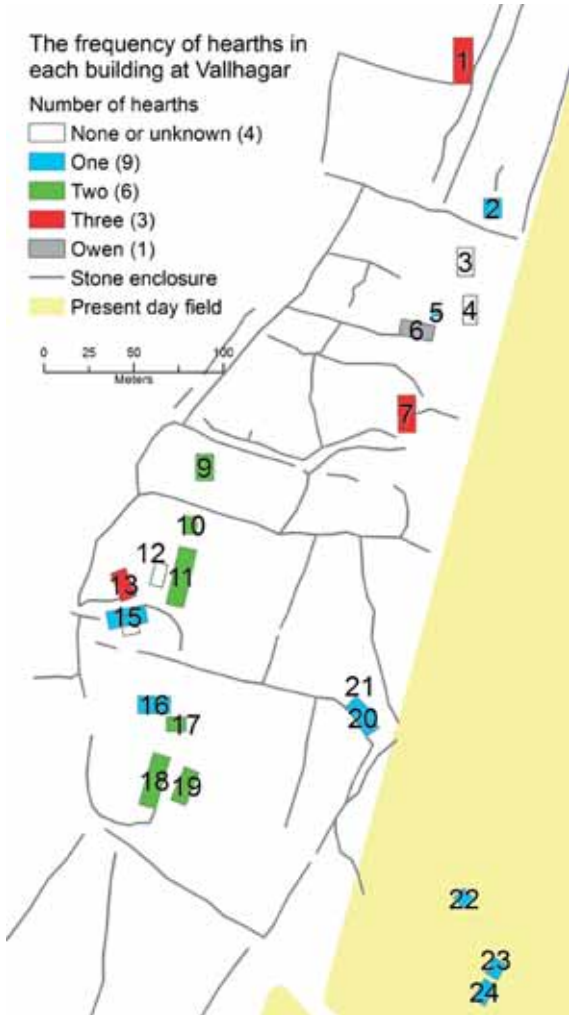


Figure 1.6. The frequency of hearths in each building at Vallhagar. Figures represent the building numbers

as a part of the multi-functional houses. Examples of this occur at sites in Gene in the county of Ångermanland, at Fågelbacken and in Uppsala in the county of Uppland. Considering these cases, Svante Norr has suggested an interpretation of these spaces as the dwelling rooms for slaves (Norr 1996:158ff). Nordström and Herschend (2003:75) make the same interpretation for a house in Eketorp.

Tacitus describes slavery among the Germans, but of a different kind, with characteristics more like that of land tenants. But as will be discussed later, caution must be taken in using Tacitus as a source, which is a view shared by Stefan Brink, who is very doubtful to the slavery described in Germania by Tacitus. It is not unlikely that the kind of slavery known to exist later in Scandinavia was introduced by the interaction with Rome (Brink 2012:251f). I will not indulge any deeper in the matter concerning slaves, since it is notoriously difficult to handle and their presence is hard to verify in archaeological material (Zachrisson 2003:89).

Villages

As discussed earlier, it has been recognised for some decades by many archaeologists that villages did exist in pre-historic times throughout Sweden, and the settlement pattern on Gotland has also in modern research sometimes been referred to as consisting, at least partly, of villages (cf. Fallgren 1993, 2006; Gräslund 2004). There is, however, another important issue to discuss, which is whether villages existed in historical times on Gotland. In later historical periods, the concepts of village, farm and part of farm has to my mind a lot to do with semantics and regional use of the different terms.

A comparison can be made between Gotland and Norway, which in many ways are similar in this respect. The concept of village (Swedish: *by*, Danish/Norwegian: *landsby*) does not exist in Norway as a denomination for a domestic rural settlement and the word *Landsby* is only used to denominate foreign villages in other countries. The word *by* in Norwegian and Danish means town. The only Norwegian term for a rural settlement is *gård* (farm) and a *gård* can be divided into different *bruk*, operated as an independent unit, and run on a family basis (Lillehammer 1999:131), which is equal to a Gotlandic *part* of a farm. The term village is also lacking on Gotland, at least in cadastres, and as in Norway, a rural settlement is called *gård*.

In its historical sense, the concept of *gård* is not a strict definition or precise meaning in Norway and is hard to use in modern administration. For this purpose, the terms *Matrikkelgård* (fiscal farm) and *Navnegård* (named farm) have been created. *Matrikkelgård* is a fiscal unit and *Navnegård* consists of a number of closely situated *Matrikkelgård*, with the same name, and assumed to have the same origin (Antonsson 2004:20ff). This would make the terms of *Matrikkelgård* and *Navnegård,* similar to farm and village respectively, as they are used in Sweden.

In later historical times, as they are depicted in maps from the 19th century, a Norwegian *gård* (farm) could be divided in many *bruk* (parts), up to 30 or more. These different *bruk* could be located in very dense clusters, just like a village. The *bruk* on these large *gård*, did not all have to be situated in one large cluster, but they could be divided into several, situated some hundred metres apart, which made them into multi-nuclear villages. The parcels of land of the different *bruk* are mixed within the territory of the *gård* (Lillehammer 1999:132ff). This is more or less, what a common Swedish village would have looked like in the same period, and some *gård* on Gotland too. However, no such large villages have been identified on Gotland.

How to properly divide these Norwegian *gård* into several *bruk* is described in the Old Norwegian laws, for instance in § 87 in the Older Law of the Gulathing (Larson 1935:98). The practice of dividing farms into *bruk* thus goes far back in time.

In Jämtland and Härjedalen, which became a Swedish province in 1645, and prior to this was a part of Norway/Denmark, the term *gård* seems to have been used for a long time. Here, it is used in old records from the first decades of the 17th century and even earlier. It is used in medieval charters, when several persons were listed as farmers under each *gård*, which is interpreted to correspond to the individual farmers on each *bruk*. An average of 3.3 *bruk* per *gård* is calculated for the period 1300 to 1550, by Antonsson, when he compares settlement names, with the number of farmers in the tithe register (Antonsson 2000:108). The term *by* was not used to describe a settlement in Jämtland until these were marked on the Swedish maps from around 1700 (Antonsson 2009:25). It is clear, that to the land surveyors and civil servants some 300 years ago, there were no fundamental differences between a settlement in Sweden and in Jämtland; these could easily be referred to as villages (*by*) in both areas.

To a degree, the same is true for Gotland. The land surveyors of the oldest geometrical maps of Gotland, the GM1700 also frequently use the term *bolby*, meaning village in the descriptions. In almost 70 of the farm descriptions, the term *bolby* is used, as in the following examples: 'är i Bohlby med...› (in village community with) or '*...nästa Bohlby in til Kialler och Seges*' (next village adjacent to Kailler and Seges) (cf. Ronsten 2011b:Snauvaldss and Bols in Havdhem). The land surveyors of the GM1700 on Gotland also noted if the farms worked together in a *byalag* (village community) with any other farms. They use the term *i byalag med* (cooperating within a village community) or *enstaka* (solitary). Unfortunately, this is not noted for every farm. Only some of the land surveyors seem to have done so; most often, information is lacking for whole parishes. The information concerning *i byalag med* is noted for around half of the farms; I have found 461 noted as *enstaka* (solitary); 137 were villages consisting of two farms; 37 were villages with three farms; 7 were four-farm villages; 3 were villages consisting of five farms; and finally 1 was a seven-farm village. This shows that more than 40% of the noted farms were included in some kind of village constellation with other farms, at the time of the mapping. According to Widgren, the land surveyors in the county of Bohuslän used the term *byalag* in this fashion also for non-fiscal villages in cooperation (Widgren 1997:41)

There is a great variation in how villages were structured and organised within both Norway and Sweden and there were differences in social organisation and degree of cooperation, but the essential features of a village, as will be defined below, are found in both countries. The terminology just differs. What in Sweden is called a *by* (village), is in Norway called a *gård* (farm) and the same applies to the Gotlandic concept of *gård* (farm). A Swedish farm is equal to Gotlandic *part* and a Norwegian *bruk*, when there are several *parts* or *bruk,* in a cluster (village). This is something stated by Nils Lithberg already in 1932, when he argues that the same concept in Sweden and Gotland can have different names (Lithberg 1932:21). This is also pointed out by Erixon. He considers that these clusters of farms, divided into *bruk* and *part*, must be seen as a special type of villages both in Norway and on Gotland (Erixon 1960:198).

It is not always possible to know the meaning of a concept in a specific context, but villages cannot simply be stated to exist at some places, but not in others, solely based on some simplified fiscal definition. The situation in both Norway and Gotland has been regarded as unique and not comparable to the situation in the rest of Scandinavia. However, as Widgren says, the differences between Norway and Sweden are maybe exaggerated due to different terminology, source materials, and research traditions (Widgren 1997:40ff). This probably also applies to Gotland; the differences between Gotland and the Swedish mainland is probably no greater

than the difference between different regions on the mainland. On the contrary, the variations between different regions on the mainland are probably larger.

The term village is also used on Gotland in modern/historical local contexts of unofficial nature. It is not unusual that a number of farms lying close together are known under a village name. In the Gotlandic dialect it is called '*böi*' and in the dictionary over the old Gotlandic Lau-dialect, it is explained as follows (Melefors 1983:79): '*byalag, 'grannlag', samling av nära varandra liggande gårdar*' (*village community, neighbour community, a group of closely lying farms*). In the dictionary, another Gotlandic term for village is used, which is '*Grannlag*' or '*Grannelag*'. On Fårö there are four farms known as 'Alnäse grannelag', which is noted in the old cadastral map of 1693. This *grannelag* and its formation are discussed by Ersson (1991:14).

Around 40 groups of farms referred to as villages by a common village name have been identified from different sources, which are mainly historical maps and other publications. These 40 villages are mostly situated on the southern part of the island. A systematic survey of all possible sources would probably yield a higher number. Apart from a few examples from historical maps, Alnäse grannelag on Fårö, Norrbyn in the parish of Vamlingbo, Ukebyn and Burgebyn in Havdhem, all sources are of a non-official character. Melefors (1983:80) accounts for some ethnological sources, such as the brothers Carl and Per Arvid Säve's written accounts of the Gotlandic society during the 19th century.

Lithberg writes in an article from 1915, that he has heard of villages as 'exceptional cases' and lists some of them. He regards them as the result of local conditions (Lithberg 1915:42). Lithberg connects these villages with different forms of cooperative work, like the *bidlag*, which is constellations of farms that have different kinds of obligations in inviting and helping each other at social functions, like weddings etc., but also to some degree helping each other with certain tasks like hay-making etc. He sees the *bidlag* as the remnants of village cooperation, continuing after the villages had lost their official status. Many of the *bidlag* that he encountered in the beginning of the 20th century did not consist of the original farms in the village, since kinship and other later phenomena had altered the participating farms, according to Lithberg (1915:48).

This view is not shared by Moberg (1936) in his study of *byordningar*[2] (village statutes) on Gotland. In his study, Moberg argues that villages were introduced on Gotland by the government in the late 18th and 19th centuries, and they were not based in any local tradition, as on the mainland. Moberg (1936:115) is therefore of the opinion that these so-called villages found on Gotland are examples of: '*ofullgångna anlag till konventionellt och temporärt byväsende i vissa trakter av Gotland.*' (*Immature tendencies to conventional and temporary villages in some parts of Gotland*). According to Moberg, these *grannelag* or *bygdelag* consisting of mostly closely, but also sometimes quite sparsely lying farms, do not represent any long-lasting organisation, except in the cases where they coincide with the *bidlag*. The names of the villages are often the same as one of the farms in the village with the suffix *–byn*.

Moberg suggests that this manner of giving names to villages is probably borrowed from the mainland and of a more recent date. Village names are also sometimes encountered in the minutes of parish meetings, as temporary groupings of farms for specific tasks. He argues that it is obvious that by the mid 18th century, when these village statues were introduced on Gotland, 'villages' were no living institution on which the village statues could be implemented. Instead, 'artificial' villages were created, most often consisting of a whole parish, and in some larger parishes several artificial villages were created. Only in some cases, did these artificial villages coincide with 'unofficial villages'.

Moberg states that because the lack of village-tradition and because of the nature of the settlements on Gotland, the attempt to introduce village statues on Gotland failed and they did not leave many lasting traces (Moberg 1936:118ff).

Moberg's interpretation seems rather unlikely as can be exemplified by one of the three villages in the parish of Havdhem, named Ukebyn. It consists of the farms Uddvede, Snovalds, Nickarve and Stora & Lilla Libbenarve; in 1739, it was mapped by the land surveyor Johan Fineman (LSA: H42-32:1). The farm Uke, of which the village got its name, was in 1739 long since

2. According to the Swedish encyclopaedia Nationalencyklopedin, a *byordning* constitutes legal statutes regulating some aspects of the work in a village. In 1742, a template for such statues was made for all of Sweden, the *mönsterbyordning*, which had its roots in older traditions on the mainland. The authorities encouraged the use of village statues, as a means to regulate village life and statues were to be ratified in the local court, häradsrätten. (Nationalencyklopedin 2013:By)

deserted. In the cadastral map of 1702 (LMA: 09-HAB-3), it is referred to as 'Uke tomt' and it was cultivated under the farm Stora Burge in the parish of Hablingbo. It consisted of five scattered pieces of land on the border between Hablingbo and Havdhem.

The oldest source believed to mention all but a few of the existing farms at the time is the *Husarbetsbok*[3] (book of labour in lieu of taxes), from the latter part of the 16th century. According to Ersson, the farm Uke is mentioned both in the *Husarbetsbok*, where it is referred to as 'Asse' and in the list of deserted farms, the Ödegårdslist[4] from 1585, where it is denoted 'Aackis' (Ersson 1985:189). According to Sven Österholm the farm of Uke does not occur in the Ödegårdslista, and is not the same farm as the farm Ase mentioned in the *Husarbetsbok*. He points out that the name Ase is mentioned in the GM1700, although in the parish of Hablingbo (Österholm 1972:195f). Ase and Uke are situated at a distance of around three kilometres from each other. In the cadastral map of 1702, there are three parcels of land, belonging to three different farms in Hablingbo, with names including the name 'Ase'; Aseburåker, Aseburgåker and Aseburge (Österholm 1972:195).

I believe Österholm is right in that Ase from the *Husarbetsbok*, is not the same farm as Uke. The scholar of toponymy Evert Melefors, who has studied these old written sources thoroughly throughout the years, points to the fact that they are full of writing errors and misspelling, due to copying from older sources, and can thus be difficult to decipher. His interpretation is that 'Asse', as it appears in the *Husarbetsbok*, is a misspelling of the farm Nisse and that Aackis gaard is the same as the deserted farm Ogers tomt (Melefors 2013), which in the GM1700 is a *tomt*[5] under Nisse. This sounds reasonable but no matter if Aackis or Uke is the same farm, it is long since deserted. The farm Uke was probably much larger in the past, since it is not likely that the farm-giving name of the village would be a small farm. There is also a local legend about the rich farmer from Uke, which is discussed in chapter 5.

In addition, the fact that the aforementioned village Norrbyn, in the parish of Vamlingbo, had five medieval stone houses situated very close together , most likely belonging to five different farms (Gislestam 1991:234), also contradicts the idea that villages were introduced by example from the mainland and of a late date as Moberg advocates. Moreover, according to Melefors, there is one village named in an inventory register of church properties from 1594, stating that the church owned land in 'Holmbye enge' (Holmby meadow) (Melefors 1983:88). These examples show that the villages go far back in time on Gotland, and must not be confused with the question of *byordningar*, which is a late and different matter.

Just because the fiscal unit on Gotland is the farm, does not make the settlement pattern and structure much different from other parts of Scandinavia, where the village is the fiscal unit. Lars Ersgård and Ann-Marie Hållans highlight this and call attention to the fact that the structure and nature of the source material itself - the regional laws, cadastres, charters etc – has been normative and affected the research considerably. The Swedish countryside has been divided into administrative units, according to the structure of the different sources (Ersgård & Hållans 1996:9f). To a large degree, the perspective of the fiscal requirements and administrative system of the authorities, an above perspective, has thus dominated, and not the perspective from below, of the local community.

Another type of rather narrow definition of what constitutes a village is given by Olsson & Thomasson, who do not recognise villages in pre-history at all. They see the village as a product of a processes occurring late in history. Concerning settlement before the period when villages arose, they argue that it is only possible to use the term groups of solitary farms, irrespective of the physical appearance and layout of prehistoric settlement. Villages cannot have existed in prehistory, since the landscape was not organised according to territorial principles, according to them. The land was linked to the people living there, not an economic unit. Their opinion is that the village must be a defined territorial unit and the cooperative aspect with open field systems and collective decision making is the most fundamental quality of a village, and what separates a village from a solitary farm (Olsson & Thomasson 2001:5ff).

3. The *Husarbetsbok* is a list, made by the Danish Governor on Gotland of all farmers who were obliged to perform work on state land in lieu of taxes. Some farmers, like judges, are believed to be lacking, since they were relieved from the duty.

4. The *Ödegårdslist* is a Danish list of deserted farms from around 1585.

5. The origin and what the concept of *tomt* really stands for is debated and will be discussed more in coming chapters. In the GM1700 they are used to denote smaller properties, which usually did not contain buildings but were owned and cultivated by a farm.

A similar view is taken by Callmer who reasons that the 'agglomerated settlements' found in southern Scandinavia, at least from the Vendel period and up until the time when historical villages were established, are only 'superficially similar' to the true villages. Callmer argues, like Olsson and Thomasson that a true village must have the type of social organisation, which only existed in the medieval villages (Callmer 1991:347). Olsson and Thomasson, in agreement with Callmer, underline the medieval village and its social organisation as the only acceptable definition of the concept of the village.

To monopolise the concept of village, to define only a certain type of village existing for a shorter time in history and thus exclude large parts of what in Sweden are regarded as villages, during any period, or to more or less reserve the term village to cover only fiscal villages or some special cases, is not satisfying.

The fact that villages exists on Gotland, as the examples above show, which will be further emphasised by the coming analyses in the present work, indicates that the degree of collaboration between farms on Gotland was most probably as high as in many other regions with villages on the mainland. It is probable that the clusters and the mixing of parcels of land seen in the historical maps of Gotland are reminiscent of villages similar to those on the mainland, but they had no role in any judicial or fiscal system, and were never regulated. As will be accounted for later, the formalised and regulated village, as seen on the mainland, was never introduced on Gotland by any central authority or landed gentry[6]. In the regional laws and later national laws of Sweden, the village structure and organisation was highly regulated. This is not the case in the *Gutalag*[7], henceforth referred to as the Guta Law (GL), which has very few paragraphs regulating collaboration in the rural areas, but some do exist. The terms village or villagers are not used in the Guta Law, only the phrases parish and parish men or neighbours, which will be discussed more in chapter 7. The villages on Gotland seem to have been formed only as functional and social units for cooperation, and are not noted in any official records.

Over the years, there have been many different definitions of village. Many of these have not considered the prehistoric situation, but have focused on the historical and fiscal village. As discussed earlier, the regulated village existing in the Middle Ages and historical times has been the template. Symptomatic of this is that the Swedish human geographer Ulf Sporrong's definition of the concept of village is only found in the book *Medeltidens ABC* (The primary book of the Middle Ages) and is absent in the corresponding books covering the prehistoric time periods. Sporrong, who has worked a great deal with different aspects of villages, stresses that there is no coherent scientific definition of what constitutes a village (Sporrong 2001:64):

> *'En enhetlig vetenskaplig definition saknas också, men vanligen används by som motsats till ensamgård. By består alltså av minst två gårdar med avgränsat ägoområde, vari alla har sina ägor enskilt eller samfällt. By bildar i regel ett skifteslag och har gemensam utmark och gemensamt fiskevatten'.*
>
> (*No uniform scientific definition of village exists, but normally village is used as the opposite to solitary farm. A village consists of at least two farms, within a delimited area, in which all farms have their parcels of land, separately or jointly. One village most often forms a group of jointly regulated farms and have common outlying land and fishing.*)

As a definition of solitary farm (ensamgård) found in Medeltidens ABC, Sporrong (2001:106) states the following:

> *'Ensamgård, ensamt liggande gård som har ett avstånd till sina grannar på minst 200 m. Gården ingår inte i bysamfällighet eller skifteslag.'*
>
> *(Farm in isolated location, at least 200 m from its neighbours. The farm is not part of a village community or any jointly regulated group of farms).*

As can be seen, there is a discrepancy between the two definitions and many types of settlements fall in between the descriptions, or are partly covered by both. Neither of them are easily applied in archaeological or early historical situ-

6. I will use the term landed gentry, and not aristocracy, which to my mind is a term associated with nobility. In this work, landed gentry largely refers to people owning estates providing them with incomes. This does not necessarily imply, but neither does it exclude, that they were members of any nobility

7. The *Gutalag* is the old medieval Gotlandic law, probably written down in the early 13th century, which was in force up until 1595, when it was replaced by the *Skånelag* by the Danish authorities. The *Gutalag*, will be described in more detail in chapter 7.

ations, since important parts of the definitions are based on late historical phenomena such as land redistribution in the 19th and 20th centuries. This shows how hard it is to find any coherent definitions of the concepts. The concepts of *gård* (farm) and b*y* (village) are not easily defined and are more suited for discussion than exact definition, as Hansson et al (2005:78) suggest. Some kind of definition, must however be found to be able to work with the concepts in analyses.

Sigurd Erixon has spent much time on studying villages and village life in Sweden. In his later work, *Svenska byar utan systematisk reglering* (Swedish villages without systematic regulation), he stresses the difficulty in defining a village. To build a definition entirely based on the cadastres is to his mind not possible, since especially in older times, the farms were often accounted for in other administrative units than the village. Erixon argues that whether a number of farms can be described as a village or not must be decided in each individual case (Erixon 1960:195). As I see it, this is especially true on Gotland. Despite the difficulties, Erixon, if not providing a clear definition, at least makes a general description (Erixon 1960:195).

> *'Som by betecknar vi här en grupp lantgårdar som ligger så nära ihop att deras odlade arealer eller hemägor berör varandra eller är blandade med varandra men oberoende av jordbesittningsrättens natur. Normalt ligger i detta närboende att vissa anläggningar, såsom till exempel stängsel och vägar, på något sätt måste kombineras och ömsesidigt kontrolleras. Ett visst mått av anpassning erfordras hos grannarna för att minska friktionen dem emellan, i allmänhet också något slags samarbete i terrängen där ett sådant erfordrades för att bemästra särskilt krävande naturförhållanden. Antalet gårdar är växlande.'*
>
> (*A village is here denoted as a group of farms so closely situated that their land are bordering or mixed, regardless of the nature of ownership. This normally implies that some constructions, like roads, fences are co-owned and need mutual attendance. A certain degree of adaptation is required, to minimize the friction between the farms. In addition, to master particularly demanding physical conditions, cooperation is needed. The number of farms can vary.*)

Erixon draws the lower limit at three farms, but does this for both practical and principle reasons, since he subdivides the villages in many special cases, based on how they are formed and also the degree and nature of collaboration, which is not possible or needed for me to do. He denotes two farms a '*tvåböle*', but in this case, there is no reason to exclude them from the village definition. Erixon's definition of a village seems to be useful since it includes all the criteria, which will be used in this work when identifying villages, in both pre-history and historical times. The criteria comprise distances, the field enclosures, along with the distribution and mixing of the parcels of land of different farms. Even with proper definitions, there will be difficulties to identify farms and draw a line between the concepts of villages, farms, parts of farms, households etc, which will be a problem in the forthcoming analyses.

Many times, a name criterion is also included in the village definition, which means that the farms included in the village should be referred to by a common name in a cadastre, but such criteria are impossible to meet for most of the prehistoric period and contradicts my view presented in the discussion above.

As stated before, today, it is no provocative statement to say that villages have existed in every period in Scandinavia and most probably is the most common form of settlement throughout time. Regarding the concept of village in prehistoric times, Bo Gräslund has very wisely observed that if the same hard body of evidence is needed to classify traces of settlement as solitary farms, as is needed to classify anything as a village, there would not be any solitary farms either (Gräslund 2004:13).

The term village is now frequently used for quite dispersed settlement patterns found in prehistory and it does not necessarily only signify densely distributed structures like the Danish Iron age villages. The term has been broadened, which is very good.

Nevertheless, concerning historical times, the fiscal village still holds its grip over the terminology. A position that is often taken is that if it is not identified as a fiscal unit in the cadastres or old maps, it cannot be a village, thus it must be a single farm. The discussion above, regarding the situation in Norway and Gotland shows that this is not true. To simply refer to the Gotlandic settlement pattern in historical times as *ensamgårdar* (solitary farms), is misleading and evokes an image of a society with little collabo-

ration between farms. It suggests that organised social and functional structures were weak between the farms and that the farmers were isolated on their own farms with little corporation between them. In the case of Gotland, the term 'farms in cooperation' and 'groups of farms' are sometimes used, but this is not enough, to my mind. The terminology still indicates that there is a substantial difference between the areas with (fiscal) villages and those without, which is not true. The collaboration between farms in a small, unregulated village in the forested areas of northern Skåne was probably more similar to the cooperation between farms on Gotland, than to the collaboration between farms in a large village, with open-field systems, on the plains in Skåne.

To describe the past realities better, we must differentiate between different types of villages. I do not mean that we should resort to the old way of defining villages and make typologies based on the physical structure of their tofts, such as round villages, row villages, group villages etc, which is rarely fruitful. What I mean is that we should pay attention to the prehistoric village, the regulated medieval village, the unstructured village, the fiscal village etc. I do not intend to make a complete list of all denotations that are possible; I just want to point out that there is a need for a more nuanced terminology.

In the present work, I will show that there are many historical villages on Gotland, which are today not covered by an adequate terminology. Just to call them villages will probably only confuse matters even more, therefore, I will here introduce the term **generic village,** in contrast to fiscal villages. A fiscal village consists of two or more farms with a common name, treated as a unit in fiscal records, such as old cadastres and tax records. When using the term generic village, I mean two or more farms that have a common origin or have some other kind of common history of development, thus signalling cooperation in the landscape and social bonds. The generic villages are identified by the criteria listed in Erixon's definition above. Our definition is thus a *functional and/or social aspect* of the concept and does not include any fiscal dimension, which will be discussed more at the end of the book.

The fiscal unit on Gotland is the farm, but it is obvious that the same processes, which created the villages on the mainland, have also occurred on Gotland, but in an unregulated way. The villages on Gotland have been social and functional constructions, based on kinship and the actual needs of the local community. It was the local community and requirements of local society, which governed the processes. No royal or aristocratic authorities and external landowners have interfered in the processes, until very late in history, which will be discussed after the analyses are presented. To be bold, I could do some counterfactual history making, and state that if the Gotlanders had not *'...behöllo gutarna alltid seger och sin rätt.'* (*...kept their victory and their rights*.), as it is expressed in the *Gutasaga*[8], when the Gotlanders fended off attacks on the island, and instead had been fully incorporated in Sweden at an early stage, villages would have existed on Gotland in the same manner as on the Swedish mainland.

8. The *Gutasaga*, is a historical and mythical relation attachment to the Guta Law, describing the first settlers and early history of Gotland, before the Christianization.


GÖTALANDS ANDELSSLAKTERIFÖRENI

Chapter 2
Previous research

Gotland is one of the most researched areas in Scandinavia and many scholars have presented different models and ideas of the settlement structure and development of the cultural landscape. I have chosen to divide the presentation of the research history into two parts, and present the different ideas concerning the question of collaboration in the landscape and the absence or presence of villages first. After this, the different views and models of the more general development of the cultural landscape will be presented. These issues are of course intertwined, but a separation of the issues is believed to make a better structure and facilitate the reading.

2.1 The concepts of household, village and neighbourhood community (*bygd*) in Gotland research

Dan Carlsson who has probably done most research of the cultural landscape on Gotland in later times, only recognises the solitary farm (Carlsson 2007:25) and does not acknowledge villages on Gotland, except during the Bronze Age/earliest Iron Age. The clusters of Iron Age stone house foundations are to his mind either large farms or groups of solitary farms in collaboration (cf. Carlsson 1979:36, 1986:30) and relicts from an older phase. He exemplifies this with an analysis of Vallhagar. Vallhagar is by most people recognised as a village, but regarded as an exception on Gotland. North-west of the Vallhagar complex of Iron Age stone house foundations, he identifies an additional, possible settlement area, which probably is the predecessor of the mid millennium village. Carlsson suggests that at Vallhagar, the settlement did not split up in several scattered farms around AD 200, as in most other places on Gotland. Instead, the concentrated settlement just moved to a new location nearby, but with a less dense structure and the different farms were enclosed by stone walls. He interprets the stone walls as a way for the different farms to manifest their private ownership (Carlsson 1979:89). The reason villages never formed on Gotland, according to Dan Carlsson, is the low population increase. He supports this view with the fact that the number of farms on Gotland seems to be quite constant between AD 500 and 1700. The regression periods, which will be discussed in more detail at the end of the book, during the 6th century and in the mid 14th, century were not too severe, only around 10% of the farms perished (ibid:145).

Since the publication of his thesis in 1979, Carlsson's research has had great impact; without overstating, one can say that his position and view in these matters has influenced nearly all the following research and the solitary farm has been seen as the only type of settlement structure on Gotland.

However, in older research concerning Gotland, the term village is often used to define some types of settlement structures. John Nihlén was one of the leading scholars in Gotland research before the Second World War. Through surveys and excavations, he contributed largely to a more comprehensive picture of the spatial structure and the extension of the Iron Age stone

Opposite side: Dr John Nihlén, who is one of the esteemed scholars in settlement research on Gotland. Here, at an excavation of the main square in Visby 1924. Photo by J. Fardelin

house foundations. In the publication *Gotländska gårdar och byar under äldre järnåldern* (Gotlandic farms and villages during the early Iron Age), from 1933, he analyses and presents all the known stone house foundations of the time, which were around 1 100. He published the book together with the Art historian Gerda Boëthius, but it is clearly stated who wrote what, so I will refer to them separately.

Nihlén uses the concepts of solitary farm, village and *bygd* (neighbourhood community) to describe the different cluster levels of Iron Age stone house foundations. Nihlén divides the solitary farms into one sub group, which is the large farm with many households. The villages are divided into three different types; long villages, circular villages and closed villages[1].

Nihlén (Nihlén & Boëthius 1933:33) defines the neighbourhood community (*bygd*) as: *'...grupper av glest liggande gårdar, som genom vaster äro förbundna till en trolig organisatorisk enhet'*. (*Groups of sparsely lying farms connected through stone walls to a probable organizational unit*). This is more or less identical to how Widgren defines his term *hägnadslag* (enclosure district) which he uses to describe a similar situation in the county of Östergötland (Widgren 1984a:147). Nihlén points out that there are no clear boundaries between the different concepts. With the evolutionary and typological views of his time, he considers there to be several transitional types between the groups, suggesting that there is a linear evolutionary development in the types. The typological approach with its evolutionary ingredient is not fashionable today, but some other of his ideas are still relevant. The settlement pattern seen in the stone house foundations seems rather to be the result of a development over long time, displaying many different variations and is hard to describe in any general model or direction.

Nihlén describes the evolution on Gotland as developing from small isolated farms before the birth of Christ to the formation of larger farms and villages, during the Roman Iron Age and Migration period. These were knitted together into larger neighbourhood communities (Nihlén & Boëthius 1933:252). This is more or less the opposite of Carlsson's more recent view.

Figure 2.1.1. The village of Vallhagar. It is situated in the parish of Fröjel, and consists of some 24 Iron Age stone house foundations. It was totally excavated in the late forties under the leadership of Mårten Stenberger. In 1955, the excavation was published in English in two volumes, Vallhagar I & II. From Vallhagar I 1955:Map 1

Nerman also interprets the settlement structure on Gotland during the mid millennium as consisting of stone house foundation grouped to farms and villages, similar to Nihlén (Nerman 1963:20). Gunnar Fritzell (1972) supports the idea of villages during the mid millennium. According to him, after the abandonment of the Iron Age stone house foundations, these were replaced by solitary farms, in a type of structure that essentially continued into historical times (Fritzell 1972:21). Since Fritzell's text is very brief and sweeping, his arguments for such a standpoint are unknown.

1. Here are some examples of the different villages, which Nihlén identifies (Nihlén & Boëthius 1933:40-60): Long villages; Vallhagar (RAÄ Fröjel 31), Alvena (RAÄ Vallstena 53, 54, 56, 57, 58, 131 & 149), Mikelängar (RAÄ Fröjel 35, 122 & 155?), Höglundar (RAÄ Stenkyrka 52, 103 & 104). Circle Villages; Visne ängar (RAÄ Alskog 69, 71, 73,76, 78, 79 & 80). Burge (RAÄ Eksta 2, 6, 10, 200 & Sproge 37) is partly destroyed, like the village by the farm Sigers nearby (RAÄ Eksta 95 & 96). One example of a closed Village is Fallet (RAÄ Tingstäde 75).

This view is challenged by Claes Claesson and Harry Thålin, who reject the idea of villages. Instead, they interpret Nihlén's villages as *fäbodar* (mountain pasture, shieling). Moreover, many of the remotely situated Iron Age stone house foundations are interpreted in these terms. However they find Nihlén's concept of neighbourhood community (*bygd*) to be a term that best corresponds to the settlement pattern found on Gotland, but they prefer to use the term *gårdslag* (farm-groups) introduced by Sigurd Erixon in an early work (Claesson & Thålin 1940:12ff). This term means a closed neighbourhood community (*bygd*) of sparsely distributed farms, with neighbouring infields and outlying land, commonly used for pasture in an organised form.

In one of his early works, Lithberg suggests that the people on Gotland lived in large villages during the Middle Ages (Lithberg 1913:22). Exactly on what grounds or empirical data this statement rests is however unclear, but it is probably mostly based on his studies concerning different forms of cooperation in the society of Gotland, but also on the fact that villages did exist on Gotland, but not in any 'official' or fiscal sense. On Gotland, there have traditionally been several different forms of cooperative organisations between farms for different tasks, like the *bidlag* mentioned above, which Lithberg sees as reminiscences of parts of an older village organisation, which had lost its 'official status' during the course of time (Lithberg 1915:48). Lithberg intended to study this in more detail, but his premature death in 1934, stopped this. Lithberg (1932:31) finishes his last article concerning this with the phrase:

> *'Den historiska bakgrunden för denna samfundstyp och dess förhållande till de byar, som en gång tidigare synes ha funnits på ön, -dessa frågor skola bli föremål för en studie i ett kommande häfte av denna årsbok'.*
>
> (*The historical background for this type of society, its age and relationship to the village that seems to have existed on the island, will be addressed in a forthcoming issue of this yearbook*).

The type of society Lithberg (1932:25f) refers to is the idea of the settlement structure on Gotland in the 17th century, being partly made up of large solitary farms with large families organised in several households. These large families consisted of several related nuclear families; an elderly couple with their grown-up children's families, each with their own dwelling house. The farm was operated as one economical unit, with all families cooperating. The master, normally the grandfather, was the person who signed for the farm and had all the rights and obligations, like paying the taxes etc. He also redistributed the needed resources and each family's part of the yield. Lithberg is of the opinion that these multi-household farms were in many aspects comparable to villages on the mainland. He also considers that they are comparable to the situation found in Norway and Iceland and in some parts of Sweden, like Jämtland up until the 20th century. He argues that this might at least have its roots in the Norse saga times, since it is the kind of society depicted in, for example Njals Saga (Lithberg 1932:25f).

According to Lithberg, these large farms on Gotland were not endorsed by the Swedish authorities, which saw lost revenues. In their perspective, the married children should take over deserted farms or establish new ones. In different historical documents, officials from the Crown recommend these '*Stoore boolagh*' (large companies) to be broken up into several farms. In Lithberg's view, this is the main reason for the existence of the farm names with the prefixes of *Stora* (Great/Greater) and *Lilla* (Little/Lesser), and many other names with prefixes, which indicate a common genesis. However, exceptions to this rule exist. Lithberg is of the opinion that the vast majority of these names are created from the late 16th century and beginning of the 17th century, but that there is a peak after the mid 1600's, as a result of the Swedish government forcing the largest farms to be divided into two independent fiscal units (Lithberg 1932:28ff).

This view of large farms with several households is also supported by the historian Yrwing, who adds further support for it by pointing to a paragraph in the Guta Law (GL). The paragraph (GL chap. 28:8) states, among other matters, that the father is not obligated to shift his farm to his sons, but instead give them their share of the yield. This and other paragraphs clearly presuppose and support a system of large farms with several households (Yrwing 1978:169f).

These thoughts of multi-household farms are also picked up by Anders Carlsson concerning the Viking Age. He considers that there probably have been large farms, with several households, maybe as large as four households. He estimates an average of two households per farm during the Viking Age (Carlsson, A 1983 :31). Based in Sawyers thoughts, about the silver hoards being

the properties of men who did not return from looting (Sawyer 1982:143ff), Carlsson argues that the inheritance system of Gotland encouraged young men to set off on Viking raids. With the silver gathered during these raids, brothers not entitled to the farm could make themselves a future. In reality, many of them perished and this is the reason why so many hoards are still buried in the soil. If there was only one household per farm, many farms would be deserted, but with two or more households per farm, the resilience of the farm is guaranteed, in spite of the great loss of men (Carlsson, A 1983:36f). Another argument for large farms discussed by Anders Carlsson is that the production of certain kinds of fibulas could only take place at large multi-household farms, large enough to sustain specialists (Carlsson, A 1983:85).

Östergren also holds the interpretation of several households and dwelling houses on a farm, at least from the Viking Age, as plausible for some of her identified farm sites (Östergren 1989:93).

As mentioned in chapter 1, Edgren and Herschend estimates the average farm to have had around four houses and two households (Edgren & Herschend 1982:18), and Nihlén is also open to the thought of large farms with several households during the Iron Age. He sees the creation of new households in the Iron Age, as a similar process as the historical process of *partklyvning* and as an example he points to the farm Botvalde in the parish of Stånga (RAÄ Stånga 31) as being a farm with four parts (Nihlén & Boëthius 1933:37). Further, one of the greatest names in village research in Sweden, Sigurd Erixon supports the view of multi-household farms on Gotland (Erixon 1960:195).

Two my knowledge, Dan Carlsson does not mention anything about farms with more than one household concerning the prehistory. For the Viking Age he calculates the average farm to be family based with only one household, consisting of around 6-10 persons; based on his calculations of the size of arable land, this would also be the size of a mid millennium farm (Carlsson 1983a:12ff).

A scholar who at an early stage questioned Lithbergs ideas of the large family in historical times is Ivar Moberg. He concludes that the population records of the 17th century show a different picture, with low birth rates and few people, and that the small amount of arable land per farm made large families hard to support and thus not likely (Moberg 1938:85). He sees the dividing of farms (*partklyvning*) as a late phenomenon and a process led by the farmers themselves due to an increase in population, which demands more land and farms. He refers to official reports from the early 18th century describing a rapid increase in population (Moberg 1938:82).

Later Sven-Olof Lindquist presented arguments similar to Moberg's. Calculations show that in the in the 17-18th century, Gotland farms were about twice the size in potentially arable land, but they only had half the acreage of tilled land and meadows in comparison with the agricultural area of Falbygden on the Swedish mainland. This indicates a low degree of utilisation of the arable land. The average arable land per farm on Gotland was 1.42 km^2/farm and in Falbygden 0.76 km^2/farm. This makes it difficult to support an extended family on Gotland, according to Lindquist (1987:11).

Siltberg presents further arguments in order to cast doubts on Lithbergs results. He suggests that Lithberg misinterprets the written sources he uses, which include various reports from the Danish Governors in the early 17th century, and later from the Swedish Governors of Gotland and a report from a Swedish investigation commission for Gotland in 1669. Siltberg points to the fact that these all describe the problem of deserted farms and the authors of the reports most probably exaggerated the situation to be able to present a solution to the problem. Other sources do not indicate any other circumstances on farms of Gotland than the family situations that were common at the time, which was a nuclear family (Siltberg 1986:186). Siltberg adds in a later work some additional remarks on Yrwing's support for Lithbergs standpoint. Siltberg points out that Yrwing's interpretation of the Guta law is not the only possible way to understand this source and that the archaeological evidence at excavated medieval farms does not suggest anything but one nuclear family per farm (Siltberg 2007:178).

Siltberg returns to this issue in several articles (cf. Siltberg 1990:134, 2011a:244f, 2013:199ff), where he argues that the '*Stoore Boolagh*' most likely refers to the farms with more than one part. In regard to taxation, these farms are seen as one farm, which means that the Crown misses revenues. There are however some examples of multiple farmers on one farm, but only one person is registered in the *tiondelängd* (Tithe roll) of 1614; this means that he does not rule out the possibility of some farms having had extended families, but they are probably counted in tens (Siltberg 2011a:244f, 256). His opinion is that the

people of Gotland used birth control to prevent the farms being divided. This was not always successful and as a result, some farms were divided (Siltberg 1998:79). He summarizes his position concerning the size and structure of the Gotlandic farm with these words (Siltberg 1998:78):

> '*In my view the Gotlandic farm is an enduring institution: from the Iron Age until today the farm has been occupied by one family. I hereby aim at a nuclear family of a sort that is common in many places: the family is centred around a married couple*'

This discussion on the size and structure of the Gotlandic farm was recently followed up by the historian Nils Blomkvist (2010) in a very interesting and initiated contribution. He discusses several aspects of the matter, in a similar fashion as Lithberg, but includes new angles not previously discussed. He makes one important comparison with family structures found on the eastern shore of the Baltic Sea. There are similarities between the multi-nuclear family systems often found there and the situation on Gotland, according to Blomkvist. He also discusses many different paragraphs in the Guta Law, in which some give paramount priority to male inheritance and brothers living together.

There are also paragraphs ensuring that the farms were preserved undivided on the male side, along with paragraphs prohibiting the farm to be sold outside the family. Commenting on the thoughts of Elsa Sjöholm, he states that the Guta Law is a strategy document to cope with the coeval political and economical situation. Blomkvist agrees that the Guta Law is aimed towards preserving the pure Gotlandic society threatened by foreign forces (read: Germans and the Europeanization processes) trying to take control. These are his main arguments for a modified view of the Gotlandic extended family, introduced by Lithberg. He thinks that the farms most of the time were the base for the stem family, which is similar to the biblical concept of domus (house).

Blomkvist (2010:114) cites Le Roy Ladurie's words about the inhabitants of Montaillou in the Pyrenees, to explain his view: '*För dem var familjen av kött och blod och huset av trä, sten eller klenbruk samma sak*'. (*To them the family of flesh and blood and the house of wood, stone or mortar was the same*). The large Gotlandic farm was a base and 'safe haven' for the members of the stem family to which they always could return and had a share in, without necessarily living there. He thus, to a certain degree supports the older research of Lithberg and Yrwing, but with important modifications. The flexible inheritance rules gave priority to members of the stem family and could easily be adapted to the needs of this family type. The family members could always return to the farm, in which they had rights, which led to circumstance that the Gotlandic farms could evolve into villages, but as easily revert to solitary farms if needed (Blomkvist 2010:113ff). The farm is an important aspect of a genuine Gotlandic identity, still in the 21st century, as it was in the past, according to Siltberg (2007:188). These matters will be discussed more in the final chapters.

Ersson studies the processes of *hemmansklyvning* and *partklyvning* on Gotland and concludes them to be essentially the same thing, but representing different time horizons. The process of *hemmansklyvning* results in a new name and fiscal unit and the *partklyvning* only result in a new part of a farm, but no new name or fiscal unit. In his thesis (Ersson 1974), and in a series of articles, he has indulged in different aspects of this subject, which he refers to as 'double farms' (Ersson 1977, 1991 and 1997). When discussing double farms, he means farms lying very close and/or having a name indicating a common genesis. *Hemmansklyvning* and *partklyvning* are conducted during periods of expansion, and according to Ersson they mainly occur during three phases of expansion. The first phase is a *hemmansklyvning* during the Middle Ages, which results in closely situated farms with different names but with a common origin. In phase two, farms with a common word stem in their names, using *Stora* and *Lilla* (Greater or Lesser) as prefix, or that use some other kind of prefix with a common word stem, as in the names Bäntbingels and Nybingels, are the result of a *hemmansklyvning* in the late Middle Ages until the 1500s. Finally, a third phase, the *partklyvning* started in the late 1500s and resulted in the division of farms, but no new names or fiscal units were created (Ersson 1997:273). Ersson suggests different dates and reasons for the division of the *Stora* and *Lilla* farms than Lithberg. Strangely enough, Ersson does not refer to, or comment Lithberg's article from 1932 and he also relies on other sources.

Ersson sees the first phase of expansion as a colonisation where new or more peripheral areas were put under the plough, which is often referred to as outward colonisation (Ersson 1974:44). The two last phases are inner colonisations due to lack of new arable land (Ersson 1977:12), similar to the view of Moberg. Inner colonisation means that new farms are estab-

lished in the free space between already cultivated land. But according to the study by Lindquist, referred to earlier here, the degree of cultivation and utilisation of the arable land on Gotland in the 17th century was comparably low (Lindquist 1987:11); therefore, nothing points to this being the reason, which could support Lithberg's statements.

As will be discussed later, Ersson's methods for dating the establishment of farms are also a bit problematic, which makes his conclusions uncertain in this respect. Ersson analyses some aspects of the spatial distribution of the farms in the three different colonisation phases he identified. He measures the distance between the different farms tofts in the double farms and finds some clear differences between the northern and southern parts of the island. In search for an explanation to the differences, he tests different variables, like soil types, farm size etc. but finds none (Ersson 1977:12ff).

Some scholars, studying Gotland have launched alternative interpretations of both the social and settlement structure on Gotland, which to some degree involves how the groups of farms, identified by Ersson are interpreted. The latest contribution to this is by Anders Andrén in 2009, who advocates that the group of farms, mainly those situated by the churches, were formed through the division of large farms, with the character of smaller estates, owned by some kind of landed gentry. Often, the same gentry took the initiative to erect the churches (Andrén 2009, 2011a, 2011b). These matters will be discussed further in chapter 7.

Enekvist follows up some of Ersson's thoughts; he studies the names of 192 double- and triple farms and finds that in 50% of the cases, one of the names is a nature- or settlement name, and the rest are names of persons (Enekvist 1992:44ff). Enekvist suggests that these groups of farms have their origin in the division of one original farm and he sets the time for it to the beginning of the 13th century (Enekvist 1992:47). A village like Norrbyn (the northern village) with seven farms, in the parish of Vamlingbo, is according to Enekvist, the result of the division of a very large farm and it is a unique feature on Gotland. Enekvist depicts the division as one occurrence that took place in history, when one farmer divided the farm among his sons (Enekvist 1992:48f). If this was the case, it must have occurred already in the Middle Ages, since the ruins of five medieval stone houses deriving from five different farms exist in Norrbyn (Gislestam 1991:234).

Östergren takes a diametrically opposed position to Ersson and Enekvist, she considers that the formation of these small village-like clusters with 2-3 farms are the result of existing farms moving together along the roads during the Viking Age/Middle Ages, which she describes as a tendency to formation of villages. However, she does not exclude the possibility that of some of the clusters are formed by the division of existing farms in a parallel process (Östergren 1989:220, 243). Her conclusions are mainly based on the distribution of the Iron Age stone house foundations and interpretations of the archaeological material found in her metal-detector surveys at the find places of Viking Age silver hoards. During the mid millennium there was still remains of a more collective organisation from the earlier periods, manifested in the vast systems of stone walls, but the last traces of this vanished when the Iron Age stone house foundations were abandoned, and a new structure with only solitary farms emerged. In historical times, the farms tofts became fixed at the present site.

Östergren believes the development to have proceeded from a more concentrated settlement structure during the mid millennium, with farms collaborating in a larger unit, similar to a *bygd*, continuing to a more dispersed settlement structure with solitary farms. The main trend in her own analyses is that the farms are more spread out and the system with solitary farms is emphasised (Östergren 1989:218f, 243).

Sven-Olof Lindquist identifies different groups of farms, mainly in an effort to define the neighbourhood community (*bygd*), in his now classical study from 1981, concerning the establishment of the parishes and the construction of churches on Gotland. To define social and functional interaction at different levels between farms, Lindquist studies the distances between farms and the mixing of parcels of land of the different farms in an investigation area in the central part of the island, consisting of 31 parishes. He works on two different levels; groups of farms, which he refers to as *gårdsgrupper* and neighbourhood communities (*bygd*). By connecting each farm to its nearest neighbour in a network, referred to as a neighbourhood network of the first degree, and then by linking these groups together in a network of the seconded degree, he identifies neighbourhood communities, *bygd* (Lindquist 1981:52ff). These neighbourhood communities correspond quite well with the parish borders, and normally a parish consists of one or several neighbourhood communities.

Lindquist defines the group of farms by several methods. One is by studying how the parcels of land of different farms are mixed. Another is through investigating the *bidlag* identified by Lithberg. Lindquist also studies the farm names indicating the position of the farm in relation to something else or the cardinal direction, like *Suder-* (south), *Norr-* (north), *Mede-* (middle) etc. He concludes that they do not refer to the position of the farm in the parish or in relation to the church, but its position in a group of farms. In such groups, farm names ending with *–by* (village) are more common, whereas farm names ending with *–gårde* or *-gårda* (-farm) are more common on farms in a solitary position. In the same fashion as Ersson, he suggests that these groups of farms are the result of an inner colonisation, further suggesting that the functional and social bonds between these farms are probably closer than normally occurs between farms (Lindquist 1981:58ff), but does not analyse it further.

Nihlén emphasises that the Swedish concept of *bygd*, is a vague concept, hard to define and difficult to separate from villages of different kinds. He describes the difference in terms of the villages as a more constant organisation among the farms situated geographically close to each other; the neighbourhood community (*bygd*) is characterised as a looser and temporary cooperation between the different villages and farms (Nihlén & Boëthius 1933:61). However, he does not explain how this is visible in the archaeological material. He links the different concepts to the texts of Caesar and Tacitus, mainly the description made by the latter of how the Germanic tribes were organised in *familia*, *vicus*, and *civitas*. The *familia* is the farm, the *vicus* is the village and the *civitas* is the neighbourhood community (*bygd*), which is a tribal area. He sees this as a stage in the evolution of society. In the mid millennium, Gotland was not yet unified and the different tribes were still separated into independent competitive neighbourhood communities. A proof of this is all hillforts, which are evidence of fierce fighting between the different tribes. He states that the most important objective for the continued research of stone house foundations must be to link these written documents concerning social and genealogical conditions to how they are manifested in the topographical system (Nihlén & Boëthius 1933:62-66). This was written in a time when the confidence in the antique written sources was much higher and source criticism not so developed.

Even if the descriptions of Tacitus and Caesars can be of interest, it is to give them far too much explanatory value to use them as Nihlén does. It is not possible to associate these descriptions directly with the settlement structures in this way, particularly not in the way he links the concept of neighbourhood community (*bygd*) to a tribe and tribal warfare. Later researchers, with a more critical attitude to older written sources, point to that fact that Tacitus probably did not have any deeper knowledge about all the Germanic areas, but was most probably confined to the tribes living closest to Limes. The vagueness of Tacitus descriptions indicates that he probably did not have any clearer picture of the conditions in the described areas, and the passage describing the social order is one of the most debated passages in his work (Önnerfors 2005:86f). Tacitus descriptions are based on a number of other written sources from the centuries before the birth of Christ (Önnerfors 2005:18f), which makes it difficult to know exactly which period in time that is described and what Tacitus' sources are. There are similarities and differences between Tacitus, written AD 98, and Caesars description of the Germanic peoples, written some 150 years earlier. The causes of these differences are hard to tell, as Caesars description is only of the peoples living in one particular area (Önnerfors 2005:88), and does not have the ambition to describe 'all' of Germania, as Tacitus has.

The agenda of Tacitus was probably not only to describe the society and ways of the Germanic society, but also to moralize his fellow Romans and stress that Rome's lost virtues are still living among the Germans, and that it is time for Rome to regain them. This also makes him an ethnographer with a hidden agenda, and thus the Germanic society he describes might be an idealistic one. He might even have used descriptions regarding some other non-Roman people and attributed them to the Germans, if it suited his purposes and made his point clearer (Herschend 2009:161ff). All this together with the fact that the Iron Age society in Scandinavia was going through rapid and far-reaching changes during the centuries around the birth of Christ, makes it hard to use Tacitus as an exact source when interpreting the Gotlandic society. It is not possible to relate it with archaeological features of the centuries when the Iron Age stone house foundations were in use. He should however not be ruled out completely as a source in these matters, but must be used with care.

Dan Carlsson (1981:13f) traces the establishment of the neighbourhood community (*bygd*) to the time when extensive cultivation was replaced by a more intensive and less mobile cultivation system. He defines these neighbourhood communities (*bygd*), which he translates to English as 'central communities', as loosely grouped farms (Carlsson 2007:25). Individual farms within a defined area are fixed in space and create the neighbourhood community (*bygd*). The later development of the cultural landscape primarily took place within these old neighbourhood communities (Carlsson 1981:13f). This process did not start simultaneously in all areas on Gotland, but was dependent on the topography. Carlsson distinguishes between *odlingsbygder* (areas with intensive cultivation in vast systems of fields) and *skogsbygder* (woodland). He suggests an earlier start of the process, during the Bronze Age in the former type of landscape and during the transition between the Bronze Age and the Iron Age for the latter (Carlsson 1981:19).

In certain cases, this view is correct, but as a generalisation for the whole island, it is not. First, there is an anachronism in the definition of the two concepts *odlingsbygder* and *skogsbygder*, since the definition seems to be based on the situation at present and not the coeval situation, which is not necessarily the same. The topography and degree of land use in an area might be different throughout the centuries, which will be analysed and discussed further in this work, when the mid millennium and the historical landscape is compared. Carlsson's whole analysis is based on a detailed study of six parishes on eastern Gotland, which are the parishes of Sjonhem, Vänge, Buttle, Ala, Kräklingbo and Anga. A generalisation from this small sample (around 6-7% of the parishes) cannot be used to represent the whole island.

2.2 Previous research concerning the development of the cultural landscape on Gotland

In this chapter, a quite extensive presentation of much of the previous research will be presented concerning the development of the cultural landscape on Gotland, from the mid millennium up until historical times. This chapter is mainly a presentation and most of the critical discussion is made in connection with the different analyses in chapters 3-5 and also in the following chapters. Previous research and views on matters concerning villages, has been discussed above.

The early Iron Age

The first Celtic fields were discovered on Gotland in 1968. As a result, a research project was started in the early 70s at the department for human geography at Stockholm University under the leadership of Sven-Olof Lindquist. This project generated much new knowledge about the cultural landscape and mainly around the Iron Age settlement structure on Gotland. The project introduced many new techniques in landscape analysis in Sweden; with an innovative combination of different methods, vast areas of fossilised fields of the Celtic field-type were found. The methods were primarily based on archive studies involving analyses of aerial photography and historical maps, in conjunction with different kinds of fieldwork in selected areas, which had been identified by the archive studies. The applied field methods mainly comprising phosphate mapping, detailed topographical mapping and pinpointed small excavations. The first area investigated with these methods was the Vinarve area in the parish of Rone on southern Gotland. This area was already known to be rich in settlement remains from the mid millennium with many Iron Age stone house foundations and stone enclosure walls. Bronze Age cairns were also known, indicating Bronze Age settlements. The discovery of the Celtic fields filled a gap in the source material and made the area suitable for long term studies.

The investigation at Vinarve covered around 130 ha. The main aim of the first years of fieldwork was to establish a chronology of the archaeological features occurring in the landscape, which Lindquist refers to as 'form elements', of which some were undated. Excavation trenches were placed at key spots to ascertain the stratigraphical relationships between different types of form elements, as well as to obtain samples for radiocarbon dating of charcoal layers to obtain a series of absolute dates (or at least tpq-dates) for the different types of form elements. The results made it possible to conclude that the Celtic fields were superimposed by and not synchronous with the stone house foundations and stone enclosure walls; thus representing an older phase of cultivation and settlement. The area had been continuously settled for a long time and the oldest traces dated to the Neolithic (Lindquist 1974:21ff).

According to Lindquist (1974:21ff), the Celtic field systems were most probably established during the Late Bronze Age-Early pre-Roman Age and were laid out in a systematic way. This was confirmed by Carlsson by his excavations at Bönde in the parish of Lau (Carlsson 1979:63). Lindquist calculated that it would have taken between 500-1 000 cattle to be able to manure the Celtic fields at Vinare. This fact, along with analogies from Tacitus descriptions of the Germanic farming, led him to the conclusion that the cultivation was of an extensive character and based on long-term fallow (Lindquist 1974:29ff.).

The analyses and conclusions drawn by Lindquist and Carlsson in the 1970s are influenced by Ester Boserups thoughts. These ideas were quite new at the time, basically stating that 'Necessity is the mother of invention', reversing Malthus' cause and effect. Instead of, as Malthus, seeing the population as dependent on the development of the means of subsistence, Boserup sees it as the independent variable, which means that when the population reaches numbers over the supporting capacity, people find new ways of increasing the agricultural production, so a larger population can be sustained. This is done by developing the agricultural technology, among other things (Boserup 1979). In this case, Lind-

quist's interpretation was that there was no need for intensive farming, because there was plenty of arable land (see Tacitus A chap 26). Lindquist depicts a development from an extensive farming system based on long periods of fallow and a surplus of land starting during the Bronze Age, when the economical unit consisted of larger groups, to a more intensive farming based on the family as economic unit, starting during the latter part of the pre-Roman Iron Age. It is fully developed during the later part of the older Iron Age (Lindquist 1974:30f), which is a view mainly shared by Carlsson (1979:154,157). Carlsson connects the restructuring of the landscape as the result of a privatisation of the infields at this time. The conclusion is based on the observation that it was the infields that were enclosed by the stone wall systems. The outlying land still consisted of commons, and was privatised at some point later, but he admits that this is hard to verify (Carlsson 1979:147).

process over several hundred years. He implicitly dates the formation of the landscape associated with the stone house foundations to early Roman Iron Age (Lindquist 1974:21). This is something Carlsson rejects. In analogy with the much later land reforms in historical times, he argues that a much quicker process took place sometime around the shift between the early and later Roman Iron Age, which is around AD 200. He also refers to parallels on the continent where the system of Celtic fields is said to cease quite abruptly (Carlsson 1979:32). One of his points is that the two different field systems, the Celtic fields and the fields associated with the Iron Age stone house foundations, exclude each other, referring to fig 5 in Lindquist 1974, as an indication of this.

Windelhed, who conducted most of the local studies at Vinarve has in many respects an opposed opinion to Carlsson and Lindquist, taking a third stand point. Windelhed's view is that

Figure 2.2.1. The map of prehistoric fields at Uggarde and Vinarve. (From Lindquist 1974: Fig 5)

Even if Carlsson and Lindquist agree on most things, there is some disagreement between them. The latter regards the development from extensive to intensive farming. Lindquist regards the development from extensive to intensive farming, arguing for a long and drawn-out

the Celtic field systems are not the result of any planned system, laid out according to certain rules at one point in time. A statistical analysis based on a scatter diagram, with all the shapes of the parcels in different areas, displays a very irregular and dispersed pattern, not in line with

the Celtic fields in Europe, in which the parcels are said to be regular in size and shape (Windelhed 1984b:181-183). His conclusion is that the parcels are the sum all of cultivation during a long time, and the Celtic fields were continuously used for a period of 1 500 years, starting in the early Bronze Age. The systems expanded over larger and larger areas as new parcels were added. This is a view shared by Gunilla Hallin (now Runesson), who makes comparisons with results from Estonia, where fossil fields do not show signs of being established according to any plan, but have evolved spontaneously over time (Hallin 2002:86).

According to Windelhed, the location of the parcels is governed by the geology and the preferences have differed over time. The best sandy soils were exploited first and towards the early Roman Iron Age, the moraine soils started to be utilised (Windelhed 1984a:97, 1984b:181ff). He also rejects the idea of the land being cultivated collectively in a larger economic unit during this period, arguing that the family was the basic economic unit (Windelhed 1984b:184; 2009:20). Windelhed argues that such a point of view is supported by the grave fields from the pre-Roman Iron Age, which are of a size indicating that they were used by one family. This is in line with results from Denmark where the family farm was the basic unit within a larger village-like organisation, according to Windelhed (1984b:184).

Concerning the line of agricultural production, Windelhed also disagrees with Lindquist, who suggests that the production was mainly oriented towards cereals during the time of the Celtic fields, whereas during the Roman Iron Age, it shifted more towards stock-raising (Lindquist 1974:30f). Based on the analysis of pollen diagrams, Windelhed comes to the opposite conclusion; stock-raising was the main activity during the period of the Celtic field and the production of cereals increased in importance during the mid millennium (Windelhed 1984b:186). Windelhed thus takes a standpoint close to Lindquist, concerning the issue of the duration of the transition period between the Celtic fields system and the mid millennium system, but disagrees concerning the social organisation and the main agricultural production.

Nylén (1976b) also discusses this problem. He argues for a slow and drawn out process, with no radical changes, starting at the turn between the Bronze Age and Iron Age (Nylén 1976b:376). This is also a shift from cereal production to keeping cattle as the main line of agricultural production, but also the shift from a centralised society to a small scale family based society. He is of the opinion that a centralised society existed in the Bronze Age, which enabled a surplus of cereals, which was needed as payment of the imported bronze. With the introduction of iron, which could be produced locally, a society based on class and hierarchical structures was no longer needed, and the larger collective system for cultivation could be split up into family based farms (Nylén 1976b:377f).

After scrutinising the results of Carlsson's excavations, Hyenstrand (1981:48) points out that several circumstances indicate that the Celtic fields and the field systems associated with the Iron Age stone house foundations, do not exclude one another. He argues further that a general dating of the large Celtic field systems to the Bronze Age/earliest Iron Age cannot be substantiated. There is thus no strong evidence supporting the opinion that the two field systems exclude each other. Hyenstrand is also of the opinion that Carlsson is contradictory as he in another chapter says that the systems of stone walls, associated with the stone house foundations, encircle the entire Celtic field system (Carlsson 1979:85).

In studying the figure Carlsson refers to, seen in fig 2.2.1, the conclusion that the two field systems completely exclude one and other is not obvious. In some parts, mostly far from the stone house foundations, the stone walls cut over field parcels in the Celtic field system, but nearer the stone house foundations, the stone walls seem to integrate quite well with the parcels, as also seen in Carlsson's own maps. This is what could be expected, since the farms of the mid millennium must have fields, which ought to be located near the farm toft. It is more reasonable to assume that some of the parcels in the Celtic field system also have been used by the mid millennium farms, while some of the parcels were abandoned. If this had not been the case, there would have been parcels belonging to the mid millennium farm, which were not integrated with the Celtic field system, but this has not been observed. Windelhed (1984a:93) also clearly states that conclusions regarding how later settlers used the fields cannot be drawn based on the material at hand. Everything points to continuity between the two time horizons. Several points support Lindquist's interpretation of a gradual change and thus a drawn out process over a longer period of time.

To my mind, Carlsson's comparison with the land reforms in historical times are not relevant, since these took place in a much more centralised and regulated society. Cassel also disagrees with Carlsson in this matter, and points to the huge social consequences and fundamental change of practice the later Swedish land reforms in the 18th and 19th centuries resulted in. To be able to conduct such a revolutionising reform, there must be a central authority strong enough to enforce it against most people's wishes, and this is a highly unlikely scenario in the Roman Iron Age on Gotland (Cassel 1998:89).

Moreover, the fact that the English enclosure movement was not a rapid process, makes Carlsson's analogy less relevant. The English process of enclosure was drawn out for several hundred of years, roughly between the 13th and 19th centuries. The process was intensified during the Tudor era and a series of Parliament acts between the years 1750 and 1860 finalised it at the end of the 19th century (Enclosure 2013). Even if the bulk of the reorganisation falls within the latter centuries, which however is debated (Wordie 1983:483), it covers a period of more than 500 years.

Carlsson connects the restructuring of the landscape, discussed above, to a shift in agricultural technique, from long-term fallow to a system of one-field rotation; this would have been linked with the construction of the stone enclosure walls and the stone house foundations. He sees these occurrences as dependent of each other and as synchronous processes. In Carlsson's view, the reason for the erection of the stone walls is the need to enclose the privatised infields (Carlsson 1986:29).

This is not necessarily the case and the idea has been criticised by Cassel (1998:88). Stone enclosure walls dating from the same period only exist in a few other areas, namely Öland, Östergötland and in some areas around Lake Mälaren. Privatisation of the infields must have taken place in other areas, which will be discussed in chapter 3, but would have been manifested in other ways. This also indicates that there is more to the stone constructions than just a practical function. It is more likely that the manifestation of the structure of stone in the landscape is dependent of other factors than merely a desire to manifest private ownership, which will be addressed in chapter 7. In other areas, the enclosures must have been made of perishable materials, most probably wood. On Öland, Fallgren sees the enclosure of the infields using stone walls as merely a practical arrangement; it was a way to use the stones cleared from the fields. Instead of depositing them in clearance cairns, they were used for building enclosure walls (Fallgren 2006:33). The same interpretation is made by Klindt-Jensen (1955a:836) regarding Vallhagar. Fallgren (2006:34f) explains the abrupt ending of some of the stone walls to be the result of a lack of stones in the area, the rest was built as a fence in other materials; it was not caused by later disturbance or the removal of a stone wall.

Cassel also has a key point regarding the shift of settlement sites, which Carlsson considers a necessary procedure for restructuring the landscape in order to apply the new agricultural techniques. Underneath 13 of the 30 excavated sites of Iron Age stone house foundations, which is approximately 43 %, traces of older settlements have been found (Cassel 1998:87). A probable Iron Age stone house foundation can be added to this, dated to Roman Iron Age/Migration period, found in 2006, at the at the site of Artilleriet 1:33 in Visby, situated right beside the remains of a house dated to pre-Roman Iron Age (Wickman-Nydolf 2010, 2011:35). This contradicts any general movement of the settlements between the two periods. Cassel thus does not see any major link between the choice of building material and other processes concerning agricultural development and the shifting of settlement sites (Cassel 1998:87f). This is an important observation. Just because a new material is introduced, this does not automatically mean alterations in settlement patterns or ownership.

During the 1970s, Dan Carlsson made several local studies and conducted fieldwork at different locations, which enabled him to apply his theory to cover the whole island. The results are published in reports and articles (Carlsson 1975, 1976a, 1976b, 1977a, 1977b, 1978) and a synthesis is presented in his thesis 1979. In this exposition of previous research, I will not go in to any detail, but keep to the general conclusions and major contributions of his work. Many aspects of his work will be discussed in conjunction to the analyses made in chapter 3 to 5. His theoretical foundation is of a functionalistic nature and his general conclusions are in line with Boserups thoughts (Carlsson 1979:23ff). He suggests that there is a constant growth of the population, which forces the agricultural society within a given territory to expand to poorer and poorer soils; this eventually leads to subsistence

problems. Due to the conservative nature of the peasant society, counter measures in the form of reorganisation and introduction of new production facilities were not taken until a crisis was at hand. A situation that might trigger a crisis could be some years of failure of the crop, maybe due the weather. After the crisis, a reduction of the population or decrease in the population rate might occur. Crises may lead to change of the production system and/or production facilities. Carlsson regards the long-term development as a series of crises, each time leading to development of technology and social organisation in order to meet the needs and leave room for an increase in the population (Carlsson 1979:27).

Carlsson presents his main conclusions as a model divided into three phases. The key point in his model is the continuity in the agricultural landscape, and that the same land is cultivated during all the phases; it is only the settlement sites that are relocated. Carlsson argues that the settlement areas during the Celtic field phase were more concentrated and presumably 'village'-like with collective ownership of land. The establishment of the mid millennium settlement structure involved a splitting of these larger collective units into smaller family based farms. These new farms were relocated and placed in such a way as to surround the old infields, which were divided between the new farms, marked by stone enclosure walls (Carlsson 1979:85). The major changes in this transition involve the intensification of the cultivation and the privatisation of the infields. The second phase lasted between AD 200 and AD 600 and around 80-85% of the farms created in this process were the predecessors of the historical farms as seen in the oldest maps of Gotland, according to Carlsson (1979:146). The transition to the third phase starts with the abandonment of the Iron Age stone house foundations. This does not mean that the farm or the land was abandoned, just that new houses, built in another fashion, were erected at a new location within the farm's territory. The reason for this second transition into the third phase is mainly the introduction of the two-course field rotation system, which implies a doubling of the field acreage and relocation (Carlsson 1979:146).

John Nihlén connects the origin of building Iron Age stone house foundations to the time when domestic iron production started under influence of the Celts, which at the time of Nihlén's work was set to around 150 BC. However, the real impetus occurred around AD 200 and the tradition to build in stone ceased around AD 500. Nihlén is reserved in his views regarding the most popular explanation of the time for the abandonment of the Iron Age stone house foundations on Gotland and Öland, which involved drastic diminishing of the population due to warfare or exodus. Nihlén underlines the source critical aspects of the fact that only two whole farms and around ten stone house foundations had been excavated until 1933, awaiting more research before making any conclusions (Nihlén & Boëthius 1933:142, 254ff). He compares the area in which the Iron Age stone house foundations of the mid millennium settlements occurred with the extension of cultivated areas and deciduous forests of his own time and notices that there is almost an exact correspondence.

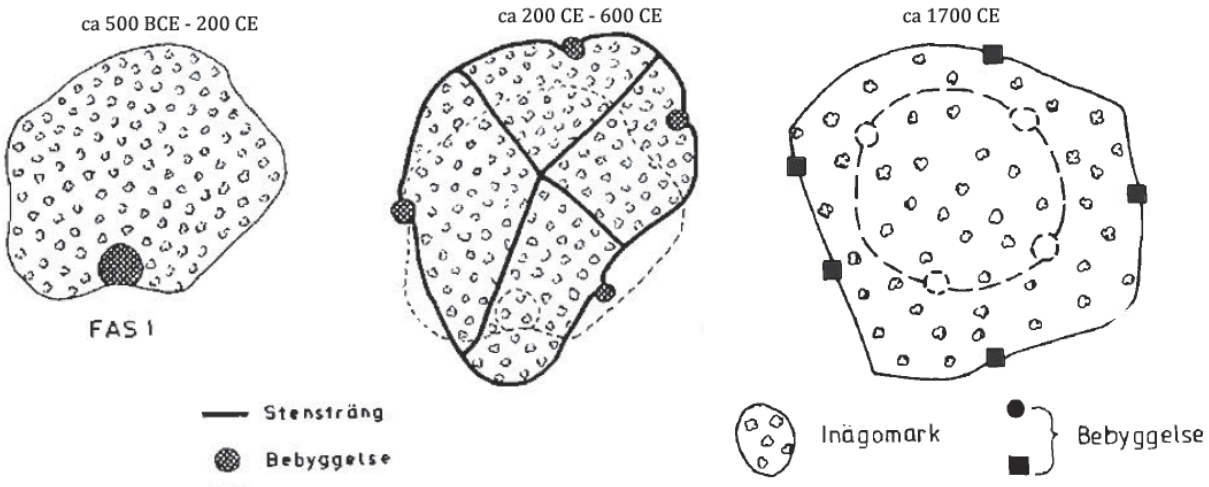


Figure 2.2.2. Carlsson's general model showing the development of the Iron Age and historical settlement on Gotland. Compiled by the author (From Carlsson 1979 fig 68 [p.86] and fig 148 [p.147]).

Only in some areas, there have there been any major changes (Nihlén & Boëthius 1933:13).

Based on an analysis of grave fields, Nihlén describes the development on Gotland as developing from small isolated farms before the birth of Christ to the formation of larger farms and villages during the Roman Iron Age and the Migration Period (Nihlén & Boëthius 1933:252), which is the opposite of Carlsson's (1979:85) view. These villages are knitted together into larger neighbourhood communities (*bygder*). This is a process developing from the individualistic to the collectivistic, which he sees as a mirror of the social and political process, which is finalised during the Christianisation in the Middle Ages. (Nihlén & Boëthius1933:252).

The abandonment of the Iron Age stone house foundations

The abandonment of the Iron Age stone house foundations is a much-debated issue, which will only be described briefly here. Many scholars have seen the abandonment of the Iron Age stone house foundations as a result of war and major catastrophes, leading to extensive devastation of the settlements and a decline in population. One fact supporting this is said to be the legendary narrative of the *Gutasaga*, which describes an exodus from Gotland when one third of the population was forced to leave the island due to overpopulation.

One chief advocate of these explanations is Birger Nerman. According to Nerman, several changes are seen in the archaeological material between AD 475 and AD 550. Even if the types of graves remain the same, there is a drop of around 50% in the number of graves dated to period. He also refers to the increase of finds of gold depots during the same period (Nerman 1963:19f) and he suggests that most hill forts probably were from this period. He links this to another part of the *Gutasaga*, mentioning the incorporation of Gotland in the realm of the *Svear*. This affiliation is seen in the change of local burial customs and artefacts on Gotland after AD 550, influenced by the regions around Lake Mälaren (Nerman 1963:21ff).

This direct connection between the exodus narrative of the *Gutesaga* and any archaeological evidence is criticised by the historian Lauritz Weibull (1963), who in an essay accounts for the origin of the exodus tale. According to him, it is a tale that was spread across Europe from the convent of Monte Cassino, in present day Italy, in which a scholar, Paulus Diaconus, in the 8th century accounted for the history of his people, the Longobards. They are said to be descended from a Germanic tribe on the island of Scandinavia. The tale is found in many versions across Northern Europe after 8th century; he argues that it has no roots in any local Gotlandic folklore, but it is just a transposition added to the *Gutasaga*, without any connection to actual events (Weibull 1963:29ff).

Mårten Stenberger (1933, 1955c) advocates an explanation of the abandonment of the Iron Age stone house foundations on both Öland and Gotland, involving warfare and destruction. His main arguments include the hoards of gold, which he considers to be buried to avoid looting, but also the fact that many of the excavated house foundations show traces of being destroyed by fire. This did not necessarily occur at one single point in time, but there was a longer period of crises and warlike conditions, which happened all over Northern Europe; he points to the Anglo Saxon invasion of England and the Danish raids in Friesland, in the 5th and 6th centuries (Stenberger 1955c:1175ff). He explains the abandonment of Öland's stone house foundation in similar terms (Stenberger 1933:201-212). The abandonment of the Iron Age stone house foundations is seen as the desertion of both the settlement and the land itself, so-called *Flurwüstung*; in the Vallhagar area he interprets it as *'...the effects of the disaster were virtually total'* (Stenberger 1955c:1182).

Bertil Almgren questions why the houses were not re-erected after the mid millennium, since there could hardly have been a total annihilation. There must also have been other reasons; his rhetorical answer is that the acts of war were most probably just the last nail in the coffin of already impoverished and dying settlements (Almgren 1957:243).

The ravage of the Justinian plague is also discussed as an explanation of a major devastation, which led to desertion (Gräslund 1973:278ff).

Fritzell (1972) considered it obvious that something drastic happened around AD 500, but based on the arguments brought forward by professor Weibull, he rejects the exodus theory advocated by Nerman. Fritzell extrapolates the estimated farm size of around four houses per farm, made by Stenberger for Vallhagar, and makes the estimation that the around 1 600 stone house foundations known in the early 1970s, thus represents some 400 farms situat-

ed in villages. Since a very high degree of stone house foundations have been removed by later activities, a vast number of settlements would have been deserted around AD 500. The settlements moved to new locations and a new settlement structure with solitary farms was established. The farms have since remained at these sites and he estimates the number of farms to 1 000-1 200 at the end of the Viking Age (Fritzell 1972:21). It is not clear as to what grounds the estimation of the number of Viking Age farms is done. Fritzell thus see the abandonment of the Iron Age stone house foundations as a watershed in the settlement structure on Gotland. The Iron Age stone house foundations in the mid millennium were situated in villages, but the new structure emerging afterwards consisted of solitary farms. This new structure lasted until the 17th century, when the division of farms began.

Arrhenius brings forward climatological explanations to the abandonment of the Iron Age stone house foundations. He compared the soil types of the historical farm sites and the mid millennium settlement sites, finding large differences. Up to 80 % of the Iron Age stone house foundations are situated on clay- or moraine soils and only 20% on sandy soils, whereas the historical sites have a strong correlation to the sandy soils and especially on the banks of the former shorelines of the Ancylus Lake and the Litorina Sea (Arrhenius 1955:1062). He interprets this discontinuity as: '*A radical change in the methods of cultivation and way of life must have taken place*' (Arrhenius 1955:1062). He sees a possible explanation to this change between the mid millennium settlement areas and the areas of historical settlements; the once prosperous Iron Age Gotland fell into decay with a poorer and starving cattle stock, due to a probable increase in rainfall, which may have had drastic effects on Gotland. The geological condition on Gotland makes it vulnerable to increased precipitation, since the soils are easily saturated with water. The only cure for this was to dig ditches, which is problematic on Gotland due to the flat terrain; he also comments that the knowledge of ditching did not exist during the Iron Age. The ditching did not start until the late 18th century on Gotland (Arrhenius 1955:1062f).

Bengt Pettersson (1955) comes to the opposite conclusion and considers lack of rain to have caused the desertion of the Iron Age stone house foundations.

Anders Carlsson challenges the whole idea of any Migration period desertion and the evidence of pollen diagrams, on which assumption is mainly based, according to Carlsson. He emphasizes that a key issue concerns the point in time of the abandonment of the more remotely situated mid millennium settlements, those that are not closely situated to today's rural settlements (Carlsson, A 1983:18). According to Anders Carlsson, most scholars assume that this happened when the Iron Age stone house foundations were deserted, which occurred at the end of the Migration period, but this is not verified in any single case. He exemplifies with one of these isolated mid millennium settlements, Fjäle in the parish of Ala, excavated by Dan Carlsson. Here, settlement lasted until the Medieval crisis in the mid 14th century; it was not abandoned during any havoc of the Migration period (Carlsson, A 1983:27ff).

It is of course hard to 'prove' that a sites with preserved Iron Age stone house foundations was not settled even during later periods; settlement traces from the later periods are not easily found and if they exist, they are probably not situated at the exact same spot. This would involve removing the turf over large, most often forested areas, which probably is unfeasible.

Nylén (1962) argues that the stone house foundations started to be built some centuries before the birth of Christ (Nylén 1962:176). He does not rule out the possibility that a period of unrest and warfare played a role in the abandonment of the Iron Age stone house foundations, but hesitates as to what degree, and thus does not regard it as the principle explanation. He is sceptical to the opinions of Arrhenius (1955) and Lithberg (1913) concerning the almost complete shift of entire settlement areas after the abandonment of the Iron Age stone house foundations; he argues that it is difficult to verify in the grave material and in the gold hoards of the period (Nylén 1962:173f, 177). Few grave fields show discontinuity between the Migration period and the Vendel period, even though there is a reduction of graves from the latter part of the Roman Iron Age and Migration period in some grave fields; for instance, Havor in the parish of Hablingbo, Bjers in Hejnum, Barshaldershed situated at the border between the parishes of Grötlingbo and Fide. However, he recognises that some grave fields cease to be used before the end of the 6th century (Nylén 1962:174ff).

Nylén points to a correlation between the Viking Age Silver hoards and the find places of Roman Age gold deposits, which indicates that the settlement areas were the same in the two

periods. Seven Roman Iron Age hoards are found in the immediate vicinity of Viking Age silver hoards, and all twelve in his analysis are close to 18th century farm tofts, of which two include ruins of medieval farmhouses (Nylén 1962:177f). Based mainly on these circumstances, but also the fact that many of the excavated stone house foundations display a very poor find material, he argues that the remaining stone house foundations are the still visible traces of an impoverished part of the mid millennium settlements; only the richer parts of the settlement continued to exist. However, here all traces of the mid millennium settlement have been destroyed under the impact of ploughing. The presently remaining Iron Age stone house foundations that are still visible in the landscape thus represent only the poorer part of the society (Nylén 1962:179ff).

This is something Dan Carlsson finds unreasonable and by comparing the location of the preserved Iron Age stone house foundations and enclosure systems with the infield areas in the GM1700, he shows clearly that the same land was cultivated during the subsequent period as during the mid millennium period (Carlsson 1977a:31ff). The remaining stone house foundations represent both the abandoned farms and the farms that lived on; he calculates that about 30% of the total number of stone house foundations have disappeared (Carlsson 1979:38, 1984:134f).

Based on his studies of the settlements, Dan Carlsson argues that there was no major devastation and de-population after the abandonment of the Iron Age stone house foundations and rejects the opinion of many of the older scholars, like Stenberger, Almgren and Nerman. According to him, it was mainly a question of relocation of the farm tofts, due to other causes. He suggests that at most 10-15 % of the farms were abandoned (Carlsson, D 1977a:28ff; 1988:38ff).

For a more comprehensive account of the debate of this intriguing archaeological question regarding the abandonment of the Iron Age stone house foundations, see Stenberger 1955c, Nylén 1962 or Östergren 1981.

The later Iron Age

The opinion that the location of the farm tofts, dated to the later part of the Iron Age/Viking Age and the Middle Ages are situated at, or very close to, the tofts of the historical farms is not a new idea and has been the view of many scholars for a long time. The number of excavated houses from the Viking Age is very few, so besides graves, the source material for studies of the settlement pattern of the period primarily consists of the silver hoards and the stray finds of the period.

Lithberg (1913) argued that there was only one spatial transition of the settlements; this occurred after the mid millennium, when the settlements changed from the location of the Iron Age stone house foundations to the position of the historical farm tofts. The mid millennium settlements had their roots in the Bronze Age, or even in Neolithic times. Based on the distribution of graves, dated to around AD 600 and later, he concluded that the areas settled in his own time had been continuously settled since after mid millennium. He confirmed this with the fact that nearly all of the around 100 remains of medieval farm houses of stone, from the latter part of the 12th century, are located on or very near the historical farm houses. (Lithberg 1913:22).

Svante Arrhenius (1955) studied the phosphate content of settlements from different periods. For the mid millennium locations, the picture was blurry, since some house foundations at Vallhagar had high values and some low. Based on the generally accepted fact at the time that the Viking Age farm tofts are located in the same places as the historical farms, he sampled 63 randomly selected farm tofts in five parishes distributed throughout the island. There were very few with any high values of phosphates. In spite of the fact that this heavily contradicted his results from the Swedish mainland, where nearly all historical village sites had left traces of high phosphates, indicating Viking Age roots, he concluded that the Viking Age sites did not leave high phosphates on Gotland (Arrhenius 1955:1062). A more plausible conclusion would have been that the Viking Age sites and the historical farms are not located at exactly the same spot on Gotland.

Dan Carlsson (1979, 1984) argues that there are two general cases of settlement movement after the abandonment of the Iron Age stone house foundations. The most common is that the farm toft moved to a new location and the second is that it stayed at the same location. The first case is because of a desire to keep the location of the settlement area on the boundary between the infields and the outlying land, as discussed above. New houses where erected in

connection to the location of the historical farm. Nevertheless, due to the tendency of agricultural systems to preserve the old structures, most probably the second case also occurs; in this context, the settlement did not move far from the location of the mid millennium farm toft. He refers to Burge in the parish of Lummelunda as an example of the former and Havor in Hablingbo as an example of the latter (Carlsson 1979:146).

In a later work, Carlsson seems to emphasise that the most common case is that primarily the medieval settlement sites, but also the Viking Age sites are situated near the location of the historical farm tofts. There are also variations within the Viking Age and he argues that the settlement sites which are dated to the latter part are more often closer to the 17th century site, than those from the early Viking Age (Carlsson 2008:66). During the Middle Ages, most farm tofts were moved to their historical location, seen in the first historical maps (Carlsson 2008:88). Nihlén observes house plateaus at many sites with stone house foundations, which he interprets as house foundations for houses of a different construction and of a later date, maybe Viking Age (Nihlén & Boëthius 1933:92). If true, this would confirm Carlsson's assumption that some farms remained at the same location.

Schnittger (1915) compares the distribution of 226 silver hoards, consisting of ten or more coins, with the contemporary settled areas and finds a decided correlation; all but a few were located in the areas populated in the early 20th century. He recognises the risk for a biased distribution, due to the fact that all silver hoards were found during cultivation work, but he argues that this is still the most likely picture. He considers that the hoards most probably were buried close to the Viking Age farmhouses to escape plundering (Schnittger 1915:243).

This correlation between the location of the historical farms tofts and Viking Age silver hoards was later recognised by many scholars, such as Stenberger (1945:18). He interprets them in the same manner as the Migration period gold hoards, understanding them as hidden in times of unrest, close to the farm to hide them from looters (Stenberger 1945:13f). The analyses of both Schnittger and Stenberger are of a general character and based on studies of quite small scale maps for the entire island. Only in two areas does Stenberger make detailed studies, where he shows the correlation between the silver hoards and the historical farm tofts and the network of roads (Stenberger 1958:17, Pl. I, Pl. II).

Nihlén also analyses this issue by comparing his own map of the distribution of the Iron Age stone house foundations, Schnittgers (1915) map of silver hoards and a map from 1908 showing the then settled areas. He concludes that most of the settled areas are the same during different periods, but that changes can be seen in some specific areas (Nihlén & Boëthius 1933:16). As he puts it (Nihlén & Boëthius 1933:257): '*Settlements existed during the mid millennium period in most of the areas containing larger settlement areas (bygd) today, but not the other way around*' [translated by the author]. The meaning of this is that there were areas settled during the mid millennium, which are not settled today. He sees this as a concentration of the settlement areas, since the more remotely situated settlements at the edges of the larger settlement areas were abandoned after the mid millennium period (Nihlén & Boëthius 1933:257f).

In his doctoral thesis, Anders Carlsson has scrutinized the major views and hypotheses up to the early 1980s regarding Viking Age settlements, discussing some of their flaws. Regarding Schnittger's conclusions, he emphasises the find circumstances. Almost all hoards were found during present day cultivation work; Carlsson calls attention to the fact that the hoards only show the Viking Age settlements where they coincide with the areas that are cultivated or developed today and not the true extension of the Viking Age settlements. Nihlén's ideas about settlement patterns on Gotland, suffers from the same flaws; Carlsson recognises an important fact that the silver hoards are found in areas with more recent cultivation and the that Iron Age stone house foundations are preserved in the areas that are not heavily cultivated. The two 'maps' can easily exclude each other, but still say nothing about the changes in settlement areas, according to Anders Carlsson (1983:18).

Anders Carlsson criticises the method used by many scholars in establishing areas of settlements for different periods, in which distribution maps of different archaeological features are compared. Anders Carlsson correctly points out a fundamental weakness of the method, since most archaeological finds are found during cultivation work or development. Many distribution maps mainly show the differences in the land use of later periods, rather than the distribution of the archaeological features at hand, which applies to all types of features. He exemplifies by comparing different distribution maps from various periods, all showing similar

patterns. If ancient remains are presented on the maps, these tend to occur in areas that are not so heavily cultivated or developed; if artefacts, mostly found during tilling or land development, are shown on the map, the circumstance is reversed (Carlsson, A 1983:18f).

It must however be emphasised that the two 'maps' do not always exclude each other, since many of the Iron Age stone house foundations are preserved in areas with modern cultivation and only in some intensively cultivated areas have nearly all Iron Age stone house foundations vanished. However, Carlsson points to one of the central problems of source criticism in archaeology, which everyone is aware of, but all have difficulties with because the content of the blank areas in distribution maps is always unknown.

The first researcher to test the assumption of the relation between silver hoards and Viking Age settlements is Majvor Östergren. Besides this, her objective was to compare these locations with the locations of the Iron Age stone house foundations and historical farm tofts (Östergren 1989:19). Out of 14 excavated find places of Viking Age silver hoards, 13 contained finds indicating coeval settlement, which is 93% of the cases (Östergren 1989:51). Östergren's own metal detector investigations of 82 find places of silver hoards reveal the same high percentage; 94% are classified as Viking Age farm tofts, according to her criteria. She interprets the find circumstances as indicating that most silver hoards were not buried, but were kept within a house, maybe under the floorboards. Her conclusion is that Viking Age silver hoards can be used as a proxy for Viking Age farm tofts (Östergren 1989:62ff).

In the *skattfyndsprojekt* (The treasure hoard project), they were able to locate the find spot of 375 of the approximately 700 silver hoards found on Gotland, and Östergren believes these to be the location Viking Age farm tofts on Gotland (Östergren 1983:47, 1986:12). The only other type of Viking Age site existing on Gotland, where silver hoards are found, are harbour sites by the coast, according to Östergren. There is only one known exception, which is the hoard, found in a grave field, at Sälle in the parish of Fröjel. This is the 'exception that proves the rule', as Östergren puts it (Östergren 1989:214).

Based on her 82 surveyed areas, she identifies three different time spans for how long a farm has been located at the site. 1: Farms with continuity of settlement until historical times, which is 1700 (47 places); 2: Farms deserted before 1700 (22 places); 3: Settlements associated with Viking Age harbour sites (2 places); 4: Settlement with uncertain classification. The last class is for sites, of which there is an uncertainty as to whether it was the toft of a now deserted farm, or whether it was a previous, now abandoned farm toft, belonging to any of the still existing historical farms. With the help of the datable find material, she reconstructs series of different locations, where the farms were moved during different periods, which she refers to as 'chains of movement' (Östergren 1989:192ff).

According to Östergren, the reason for moving the buildings of farms between different locations can be explained in practical terms and is due to the increase in cultivated land. The most expansive phase occurred during the late Viking Age/early Middle Ages; during this period, the farm tofts were moved the greatest distances. The expansion does not necessarily mean that a vast number of farms were established, only that each farm increased their infield acreage (Östergren 1989:225). She makes an interesting connection with this expansion and the existence of Roman denarius in Viking Age hoards from the late 11th century and early 12th century. The reason, she says, is that during this period, the settlements from the mid millennium were tilled and the coins were found during ploughing (Östergren 1989:226). This would thus constitute a Viking Age parallel to the reason for finding silver hoards today.

Östergren makes a sample of 32 silver hoards, which she classifies in four chronological groups from the early Viking Age up until the 14th century. She measures the distance from the find place of each hoard to the nearest known Iron Age stone house foundation and historical farm toft. There is a clear trend over time. All silver hoards lay much closer to an Iron Age stone house foundation than to a historical farm toft, but the distance to the historical farm tofts decreased over time. The silver hoards with a later dating are found on locations closer to the historical farm tofts. She draws the general conclusion that the longest move of a farm toft is from the Viking Age location to the historical farm toft (Östergren 1989:196). She thus sees a stronger spatial connection between the Viking Age farms and the mid millennium farms, than between the Viking Age farms and the historical farms. She emphasises this by showing examples of mid millennium farms, lying isolated from the historical farms, which most probably were not deserted until the medieval agrarian crises (Östergren 1989:228ff).

This contradicts Dan Carlsson's view that the first farms to be deserted during the decline in the late Migration period/Vendel period were those in remote areas. Östergren's results support Anders Carlsson's view that probably no major desertion of farms took place when the Iron Age stone house foundations were abandoned. She argues that it is more a question of finding the settlement sites from the subsequent periods, which are situated close by the stone house foundations.

Östergren argues that the shift to the farm tofts found in the first historical maps began during the early Viking Age, but had its peak in the later Viking Age/early Middle Ages (AD 1050-1150). She sees several reasons for this, but major issues concern the greater impact of a central authority, the Gotlandic *Allting*[2] (All-thing), the erection of the churches and the fixation of parish borders. Another important factor was that transportation by land became more important and therefore a need to be close to roads, which finally determined the historical location of the farms (Östergren 1989:238).

Östergren summarises her general view of the development of the cultural landscape of Gotland as follows. From a more collective farming system during the Bronze Age/earliest Iron Age, a greater number of solitary farms were established during the Roman Iron Age/Migration Periods, when the Iron Age stone house foundations were built. They were deserted in the middle of the first millennium AD and were replaced by settlements consisting of only solitary farms. The historical settlement pattern was created during the Viking Age/Middle Ages, when a concentration of some degree occurred, as the farms moved together, often in groups of 2-3 farms along the roads (Östergren 1989:221, 243).

According to Östergren, almost every farm on Gotland, regardless of parish had access to silver, so the farms associated with the silver hoards do not represent any special social strata of farmers. This conclusion is based on many different facts, the prime circumstance concerns the high number of identified Viking Age harbours and trading places evenly spread along the coast of Gotland. A noticeable change in the hoards is that there is a tendency for fewer and larger hoards and that these were placed closer to the coast, from the latter part of the 11th century and the beginning of the 12th (Östergren 1989:65). This might indicate a concentration of the trade to fewer hands and a specialisation in the society (Östergren 2008:14).

Östergren points to that the analysis of all the finds at the surveyed sites with silver hoards displayed an interesting pattern; more often, the sites with later dates had a much richer find material than was the case with those of earlier date, even if find places rich in finds from the earlier period also exist (Östergren 1989:52, 181f). She argues that it is not the older sites that are poor in find material but the later, especially the late 11th –and early 12th century sites that are rich in metal objects, which indicates a great wealth, almost lavishness, especially compared with mainland Viking Age sites (Östergren 1989:182). The find material also indicates that crafts such as metalworking were commonly performed at the farms; especially bronze casting (Östergren 1989:187). She also sees a chronological difference, as metalworking tended to be common by harbour sites during the early Viking Age, but at the farm sites it did not become particularly common until the later part of the Viking Age (Östergren 1989:187).

Middle Ages and early modern times

The medieval agrarian crisis and the degree of deserted farms, has only partly been discussed and accounted for by researchers dealing with Gotland, and most of their conclusions are based on the work of Ersson, who has studied this in more detail in his dissertation and in some articles (Ersson 1971, 1974, 1977, 1985, 1991 and 1997). His work will therefore be accounted for slightly more extensively. Ersson saw the lack of more detailed research for the time period and rejected the conventional view accepted at the time, that the settlement and farm structure on Gotland seen in the first historical maps was more or less completed during the Viking Age (Ersson 1974:Preface). His objective was to identify the different periods of colonisation and regression from the Middle Ages until the mid 1600s, which is the time for the first complete cadastre for Gotland (Ersson 1974:1).

He worked with a vast source material and many different methods, penetrating more or less all written sources of interest, combining them with fieldwork in some cases. The written sources are, however, scarce for the early and High Middle Ages and a fairly complete list of all the farms/farmers on Gotland was not compiled

2. The *Allting* was the highest authority and judicial body on the island, chaired by the County judge

until the end of the 16th century, and is normally referred to as the aforementioned *Husarbetsbok* (book of labour in lieu of taxes). It lists the names of all farmers/farms, who were obliged to perform labour in lieu of taxes at the State demesne. Exactly what period the *Husarbetsbok* depicts is debated and it is thus referred to under many timestamps, e.g. 1574/77, 1594 and '1608', since it is a part of the cadastre for Gotland from 1608. I will use the date established by Sture Enequist of 1557/60, which is also accepted by Siltberg (2011a:234), but Ersson sets the date to 1570s. Before this, there are only sporadic sources, mainly books of accounts from the Governors at Visborg Castle, listing some farmers delivering taxes and selling things to the castle. From the years 1485-87, only around 74 farms can be identified in Governor *Ivar Axelsson Totts räkenskapsbok* (book of accounts), according to Ersson, and in Governor *Sören Norrbys r*äkenskapsbok from 1523-24 some 563 farms can surely be identified (Ersson 1974:25f).

The first cadastre made by the Swedes after Gotland was taken over from the Danes, is from 1646, but the most used cadastre is from the years 1653-54. It has two parts of which the *Revisionsboken* (Book of Statement) of 1653, referred to as Rev1653, is often used by researchers, since it has the most comprehensive description of the farms. The Rev1653 lists all farms and their acreage of fields and meadows, along with many other resources and the farms are evaluated and ranked according to two different fiscal measurements, *marklej* and *mantal*. *Marklej* is an older fiscal measurement with unknown origin and *mantal* was the standard measurement used to classify farms in Sweden, and will explained more in chapter 5.

Ersson's objective in his doctoral thesis from 1974 is to make a chronology of when the individual farms were established. The dating of the farms is mainly based on the farm name. As an axiom, his presumption is that a farm gets its name when it is established, and it never changes, which is most often a standard assumption in placename research. He divides the farm names into 19 categories based on different components in the name, like the ending of the name (like; -inge, -unge, -by), if the name originates from Christian or pre-Christian times, if it is named after a trade, like Smiss (smith), names of natural features etc. An absolute chronology could not be determined using only the farm names; by applying several other variables and methods, he attempts to make a relative chronology. Most of these variables and methods are quite complex and hard to give a short account of, but I will exemplify with some. Among other points, he compared the names of the farms with the structure of the farm territory, in order to see whether or not the land of the farm is intermixed with the land of other farms. He also compares the size of the farm toft with of the age of the farm name, etc. None of his methods gives any clear results. One method that gives some results was based on comparing the different name groups with the *marklej* from the Rev1653. His criteria for defining a farm name of great age, which implies that the farm itself is old, is the average of the *marklej* in the group, the percentage of divided farms, the percentage of farms that are not 'full farms' and finally the percentage of known deserted farms in each of the different name groups (Ersson 1974:27ff).

He concludes that farms having names ending with *–inge*, *-unge* (79) and the nature names, like *Bjärs* (32) are the oldest. Farms having names starting with *Ny-* (32), that are named after trades like *Smiss* etc (94), names ending on *–arve* (43), *Skogs* or similar nature names (23) and names containing 'other cultural terms' (77) are identified as the youngest (Ersson 1974:Table 4 on p.125.). Most of the names are not possible to say much about, but the interpretation of result is that at least every other farm have roots in the Middle Ages, which he concludes (Ersson 1974:36): '*...vilket rimmar illa med alla påståenden om stark kontinuitet.*' (*...does not tally with all statements of a strong continuity*). He lists two conceivable explanations to this; one is that the Iron Age stone house foundations are abandoned quite late, near the introduction of Christianity or, secondly that a normalisation of farm names was done when the parishes were created, since the same farm name never exists in a parish.

According to Ersson, the great number of farms with young names is a proof for an extensive colonisation at the beginning and middle of the Middle Ages; very few farms were founded during the 16th and 17th centuries (1974:36ff). Based on his different methods and name chronology, he creates a more detailed time sequence of when the different farms were established is some selected parishes.

From the results, he deducts a more general model of colonisation. The central parts of a parish were colonised first, since there is a tendency for the older farms to be closer to the parish centre and the farms with younger names to be lo-

cated in the periphery, and are thus established later. However, there are several exceptions to this (Ersson 1974:36ff).

The latter part of Ersson's thesis concerns the desertion of farms in the later part of the Middle Ages and historical times. There are some concepts found in older records, which are of an unclear nature, and have been discussed in other parts of Sweden, as the traces of deserted farms. These are the real property types of *frijord* (free land), *flytande jord* (floating land), *utjord* (outlying land) and *tomt* (toft). In Rev1653 there are 18 records classified as *tomt* and 17 of these are listed as deserted, which Ersson takes as a proof for the concept of *tomt* meaning a deserted farm (Ersson 1974:57). Regarding the three first categories, Ersson highlights some interesting patterns. The *frijord* are concentrated to the area around Visby and are interpreted as land bought by the burghers of Visby. He suggests that *flytande jord* is land that is not originally part of the farm and from the beginning refers to land situated in another parish than the farm that owns it. The *utjord* can have its origin in late colonisations, constituting new farms situated on the outer edges of the cultivated area; these were never taxed and were later abandoned and eventually taken over and cultivated by other farms. Over time, the borders between the different concepts are blurred, but most probably, many of them are deserted farms (Ersson 1974:60).

To validate his hypotheses he makes some phosphate mappings in the field at the location for some of the types of real properties listed above, but cannot clearly confirm any deserted farms (Ersson 1974:62-70). In his list of deserted farms, parcels of land named *Forngård* (ancient farm) also occur; these are not included since he believes that they most often refer to Iron Age settlements.

He ends up with a list of 302 deserted farms, of which 271 are known by name. He divides them into chronological groups based on when they were most likely deserted. 123 were deserted before 1574/77; 26 during the two decades of 1560 and 1570; 61 between 1574/77 and 1585; 44 in the time span of 1585 to 1614; 14 between 1614 and 1653; and finally 34 between 1653 and 1693-1703, which is the time span between the Rev1653 and the first cadastral maps, the GM1700 (Ersson 1974:70ff). The farms deserted before 1600 have a clear tendency of being situated in the periphery. For the farms deserted between 1600 and 1700, this tendency is not as clear and for the early desertions there is also a very clear tendency for the smaller farms to have been deserted. In addition, there is a tendency that the more remote parts of the island, including Fårö, were those most affected (Ersson 1974:92ff).
In summary, his results indicate that the desertion was not insignificant during the high Middle Ages, but increased during the 16th century to reach a peak at the end of the century (Ersson 1974:89). The reasons for the abandonment in the high Middle Ages are, according to Ersson, mainly economical with changed trading routes; the trading farmers were outmanoeuvred by merchants in Visby and others. Ersson sees the political and military situations in the Baltic with unrest and piracy as the main reason for this, which led to the invasion of Gotland by the Teutonic Knights (*Tyska orden*). The crisis in the later part of the 16th century, Ersson considers to be caused by raised taxation, which can be seen in written complaints from the farmers of Gotland to the Danish king. The Governor also warns the King for the large number of deserted farms in letter from 1571 (Ersson 1974:96f).

In 1985, Ersson published an updated list of deserted farms with some amendments, which increases the number of possibly deserted farms to around 370, but since not all are known by name, there might be duplicates; Ersson believes that 329 are almost certain to be deserted farms (Ersson 1985:173). He has scrutinised the sources in search of deserted farms and his list is used by many, and has been of great importance.

Regarding Ersson's estimates of the abandonment, Östergren (1989) has a different view. She considers that the archaeological material must always be included in any calculation of the degree of desertion, and not only the fiscal and written sources. In her analysis of the 82 silver hoards distributed over the island, accounted for above, she interprets that 22 of them were situated at deserted farms and in additional map studies, she identified another 47, which sums up to 69 deserted farms. In the same areas, Ersson only identifies 32. Östergren concludes that at least in the cultivated parts of the island, the number of abandoned of farms were more than twice the 10% that Ersson estimated (Östergren 1989:209). According to Ersson, it is mostly the peripheral farms with poorer soils, which are abandoned, but this is a view not shared by Östergren. Of her 22 identified deserted farms, only four are in remote locations and most were not situated on poor soils.

According to Östergren, there is no single reason, but a number of concurrent factors behind the crises in the High Middle Ages, which also affected larger farms on fertile soils. Besides the reasons common to most parts of Europe, like the Black Death, there were reasons specific for Gotland, like the invasion of Valdemar Atterdag and changes in the trade in the Baltic area (Östergren 1989:239).

Only recently, in the work of Malin Eriksson (2010a, 2010b), the list over deserted farms has been revised for the whole island and more farms have been added. In 2010, Eriksson did a new scrupulous examination of the available sources. Today, these are often are accessible in reprints and digital versions and thus much easier to work with. This resulted in a more complete list of possible farms that were deserted, probably mainly during the Medieval period, which has been used in some of the analyses in the present work. Both Östergren and Ersson had most probably underestimated the degree of decline during the agrarian crises of the late Middle Ages, but this will be discussed in chapter 8.

The most problematic part with Ersson's work in 1974 concerns the colonisation; some of his methods in attempting to date certain events are impaired with serious flaws, which make his conclusions less valuable. Attempts to establish a detailed chronology over the colonisation and desertion based on farm names, as performed by Ersson, seems to be an uncertain method for Gotland. Ersson himself realises that the place names of Gotland are poorly researched and the origin and age of most of them are unknown. Names that are well established in time and space on the mainland are lacking on Gotland (Ersson 1974:12ff).

A peculiarity for Gotland is the high degree of farms consisting of personal names or names after trades. It is probable that in older times, many Gotlandic farms were named after their owner. One strong indication of this is the runic inscription in the church in Anga parish, *Angalistan* (the Anga list). The runic inscription is dated to the 13th century and mentions only the first name, but no farm name, of the 14 farmers, who supposedly defrayed the cost of building the church. It is unclear when the farm names on Gotland were fixed; but before this point in time, it is not unlikely to assume that many farms were only referred to by the owner's first name and thus the farms changed name with the owner. This is a view brought forward by Enekvist (1992:7). According to him, an addition was made to the first name, most often a terrain name to facilitate the identification of the right person, since many had the same first names. He gives examples like '*på burgen*' (on the hill), '*på skogen*' (in the woods) (Enekvist 1992:43f). It is hard to tell when the farm names were generally fixed on Gotland. Evert Melefors mentions that this occurs before 1450 (Melefors 1983:162), but Siltberg argues that changing the names of farms was probably easy and not too uncommon until the more strict Swedish legislation and taxation system, based on a proper cadastre, was introduced in the 1650s. Some farms on Gotland are known to have changed names as late as in the 18th century (Siltberg 1990a:255). There are some examples of notes in the text descriptions in the GM1700 maps of farms with changed names. As an example, the description of Sigvards *tomt* in the parish of Eskelhem can be mentioned; '*Siwertz tompt... i forna tider heet Wijksarwe... nu Siwerdzholm*' (*Sigvards tomt... in ancient times it was called Wijksarve...now Siwertsholm*) (Ronsten 2011b:Sigvards tomt in Eskelhem). This will be discussed more later on in this work.

When studying farm names on Gotland it is likely that many names do not reflect the establishment of the farm or settlement, but rather some special event or change in its history. It is hard to believe that names like *Stenstugu* (Stone house) or *Smiss* (Smith) have attained their name because the first settler built a stone house or was a smith. It is more likely, that this represented new events or functions of a magnitude that caused an already established farm or settlement to be given a new name; this is an idea also described by Enekvist (1992:43). Regarding the Stenstug-farms, Anders Carlsson also regards them as older farms that have changed names (Carlsson, A 1983:126).

Lindquist is critical to some of Ersson's results concerning his calculations of the number of farms around the year AD 1000, which he calculates to 765. This is not based on archaeological evidence, which indicates another picture, according to Lindquist, who thinks the estimation is far too low, which he supports by examples raised by Dan Carlsson (Lindquist 1981:47). Östergren is of the opinion that Ersson, because of his dating methods underestimates the number of farms. Ersson's underestimation is due to the fact that farms are older than their names suggest (Östergren 1989:223). This means that farms with, what Ersson states are names of a

later date, can be older than the name indicates; thus affecting the relative dating in which the farm names are compared, making this incorrect and altering the entire dating sequence for the area. In a more recent work, Ersson comments on his own methods used in 1974 and admits to the prospect of farms changing names. The reason farms change names is that the farm toft seems to have been relocated within a given farm territory several times, as Windelhed suggests, which might provoke a change in the name (Ersson 1985:174).

This finalises the exposition of previous research concerning the overall settlement development on Gotland. Not everyone, who has had an opinion about Gotland is mentioned, but most of them. Some aspects and work regarding certain perspectives of these matters are also discussed in other chapters of this book, but I hope this chapter has provided a useful and comprehensive overview of the discussions concerning these matters.

Chapter 3

The landscape of the late Roman Iron Age and Migration period

In this chapter, individual farms and villages from the mid millennium will be identified. An endeavour to predict the former extension of the mid millennium settlement areas will also be made, together with an estimation of the number of disappeared Iron Age stone house foundations. Before the analyses are presented, a presentation of some aspects of the Iron Age stone house foundations have to be done, and several source critical issues need to be discussed. The first question concerns the general dating of the '*kämpagrav*' stone house foundations, and the existence of other types of houses with stone walls. After this, the question about the presence of other types of houses without stone walls during the mid millennium will be treated along with the question of whether all the Iron Age stone house foundations are coeval, before the analyses are covered.

Stone house foundations from the early Iron Age

The oldest records found about Iron Age stone house foundations are from *Rannsakningar efter antikviteter* (A search for antiquities), conducted by vicars and other persons in authority throughout Sweden during the mid 17th century. On Gotland, reports to Stockholm from 28 parishes are published in modern times. In the report from the parishes of Alva and Hemse from 1667, one Iron Age stone house foundations is said to be the grave of '*Stråbeenz*', who is mentioned in the *Gutasaga*. One smaller Iron Age stone house foundation in the vicinity is said to contain his epée, which is a kind of sword. A couple more of the '*kämpagrav*' house foundations are mentioned; among others, one in the parish of Burs is said to contain the remains of a warrior. It is situated in a meadow called *Staffuegard* (Rannsakningarna 1969:307ff.). It is probably identical with the largest known stone house foundation, with the RAÄ-identity Burs 55. This stone foundation is 67 metres in length, and will be discussed later. Most of the reports from the vicars concern recordings of Iron Age stone house foundation were regarded as graves. As Ericus Jovenius, vicar in the parish of Barlingbo writes in July 1667 (Rannsakningarna 1969:316f.):

> *'...kalle gemene man, del Jättegraffuor, dels Kämpegraffuor. Men skijner klarliga, att det hafuer i fordom tijgh, warit, En eller flere Familiers, Ja tuiffuels vthan konungars, kämpars eller Andra förnämblige Mens begraffningz Platser, effter några hafua för någon tijdh sedan vnderstått sig att grauffa there vthj effter Skatter, och funnit menisksobeen större och Smärre'*
>
> (*...are by the common people called giant graves and are believed to be the graves of one or many families, yes without doubt; the graves of Kings, Warriors and other Distinguished Men. Some time ago, somebody dug into them after treasures and found human bones, smaller and larger.*)

The vicar Jovenius also states that they have all been enclosed by extensive stone walls, which are now fallen down. He also notes that they are often surrounded by apple trees, other fruit trees and herbs, which he believes to be planted (Rannsakningarna 1969:317), but he makes no reflection that they might be house foundations.

In nearly half of the parishes mentioned in the *Rannsakningar*, stone house foundations are described; it is clear that they fascinated and puzzled the people in earlier times.

A topographer who also mentions Iron Age stone house foundations is Hilfeling, who visited Gotland four times between 1797 and 1801, commissioned by Pehr Tham, later a leading member of *Götiska förbundet* (the Geatish Society). At first, he does not pay attention to the *käm-*

Opposite side: Aerial photo over part of the Vallhagar village, taken at the excavations in 1947 by flying officer Alstad

pagrav (Iron Age stone house foundations), as he believes they are ruins of old houses (sic!), but when he hears the folklore about them being the graves of prominent people and ancient heroes, he thinks otherwise and starts to notice them (Hilfeling band I, 1994:204). He also gets reports of finds of human bones discovered in the stone house foundations during treasure hunting, and draws the conclusion that they were enclosures around ancient family graves (Hilfeling band II, 1994:150f).

Another famous topographer is Nils Johan Ekdahl, who visited Gotland in 1826. He was the first to raise the question, whether they could be remains of ancient houses (Nordin 1886a:105). There is quite clearly a growing belief among scholars of the time that the *kämpagrav* are not graves but remains of houses. In the later part of the 19th century, the first scientific excavations are conducted and the notion that they might be the remains of ancient houses grows stronger (Nordin 1886a:111). In the 1870s, Hans Hildebrand made a small excavation of two stone house foundations at Rovalls in the parish of Eskelhem. He concludes that they indeed are house foundations, but of a relatively recent date. His date was soon questioned by Per Arvid Säve, who guessed that they probably were prehistoric (Biörnstad 1955:864).

The first more modern and scientific excavation was conducted by Fredrik Nordin in 1883. This concerned a group of four stone house foundations and other obstacles that a farmer at Mattsarve in the parish of Hörsne wanted to remove. Nordin was called in to resolve the issue whether or not they were ancient remains. He excavated parts of the foundations of the stone houses and found no human remains, but discovered burned logs and turf. He concludes that it is the remains of a burnt down houses with a roof made of turf. Among the finds were also burnt rye, pottery and animal bones (Nordin 1886a:100ff.). This strengthens him in his belief that they are remains of houses, but still he is not 100% sure, since he believes another plausible explanation could be some kind of temple or place of worship. In analogy with how the Viking Age houses are described in the Icelandic and Norwegian sagas, he dates them to the late Iron Age (Nordin 1886a:113ff.). He stipulated a series of finds that needed to be discovered in connection with the house foundations, in order to finally be able to establish whether they are houses or not. The primary criterion was to find remains of a hearth.

In 1886, he started a new excavation at Rings in the parish of Hejnum. The finds from the excavation made it clear that they were houses; two Roman denarii and a gold rod in the shape of a spiral made a more exact dating possible. Nordin concluded that the buildings were a farm and that it was not used later than the middle of the first millennium AD (Nordin 1886b:170ff). Some years later, Nordin also excavated a stone house foundation at Åby in the parish of Bro, which confirmed the results (Nordin 1890:17). During the late 1800s and early 1900s, a series of excavations of stone house foundations were undertaken to confirm the dating and increase the knowledge. For a comprehensive and thorough, but not complete, exposition of these older excavations that were conducted until the 1950s, see Biörnstad (1955).

During the decades around the former turn of the century, the interest for ancient remains increased greatly along with the insight that large, national surveys were needed, which was also initiated by the then director of the Swedish National Heritage Board, Hans Hildebrand. This led to several surveys across Sweden (FMIS 2012) and on Gotland Hans Hansson initiated the surveys (Nerman 1945:13). Over the years, they were conducted through the work of several persons, under different management and funding. Some of the surveys were closely related to, and led by, the geological surveying of Gotland that took place at the same time and some were financed and organised by *Kungl. Vitterhets Historie och Antikvitets Akademien* (Munthe et al 1922, 1923, 1924a, 1924b, 1928, 1929, 1933, 1936; Lundqvist 1940). The remains are marked in the old printed geological maps of Gotland published between 1922 and 1940. In 1922, John Nihlén commenced on a more comprehensive and uniform plan for surveying and excavations of Iron Age stone house foundations. The prime objective was to attain a comprehensive picture of their distribution, their measurements and other qualities (Nihlén & Boëthius 1933:10). All these different surveys resulted in a dramatic increase of known stone house foundations, from the 70 known by Nordin in the 1880s, to around 1 100 by 1933.

All known excavations of Iron Age stone house foundations are listed in table 3.1. This is the most complete list published and it supplements the lists of Cassel (1998:214) and Biörnstad (1955:863), by filling in the latest excavations and some older excavations, which are lacking in their lists.

Table 3.1. Excavated Iron Age stone house foundations on Gotland until 2013

Farm/place	Parish	RAÄ ID	Year	Excavator	#	Reference
Visne ängar	Alskog	71	1914	Lindqvist, S.	2	Biörnstad 1955
Boters	Anga	19	1950	Lundström, P & Biörnstad, A	1	Biörnstad 1955
Åby	Bro		1887	Nordin, F	1	Nordin 1890
Ekes	Bro	47	1906	Vennersten, O.V	1	Biörnstad 1955
Känne	Burs	55	1928-31	Nihlén, J	3	Nihlén 1932
Vidunge	Dalhem		1931	Nihlén, J	1	Biörnstad 1955
Dune	Dalhem	87	1938	Stenberger, M & Cajmatz, C.	2	Biörnstad 1955
Stjärnarve	Eksta		1910	Hansson, Hans	1	Biörnstad 1955
Svenskens	Endre	6	1911-20	Arne, T.J.	1	Biörnstad 1955
Alvena	Eskelhem		1922	Nihlén, J	2	Riksantikvarien 1923
Rowalls	Eskelhem		1871	Hildebrandt, H	2	Biörnstad 1955
Hallfrede	Follingbo	50	1954	Arwidsson, G	1	Sering 1979
Mickelängar	Fröjel	50	1935	Nihlén, J & Lundberg, E.B	1	Biörnstad 1955
Styrmansberget	Fröjel	43	1949	Lundström, P & Biörnstad, A	1	Lundström 1955
Vallhagar	Fröjel	31	1946-50	Stenberger, M et al	23	Stenberger 1955
Ödehoburga	Fårö	268	1970	Gerdin, Anna-L	1	Gerdin 1980 (1989)
Herrgårdsklint	Gammelgarn	51	1940	Stenberger, M	5	Biörnstad 1955
Smiss	Ganthem	11	1931	Nihlén, J	1	Biörnstad 1955
Havor	Hablingbo	32	197?	Manneke, P	3(5)	Nyhlén et al 2005
Stenstugu	Hejde	52	1943	Stenberger, M	1	Biörnstad 1955
Stenstugu	Hejde	33	1950	Lundström, P	1	Biörnstad 1955
Rings	Hejnum	20	1886	Nordin, F	4	Nordin 1886b, 1890
Kännungs (Saigs)	Hellvi	89	1934	Nihlén, J & Lundberg, E.B.	2	Biörnstad 1955
Annexet	Hellvi	44	2011	Widerström, P	1	Gotlands museum 2011
Mattsarve	Hörsne	7	1883	Nordin, F	2	Nordin 1886a
Snögrinde	Klinte	1	1935	Nihlén, J	1	Biörnstad 1955
Tungelbos	Levide		1918	Hansson, H	1	Riksantikvarien 1919
Nors-Tängelgårda	Lärbro		1916-17	Hansson, H & Hansson, H	1	Biörnstad 1955
Sudervange	Lärbro		1918	Hansson, Hans	1	Riksantikvarien 1919
Ringvide	Lärbro	245	1983	Zerpe, L	1	Zerpe 1985
Vinarve	Rone	250	1979		1	Cassel 1998:Appendix III
Vinkels	Sjonhem	94	1975?	Carlsson, D	1	Carlsson 1979:102ff
Homa	Stenkumla	47	1935	Nihlén, J & Lundberg, E.B.	3	Lundberg 1937
Höglundar	Stenkyrka	52, 103	1933-35	Nihlén, J & Lundberg, E.B.	5	Lundberg 1951
Lojsta	Stånga	53	1929	Nihlén, J	1	Biörnstad 1955
Annex	Stånga	48	1975	Carlsson, D	3	Carlsson 1979:73ff
Hardings	Vall		1977-78	RAGU	1	Östergren 1981
Alvena	Vallstena	90	2011	Wehlin, J	2	Wehlin et al 2011
Stenstugård	Viklau	39			1	Cassel 1998:Appendix III
Kvarteret Vävaren	Visby		2005?	Wickman-Nydolf, G	1	Wickman-Nydolf 2010
Lilla Hästnäs	Visby	35	1953-55		2	Gunnarsson 2003
Knuts	Väskinde		1973	Lindquist, M & Gerdin, A-L	1	Lindquist 1973
Mafrids	Västergarn		1919	Hansson, Hans	1	Nerman 1945
Tajnungs	Hangvar	36	2012	Carlsson, D	4	ArkeoDok 2012:18
				Grand total	**96 (98)**	

Other types of houses with stone walls and the question of the dating

Gerda Boëthius tried to perform a typological classification of the stone house foundations, sorting them into five different types, based on dimensions and construction details of the walls etc. The following types were identified (Nihlén & Boëthius 1933:78ff). I. Long halls, over 35 metres in length, with an entrance in one or both gable ends. II. Halls, around 20-30 metres in length, with slightly curved long sides and rounded corners. The proportions are close to 1:3. Entrances are in one or both ends. III. Halls like the above, but with straight corners. IV. Slightly more square buildings with proportions always under 1:2; most often, these have no visible entrances in the walls. V. L-shaped houses,

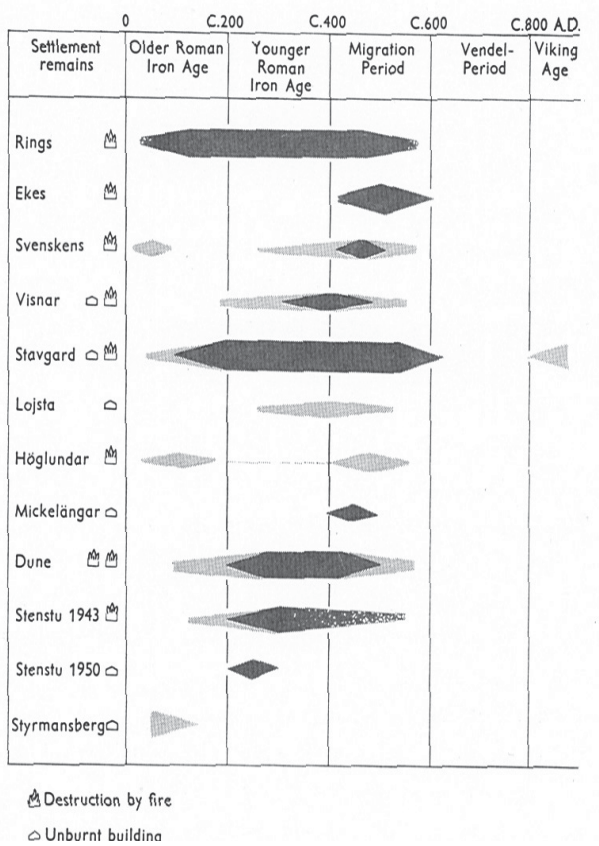


Figure 3.1a. Dates of stone house foundations according to Biörnstad 1955 fig 395 p.964

consisting of one type III and one type IV house. Since many, but not, all of these characteristics defined by Nihlén and Boëthius are noted in the text description of FMIS and can be extracted as separate attributes in the database, an analysis was made to verify if there is any pattern that can be observed amongst these kinds of attributes, maybe like the one Boëthius suggests.

A database suitable for a correspondence analysis was constructed, in which the variables length, width, direction, shape of the long sides and entrances were extracted. The result did not yield any recognisable patterns. The only interpretation that can be made is that the variables are grouped at random and do not have any correlation.

There is however a serious objection here, since the standard of FMIS descriptions leaves much to be desired. The only mandatory information for the surveyors to note was the length, width and in which direction it is oriented, this means that in most of the descriptions there are no notations of the entrances or the shape of the walls or corners. It cannot be assumed without a doubt that there were no entrances or that the walls or corners were straight if there was

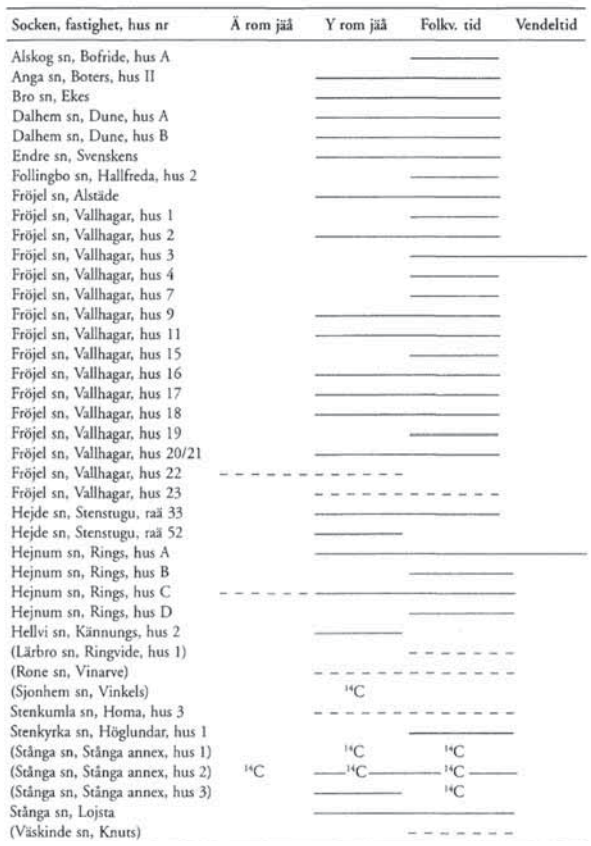


Figure 3.1b. Dates according to Cassel 1998. s.94

no notice of the opposite, or vice versa. There is, however, reason to believe that the result of the correspondence analysis is valid, since it is in line with the results from the Vallhagar excavations, where the 24 excavated stone house foundations could not be classified according to Boëthius' framework and Biörnstad regarded the typology as falsified (Biörnstad 1955:951). Klindt-Jensen (1955b) attempted to make a new

classification, based on the greater number of variables accessible after the Vallhagar excavation, but the classes become very diffuse and are mainly based on the relationship between length and width of the houses (Klindt-Jensen 1955b:1000ff) and are thus not meaningful.

There has not been any real discussion around what constitutes the remains of a farmhouse from the mid millennium, *kämpagrav*. Normally it is said that house foundations made of stone only exist on Gotland and Öland, in some parts of Norway, mainly Jæren in Rogaland, and in Northern Norway. This is only partly true, since some occasional stone house foundation have been discovered in other areas.

When the road 709 was straightened in 2006 in the parish of Vendel in Uppland, an excavated house foundation showed great similarities with the stone house foundations on Gotland and Öland, and is dated to nearly the same time span of AD 240-650 by four radiocarbon samples (Björck et al 2008:146). It was a surprise to the archaeologists since no houses like this have ever been found in the central or northern part of Uppland (Björk et al 2008:71).

The dimension of the house is around 40 x 13 m (ibid 2008:109), and it had a stone frame of drystone masonry walls constructed in double skin wall technique. In the report, this stone wall is considered to be situated outside the house itself, just surrounding it. The excavators interpreted remains of a wall, in the form of a small ditch inside the stone walls, as the actual wall of the house (Björk et al 2008:109f). However, the traces of these walls are described in such a way in the report as to resemble the descriptions of the inner tree panels of a typical stone house foundation on Gotland. In several cases, an inner wall of tree panels has been discovered in Iron Age stone house foundations on Gotland. Examples of similar walls can be seen in buildings 3 and 4 at Höglundar and building 7 at Vallhagar (see Biörnstad 1955:966 for a description). It is possible that the drystone masonry walls actually are the outer walls of the house, and thus makes it a mainland equivalent to the houses found on Gotland and Öland. The excavators make this observation in the report, but do not analyse it further (Björk et al 2008:74). The whole surrounding environment, as described in the report (Björck et al 2008:68ff), also has a striking resemblance to Iron Age environments on Gotland, with stone enclosure walls, areas cleared of stones (fossilised fields), clearance cairns and water holes.

Another type of stone foundations belonging to houses, existing in several places in Scandinavia, but mainly in Sweden, are the so-called cult-houses with stone walls. Cult houses are found in many different forms during a large part of our prehistory, but the ones made with walls of stone are not so common. The issue of dating is discussed; Fredrik Svanberg (2006:124) dates them mainly to the late Bronze Age and Helena Victor (2001:118) primarily dates them to the early Bronze Age.

As the name implies, they are interpreted as being the remains of houses with a different function than that of a dwelling house. Their construction and setting in the landscape most often differs from normal settlements, and the find material from excavations is somewhat different. There are about 60 of these house foundations known and only a few are excavated. One problem is that most of the excavations were carried out a long time ago, with poor methodology and in many cases, the documentation is also poor, or the excavations are unreported. This makes it very difficult to get a clear picture of what constitutes a so-called cult house in respect to finds and construction details (Victor 2002:66). It is often claimed that cult houses lack postholes and hearth, and much of the debate has revolved around these issues. Nevertheless, one of the most prominent cult houses at Håga in Uppland has several hearths (Victor 2002:159ff) and according to Kaul, the cult houses were constructed like 'real' houses, with walls and roof (Kaul 2006:103f). On the other hand there is, as Goldhahn (2007:284) mentions, a great spread and variation in how cult houses are constructed.

All in all, 96 foundations of stone houses have been excavated on Gotland. Around half of these (51) have been possible to date. The absolute majority of the excavations of stone house foundations were made before the introduction of radiocarbon dating; the dating thus relies on typological or other methods, in which the remains are dated relatively to other constructions. Only nine house foundations are dated through radiocarbon dating.

Biörnstad has scrutinized the material and finds from most of the excavations prior to 1950, in an effort to determine the period when the stone house foundations were used. The excavation that yielded the most datable finds was actually one of the first; at Rings in the parish of Hejnum, datable pottery, along with bronze- and iron artefacts were recovered (Biörnstad 1955:932). The general assumption is to date

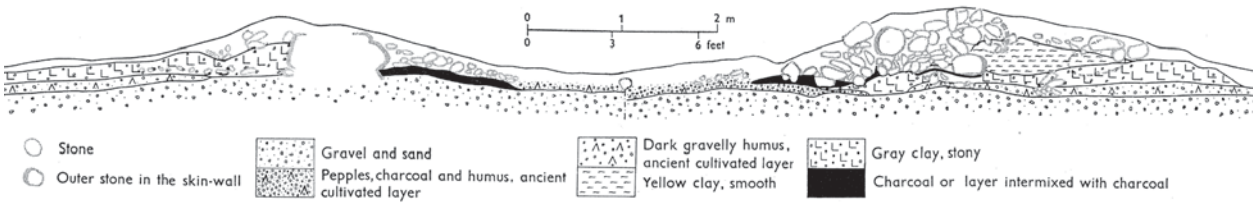


Figure 3.2. Cross section of the walls in building 4 at Vallhagar (From Kjærum et al 1955:fig 35)

the stone house foundations to approximately AD 200 - 600. This has however been called up to question by Hyenstrand (1981:48f.) and Erik Nyhlén, who raised doubts and have pointed out some stone house foundations with possible dates prior or post this period, and thus argues for a much longer period of use, starting before the birth of Christ up until the Viking Age. The excavations Nyhlén discusses are chiefly Rings in Hejnum, Känne in Burs, Styrmansberget in Fröjel and an alleged stone house foundation at Levide in Vall, as well as an excavated stone house foundation at Ödehoburga on Fårö (Nyhlén 1973:9ff, 1976a:55ff, 1981:52). In an extensive discussion of these excavations, Anders Carlsson has in a convincing way shown that the general assumption holds, or at least cannot be falsified by Nyhlén's arguments (Carlsson, A 1983:22ff.), except in the case of Ödehobuga on Fårö, which will be discussed later.

A full discussion and analysis of the dates will not be made since the results of Anders Carlsson and Kerstin Cassel are largely impeccable for the cases they discuss. Only some cases will be discussed here and their arguments concerning all the cases will not be repeated. Anders Carlsson (1983) and Cassel (1998) provide a full account of the discussion.

Since 1998, when Cassel published her thesis, additional excavations have yielded some interesting material, which needs to be added to the discussion. These are the excavations of three stone house foundations at different locations in 2010-2011; one at Annexet in the parish of Hellvi, a second at the grave-field Trullbrändan in Vallstena and the third within the expanding city of Visby, at Artilleriet 1:33.

The latter is dated to the late Roman Iron Age/Migration period by two radiocarbon tests. There are however no remaining stones from the walls, but since it is situated in what used to be a field, the excavators speculate about it being the remains of a demolished Iron Age stone house (Wickman-Nydolf 2010:19), which sounds plausible. If the cross section of the excavated building 4 at Vallhagar is studied (Kjærum et al 1955:fig 35), it can be observed that the stone walls are not dug into the ground. The stones are just placed on the surface and the bottom of the stone walls are level with the surroundings. The only stones lying on a deeper level seem to have been the big boulders, which were most likely the first to be removed when the field was cleared for modern cultivation in the 19th or 20th century. This means that no traces of the stone walls would be preserved after the turf is removed by dredge ladle excavator down to the floor level of the building or slightly under, as was the case in the excavation at Artilleriet 1:33.

The Iron Age stone house foundation in the parish of Hellvi (RAÄ Hellvi 44), excavated in 2010 by Gotland Museum under the leadership of Per Widerström, fit the profile perfectly for a stone house foundation of the regular Iron Age type, with finds from the Roman Iron Age. Here, the youngest object is dated to ca. AD 600 (Gotlands museum 2011. Dnr 2011-0279).

Not only do stone foundations of houses exist in other parts of Scandinavia belonging to different traditions and time spans, there are also stone house foundations on Gotland that are not dated to later Roman Iron Age and/or Migration period. However, these are constructed in a different way and are most often situated in different surroundings, so they are normally identified easily. They are probably not very many, but they do exist. To my knowledge, this has not been discussed earlier, but there is a need to do so, since the few existing anomalies cannot be explained away with statements that there is something wrong with the dating, or the dating is made on something older/younger not part of the house, which is often the case today.

When it comes to Styrmansberget (RAÄ Fröjel 45), I think the explanation for the dating, which is given by Anders Carlsson (1983:24) holds, and the house foundation is coeval with Vallhagar, and thus be dated to the mid millennium. This is indicated by the construction, and probably it should be seen in the same light as the foundations of houses in the hillfort at Herrgårdsklint in the parish of Gammelgarn. The stone foundation

at Styrmansberget is situated in a strategic position by or in a hillfort (Lundström 1955). Five house foundations are located within a hillfort at Herrgårdsklint (RAÄ Gammelgarn 51), which can very vaguely be dated to Roman Iron Age (Biörnstad 1955:949). They can also be seen in a similar context as other house foundations in remote barren land, as will be discussed later in one of the analyses to come.

Another of the stone house foundations that was excavated in recent years is situated in Trullbrändan in the parish of Vallstena (RAÄ Vallstena 90); the structure can possibly radiocarbon dated to 41 BC – AD 88 (cal 2 Σ). Slightly unusually, it consists of two small foundations or sections, with one wall in common; in the following, I will refer to it as one structure. During the excavation, only two test-pits were excavated close to the walls in each of the two sections. The main purpose was to date the structure and if possible, see how the walls were constructed (Wehlin et al 2011). In FMIS it is classified as a stone house foundation of the same type as the others analysed in this work, *Husgrund, förhistorisk/medeltida, Typ: Husgrund med vallformig begränsning* (*House foundation, prehistoric/medieval. Type: House foundation defined by an embankment*).

It is not included in the database for the present work, since this structure is clearly of a different type than the normal type of foundations of Iron Age stone houses. The structure differs in important aspects from these, concerning construction, as well as the placing in relation to the surrounding landscape and other archaeological features. Wehlin was interested in these stone house foundations because they differ so much from the ordinary type; his research question concerned whether this could be a cult house from the Bronze Age. This is analysed in a bachelor thesis and the conclusion is that this type of house foundation has much in common with cult houses on the Swedish mainland (Richardson 2011).

As can be seen in fig 3.3a, both the shape and position of the two sections are very odd. The walls seem to lack any skin-wall technique consisting of one outer and one inner drystone masonry wall, with a filling of dirt and smaller stones in-between. These walls are just stone boulders piled up as simple walls sharing one wall; this might possibly be considered as one house with two rooms. The entrances are also very narrow and are unusually placed in the long side of the house, near the gable-end of the house. The entrances of Iron Age stone house foundations on Gotland are almost without exceptions placed in the gable-end. In addition, the fact that this structure is placed in the middle of a grave field and in an area of barren land, far from any fertile soil, makes it unusual (Wehlin et al 2011). This is definitely no ordinary stone house foundation of the Iron Age-type, so they must represent something else. Since the excavation was so limited, no other information concerning the construction was revealed.

Another case that must be discussed is the stone house foundation at Ödehoburga on Fårö

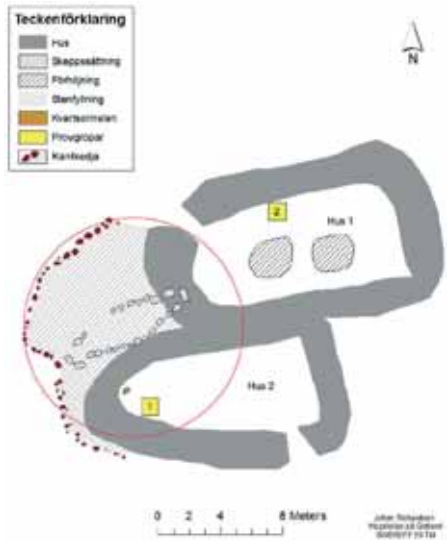


Figure 3.3a. The two house foundations in Trullbrändan in Vallstena parish (Vallstena 90). From Wehlin 2011 p.8.

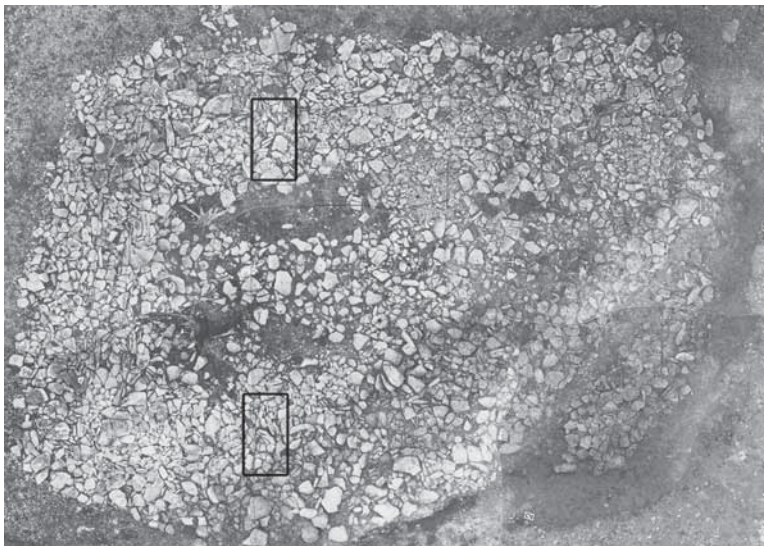


Figure 3.3b. The house foundation at Ödehoburga (Fårö 268) after the turf was removed. The approximate locations of the interpreted entrances are marked by the black squares (ATA Dnr 4990/89 & RAGU-arkivet Gotlands museum).

(RAÄ Fårö 268). It is a house foundation made of stone, measuring some 13 x 8 metres, excavated by Anna-Lena Gerdin in the 1970s. The excavation revealed one certain and one uncertain hearth, along with three postholes of a thin dimension, only 12-18 cm in diameter. A fourth posthole is probably missing. The excavator also found traces of what might have been two entrances; one in each long side, but they are very uncertain.

Two radiocarbon samples dates it to the two last centuries before Christ. There is some uncertainty of where the samples for the radiocarbon dating were taken. In the report, nothing is mentioned about where the one sample, U-752, was collected, and the other, St5541, is named K4 in the lab report. In the list of finds, K4 is marked as a charcoal sample taken from one of the entrances (Gerdin 1989). In the osteological report, osteologist Sabine Sten (Sten 1998) states that two charcoal samples for radiocarbon dating, were collected from hearth number two. This is certain to be a hearth, in the bottom there were packed stones and dirt mixed with charcoal and soot. This might be the place for the U-752 sample, but the exact spot for the samples is unclear.

Pieces of pottery were found next to the charcoal. Some of these potsherds were assembled into part of a vessel, resembling a Bronze Age type. There are many photos from the different stages of the excavation, including a series of vertical photographs.

According to the report, the walls were only partly built in drystone skin wall technique (Gerdin 1980). The stone material in the wall construction mostly consists of flakes of limestone or small stones and seems to be built in a much simpler technique. The walls are quite thin and from measurements in the vertical images, it can be established that they were normally only c. 70 cm thick, although in some sections they were thicker. There is also a band of stones running through the centre of the house foundation, parallel with the long sides, which is clearly visible in the photos. It is not mentioned in the report, and must have been removed because it was interpreted as not being a part of the construction, since the report clearly states that all stone, not belonging to a construction were removed. However, it looks like a wall that had caved in, thus dividing the house foundation in two sections, similar to the house foundation in Trullbrändan. The postholes also indicate that the poles were of very thin and weak dimensions and standing far apart. The fact that the walls must have been rather unstable, considering the small sizes of the stones, points to the circumstance that neither the posts nor the walls could have supported any kind of more elaborate roof, if it had a roof. This cannot be interpreted as an Iron Age stone house foundation of the normal type.

Anders Carlsson does not discuss this case much, but simply dismisses it with the argument that it is unclear what it was that was dated. He points to the fact that it is not uncommon for stone house foundations to superimpose older settlement layers (Carlsson, A 1983:23, Cassel 1998:87). This may of course also be a plausible explanation in this case, but since no other traces of an older settlement were found, it is possibly more likely that the finds are connected to the stone house foundation.

There are similarities between Ödehoburga and cult houses. The report does not mention any cultural/settlement layer and the few finds consist of only pottery and bones. Most of the bone material found in Ödehoburga is dominated by teeth and jaws, primarily from horse and cattle. In the cult house in Broby in the parish of Börje in Uppland, several teeth from horse and cattle were found (Victor 2002:109). At Ödehoburga fire-cracked stones are found in two areas inside the house, of which one was interpreted as a hearth.

In FMIS there is a record of a grave, supposedly existing on the same location, and around 200 metres to the SW there is a grave field and cairns. Whether they are coeval with the house-foundation is unknown. This circumstance is similar to other known cult houses (Victor 2002). Ödehoburga also has some similarities with Trullbrändan, as both house foundations have their entrances in the long sides and both can be seen to consist of two parallel rooms. According to Wehlin et al (2011:20), both house foundations are located relatively close to ship settings. My knowledge of cult houses is too shallow and this investigation is too cursory for any clear statement concerning whether both Ödehoburga and Trullbrändan are cult houses, but there is much to indicate that this is the case. There can be difficulties separating cult houses from ordinary houses, because according to Viktor, the whole idea of cult houses is that they are a symbolic and ideological representation of a dwelling house (Victor 2002:150).

There are other examples on Gotland of stone house foundations that probably cannot be referred to as Iron Age stone house foundations

representing farmhouses. When FMIS was scrutinized for Iron Age stone house foundations, records were found that in some way were odd or out of the ordinary. Many of them where visited for field inspection and some were excluded from the databases; these mainly consisted of sites close to the coast. The observation that Iron Age stone house foundations are located quite far from the coast is old and made already by Vennersten in 1902 (Nihlén 1933:20). Nylén considers that the idea of not settling by the coast was a way to prevent being subjected to plundering raids from the sea (Nylén 1973:28).

Examples of excluded FMIS records include the following sites. RAÄ Gammelgarn 143 is a solitary stone house foundation right beside a cairn, fairly close to the coast. It was so overgrown by moss, that the construction of the walls could not be clarified. RAÄ Lummelunda 9 constitutes the remains of a solitary house situated close to the shore. Vennersten mentions this as an example of an Iron Age stone house foundation close to the coast (Nihlén 1933:20), but this dating is hardly likely. The walls seem to lack any form of skin-wall or drystone technique, consisting of stones just thrown up to form a wall. In the vicinity, there are grave fields from the Viking Age – early Middle Ages (RAÄ Lummelunda 8). A third example is RAÄ Silte 14, comprising seven stone house foundations located close to the coast. Several of the house foundations are grouped like a fan around a cairn. To finalise this list of examples, we can mention a probable Viking age house foundation in Vamlingbo (RAÄ Vamlingbo 120). The walls are mostly of sand with only occasional stones. It is situated very close to the shore, at an elevation of only ca 3 metres in an area named Snäckhusviken. The *snäck* name is possibly associated with the Viking Age/Medieval military organisation called *ledungen* (Olsson 1972:208). These circumstances support a dating to the Viking Age.

The alleged stone house foundation at Vall in Levide, referred to by Nyhlén as a Iron Age stone house foundation with a late date, is more likely to be a *stenfotshus* (sill stone house) of some kind (Biörnstad 1955:966), which means that the stones are just the foundation for walls of timber or planks. This type of house starts to appear in the late Viking Age.

These are just some examples of stone house foundations that cannot be referred to as Iron Age stone house foundations of the mid millennium type. It must therefore be recognized that some of the records in FMIS of the type *Husgrund, förhistorisk/medeltida, Typ: Husgrund med vallformig begränsning* are of a different type and from other periods. There is no reason to believe that there are many of these. As stated before, the downloaded FMIS data was scrutinized and all anomalies found were excluded. Nevertheless, it is sometimes hard to judge just by reading a short text description, sometimes the surveyor himself cannot interpret what he sees; this means that there are likely to be some anomalies left. This is however always the case when working with databases like FMIS and since the number of records is so large, some 2 000, it is impossible to visit all uncertain sites to make your own opinion in the field. However, since the database is so large, minor errors and anomalies will not affect or bias the results to any greater degree. In some of the forthcoming analysis, it will be seen how little the results are biased by smaller deficiencies.

The issue of contemporaneity and the presence of other house types during the mid millennium

These issues are discussed by Cassel (1998:90f, 111f), but I do not fully agree with her conclusions, so some additional remarks must be made. She argues that not all the remaining Iron Age stone house foundations are coeval and those seen today are the accumulated number. Exactly how large a percentage she considers to have been in use at the same time is not stated. She argues that if they all were in use at the same time, the life span of a house would be 400 years, which would indeed be a very long time. However, this statement is only true if all houses were built around AD 200 and were abandoned in AD 600, which is unlikely.

Göthberg has made a calculation of the lifespan of traditionally built long houses throughout Scandinavia, which were mostly dated to the later part of the early Iron Age. The result indicates a life span ranging from 30 up to 300 years. The most common is around 100 to 150 years (Göthberg 2000:109). Settlement sites as such may have been used for a very long period, as is the case on Gotland discussed above. In Northern Germany and Holland during the Early Iron Age, settlement sites were normally used for 200-300 years and up to 400 years (Callmer 1986:202f).

The construction of the foundations of an Iron Age stone house was most probably very

time consuming, both to collect all the stones and to construct the stone walls of the houses. The life span would probably be longer than for houses in other parts of Scandinavia. The construction with relatively shallow postholes, where the post often was placed on a stone slab, probably also prolonged the lifetime of the posts. This type of posthole was often found in Vallhagar (Vallhagar I 1955:100-247). Many of the excavated houses also show traces of reconstruction and repairs. This is confirmed when the dated Iron Age foundations of stone houses are considered.

Apart from the few stone house foundations discussed earlier, with dates prior to the late Roman Iron Age, only two of the some 40 to 50 dated houses have dates that could not be extended into the migration period. Thirteen of the houses could probably be dated to the Migration period only, and the rest are dated to both the late Roman Iron Age and the Migration Period (Cassel 1998:94). This indicates a long lifespan. In Vallhagar, Stenberger notices that the great majority of finds are from the latter part of the Late Roman Iron Age and Migration period and only a small part dates from the earlier parts of the Late Roman Iron Age (Stenberger 1955a:1146). The conclusion is that the majority of the Iron Age stone houses probably were erected in the later part of the Late Roman Iron Age and were abandoned during the course of the fifth and sixth centuries, which gives them a very reasonable lifespan. Some of the early houses can have been used longer, which the data presented by Göthberg supports.

Instead of stating that the Iron Age stone house foundations represent the sum of all mid millennium farms, it is more correct to say that they represent the peak of the mid millennium settlements. More or less all Iron Age stone house foundations were probably in use at the same time and the abandonment was a gradual process, not a single abrupt event, which will be discussed in more detail in the latter part of this book. Some of the Iron Age stone house foundations were of course abandoned earlier than the peak, which is obvious in some cases where Iron Age stone house foundations superimpose each other (cf. Vallhagar in the parish of Fröjel and Höglundar in the parish of Stenkyrka). Nonetheless, these were few, although it is hard to say how many.

The other issue to discuss in this section is if there was any other type of houses, which did not have stone walls, during the mid millennium. This is very hard to tell, since all excavations of settlement sites with Iron Age stone house foundation have only involved the actual stone foundations; at the most, only extending some metres outside the walls. Excavations of Iron Age stone house foundations have never covered much of the surrounding area. One of the top items on my list of what I would like to do when it comes to archaeology on Gotland is to conduct an excavation of a suitable site, removing the turf from a larger area with a machine excavator, in order to find all surrounding constructions and date them all.

In some of the more recent excavations around Visby, extensive surfaces have been excavated like this, if not tens of thousands of square metres, then at least thousands. At Artilleriet 1:33, some 6 800 m^2 was stripped and the remains of seven houses were found. One of them was dated to the later Roman Iron Age, which is discussed earlier, and another situated close by was dated to the late Bronze Age/pre-Roman Iron Age. The rest of the houses could not be dated, but two hearths and an area with fire-cracked stones was dated to the Roman Iron Age and/or Migration Period. Activities that had been carried out in the surrounding areas were thus contemporary to the probable Iron Age stone house foundation.

Cassel gives an example from Skedemosse on Öland of late Roman Iron Age/Migration period houses without stone walls (Cassel 1998:114). The remains of three houses that she refers to were all situated in tilled fields; the photos and the excavation plans show large amounts of stones nearby all of the houses (Beskow-Sjöberg 1977:11-79). A more likely explanation is that these were ordinary Iron Age stone house foundations with stone walls, destroyed by cultivation.

Even if other house types than stone houses existed at the farms during the mid millennium, it is highly unlikely that any farms completely lacked stone house foundations during this period. The predomination of this construction is so massive and must have been filled with so much symbolic value that it is hard to see farms existing without having at least one house of this construction. This will be discussed later. I think it is safe to postulate that at least one stone house occurred on each farm on Gotland and that the number of them, combined with the sizes, can be used as an indicator of the importance/size of a farm. If there are some odd cases that happen to have a complementary building of another type of construction, it will not change the picture.

3.1. Identifying farms and villages of the mid millennium

The main criteria used for identifying farms and villages in these coming analyses, will be those specified in the definition of a village in chapter 2. These included distances, enclosure walls (fencing) and the distribution of parcels of land. The latter is not feasible to any greater extent in the archaeological material at hand. The most used criterion will be distances, but in many cases the enclosure system of stone walls are preserved and can be of great help in identifying both individual farms and villages. The geology will also be used, since it gives guidance to the agricultural conditions, and can separate or unite farms and villages by differences in the geological conditions.

In the older research, the existence of villages was recognised, but was more or less rejected in later research, as discussed earlier, which implies that the concept of village has been, in effect, absent in the past forty years of research. The earlier scholars, who recognised villages, mainly defined the different concepts by how many stone house foundations were placed together at different distances. Larger and more concentrated clusters of house foundations were recognised as villages. According to Nihlén a few house foundations close together defines a farm. More house foundations define a large farm or a small village. Several groups of house foundations lying close to each other can also define a village, or if there is a slightly greater distance between the houses, this may be termed a neighbourhood community (*bygd*). The general principle of this is correct, since the only way to identify social relationships and different degrees of interaction in an archaeological material of this kind, without excavations, is by distances; but maybe not exactly according to Nihlén's method. The analyses will start by identifying farms, however. This has in more recent years, also been done by others, which will first be discussed.

Dan Carlsson (1979) does not clearly state it, but judging from his examples, the systems of stone enclosure walls play a key role in identifying the different farms. Stone house foundations linked together by an enclosing stone wall are defined as belonging to the same farm. This results in farms in which the buildings may be rather spread out, with distances of up to more than 300 metres between the individual buildings of the farm. Carlson explains this with that all house foundations are not coeval, but represents different phases of the farm. An example of this is seen in figure 90 in Carlsson 1979. Carlsson's definition of a farm is quite vague and states (Carlsson 1979:91): '*A farm is here denoted as a number of houses in connection to stone enclosure walls, which enclose a piece of land, the infields*' [translated by the author]. He emphasizes the difficulty in identifying the separate farms in groups of stone house foundations, especially in situations where stone walls are lacking (ibid 1979:91). In the example above, a more reasonable explanation is that there are more farms than Carlsson suggests

Based on a subset of Iron Age house foundations from six parishes, he calculates that a farm consists of 1 to 6 house foundations with a mean value of around 2.9 house foundations per farm.

In a one-year master's paper, which can be seen as a pilot study to some aspects of this work and is based on my databases, Nilsson (2011) uses a fixed distance between house foundations to define a farm. The distance of 80 metres between the centres of each house foundation, is based on a few examples from Danish and Swedish settlement studies. With this, strict geometrical method, he reaches an average of 1.7 house foundations per farm (Nilsson 2011:18ff). It also results in many extremely large farmsteads and implies a stratified society, which I do not think is correct. The layout and sizes of the house foundations are not considered by Nilsson.

The identification of individual farmsteads must be based on several parameters and be accompanied by a discussion of the social structure and ownership and land usage, considering whether the land was privately owned, or common and jointly owned. Dan Carlsson (1979), who uses the system of stone walls enclosing the infields in his definition of a farm, advocates a family based farm, in which each family owns and cultivates their own land. He considers that

the clusters of house foundations represent an older, collective, settlement pattern that only partly transforms to the new family based model (Carlsson 1979:86ff). This new pattern occurs around the shift between early and late Roman Iron Age, around AD 200. The settlement also moves from the centre of the infield area to the outer edges. The same areas were used for infields, but under new forms and with new location of the farm tofts (Carlsson 1979:85ff, 121).

The introduction of property rights to land

When dealing with issues of how land was controlled and of the right to land of different persons or groups, the concept of ownership and landowning is an unsuitable and too narrow term to use. Mats Widgren advocates the concept of property rights instead and exemplifies with a definition from an anthropological dictionary (Widgren 1995:6):

> *'Property: In modern capitalist society the popular conception of property is that of a relationship between a person (the owner) and a thing (that which is owned). In fact the extreme development of private property and 'absolute property', the right to dispose of property in the manner in which the owner decides have obscured the true nature of property in all human societies. It is not in fact a relationship between a person and a thing or things but a relationship between persons which is expressed in terms of rights over things. Property itself has no meaning except as the right of an individual or group to exclude others from access to, use of or control over certain items or commodities. In this sense and viewed in a comparative perspective, property rights are extremely variable and take many different forms. In fact absolute property is rare even in modern society, as there always exist certain legal and administrative limitations as to the manner in which the owner may employ or dispose of that which is owned'.*

Janken Myrdal is very critical to the use of the term property rights, since it is given a very wide definition in the economical theories of the so-called property rights school. Myrdal advocates the term right of disposition instead (Myrdal 1996a:101). I will not use the term property rights as it is defined by the Property rights school, but instead like the definition above.

As in so many other matters, an evolutionistic view was for a long time prevalent also in this issue. Communal ownership was considered as the original form of property right, with its roots in an ancient Germanic form. The source of these thoughts and conclusions was interpretations of the medieval Swedish regional laws and other laws, along with the writings of Caesar and Tacitus. The only possible owner of land was a family or clan, denoted *ätt* in Swedish (Holmbäck 1920:5ff). An indication of an original communal family or clan (*ätt*) right of ownership was the word *bördsrätt*, (birthright) in the regional laws.

It has now long since been clarified that the notion of collective use of land in many European medieval villages are not relicts of this ancient Germanic communal system, but they are the result of a long development, and many times late introductions. This makes it clear that any one-way development, in an evolutionistic sense, from communal to individual is hard to support (Widgren 1995:9f; 2006:59). Myrdal points to the established relationship between the development and regulation of common rights and the introduction of the regulated village. By regulating the different landowners' rights and obligations in common utilities, like ditches etc., the investment was secured. According to Myrdal, the correlation between the competition over land and the degree of investments in it, on the one hand, and a more well defined and articulated right of disposition to land on the other, is so frequent that it can be regarded as conformity to law (Myrdal 1996a:105f).

The excavated Danish so-called *vandrende landsbyer* (wandering village), which start to appear in the late Bronze Age and early Iron Age, have been analysed regarding property rights. It is believed that the land was commonly owned, but each farm has had individual user rights, and the cattle were probably owned individually. The large areas of Celtic fields and parcels in Denmark and Gotland are also interpreted in this manner, with individual property rights under strict control within a village community. A similar system is suggested for the vast areas of clearance cairns found in the southern parts of western Sweden, but instead of a controlling village community, the control was exercised by kindred groups. These systems show many similarities with the Celtic fields found on Gotland,

but have later dates, to the period of around AD 200 – 400. In these parcelled systems the demarcation between the parcels, is not only a result of the technology that was used, but was also property boundaries for the user rights to the land (Mascher 1995:43ff). Widgren supports the idea that a boundary between several users becomes a mean to regulate access to land and is a part of the social relations of production (Widgren 2006:59f).

Around AD 400, large areas in which the land is divided in band parcels start to appear in the highland areas of southwest Sweden. Metrological analyses confirm that they are laid out according to specific principles, based on known measurement units, like the ell and feet. Since almost all of the cultivated land is covered with these band parcels, it is obviously the shortage of land, which has motivated the planning as a means to utilise the land efficiently. Masher suggests this to be the start of a more institutionalised landowning, but she points out that it does not necessarily mean the introduction of full private ownership (Mascher 1995:49ff).

Frands Herschend comes to a similar conclusion by analysing the section of the Beowulf poem, in which the King grants Beowulf a measured amount of land (7 000) as a reward for rendered services; this shows that land, to some degree was a commodity that could be transferred in different ways. He draws a parallel to areas with Iron Age stone house foundations on Öland where the land bounded by stone walls appears to be measured and laid out according to an established metrological system. According to Herschend, this suggests that property rights most probably could be transferred on Öland in the same fashion. Herschend points out that it was probably not uncontroversial to give away land in 7th century England and it was not formally accepted until the 11th century (Herschend 1997:72ff). He believes the idea of landownership, by which he means the right for members of the community to use parts of its land as he or she saw fit, was a result of the contacts with the Roman world. At the same time, the right for members of the society to settle and subsist on its land was controlled and restricted (Herschend 2009:381,391).

In Roman law, ownership was more or less absolute with few restrictions and the Romans distrusted common ownership, but in Sweden, such a view of ownership was introduced very late, not until the time of the French Revolution (Bäärnheilm 1995:18). It is thus not likely that anything like this occurred in Scandinavia during the Iron Age.

According to Myrdal, there is a clear dividing line during the early Middle Ages; before the 12th or 13th century, land transaction was not easily conducted (Myrdal 1996a:102). According to Lindkvist and Ågren, the Church was one of the prime movers in introducing the view of land being a commodity that could freely be sold or given away by individuals. The rapid expansion of the church and its power was based on gifts and purchase of land. Another component in this is the introduction of bequeathing property to the church. By granting absolution and salvation in return for real property, the church increased their estates (Lindkvist & Ågren 1985:71f). In the Guta law there are special paragraphs (GL chap. 7 §1-2), restricting donations of land to the church, so only limited amounts and not whole farms could be given away.

I have to clarify that what has been discussed above concerns cultivated land, the infields. Outlying land such as pastureland and woods was still utilised as commons. In 1734, when a new Swedish law was passed, the outlying land was still mostly common land in Sweden. The farmer's property rights included not only his own house and infields, but also rights in the commons, both land and other resources. The rights to utilise commons were set at different levels. Commons could be shared between landowners at the village-, parish-, hundred- or county levels. The importance of the common resources was greater in the northern and eastern parts of Sweden, like Finland, which up until 1809 was part of Sweden. Also in the southern parts, like Skåne were they were not too few, and the importance of these resources should not be underestimated (Bäärnhielm 1995:26f).

Let us return to Mashers band parcels. Whether or not these band parcels represent common land or more individual property rights, is to my mind dependent on the size of the parcels. In studying the parcels shown in the figures in her article, they are quite narrow and the mean size seems to be somewhere around 30-40 metres by 150 metres, which would give an acreage of around one *tunnland* (4 936 m^2), but some are smaller and some larger. This is too small to being the cultivated area for more than one family, which clearly indicates individual property rights. The nature of these rights is of course very little known, but by studying the landscape of the Iron Age stone house foundations on Öland, which in some areas are better

preserved than on Gotland, it is rather clear that the enclosure walls mostly seem to encircle the property of individual farms. The picture is not so clear for the mid millennium settlements on Gotland. Dan Carlsson considers that the stone walls enclosing the land around the houses, as seen in Vallhagar is a way to manifest private ownership, which is introduced at the time (Carlsson 1979:89), although he does not discuss the nature of such rights further. To my mind, the stone enclosure walls associated with the farmland, indicate that both individual property rights (cf. fig. 3.1.11a) and common cultivation (cf. fig. 3.1.16a) existed on Gotland during the mid millennium.

To round this section of, the descriptions of Tacitus and Cæsar, can briefly be discussed.

> *The lands, allotted in proportion to the number of cultivators, are entered upon by the communities' in rotation, and these lands they thereupon distribute amongst themselves according to their estimate of individual claims. The great amount of open land at their disposal makes this task of distribution easy. The part ploughed they change annually, and there is ground over and to spare. For they take no advantage of the extent and the fertility of their soil by corresponding industry in planting orchards, and fencing off meadows, and irrigating gardens ; corn is the only return they insist upon from the earth. [Tacitus. Germania XXVI. Cited from Tacitus B:76f]*

> *They (the Germans) are not fond of agriculture, and the principal portion of their diet consists of milk, cheese, and flesh; nor have any among them a fixed quantity of territory or private property in land, but the magistrates and the chiefs assign for the term of one year to the tribes and clanships forming communities as much land as they think good, and in such place as they think good, and compel them to remove to another place the next year. [Cæsar. Commentarii de Bello Gallico VI. xxii. Cited from Tacitus B:76)*

As discussed in the second chapter, much can be said about the descriptions of the Germanic peoples made by Tacitus and Cæsar, but even a cursory examination of the text shows similarities in the described system between the two. It is not likely that the settlements of the stone house foundations in the mid millennium were those described, which indicates that there must have been a major change in the Germanic societies between the described periods and the mid millennium. The source critical aspects of the texts as historical sources, already discussed above, have of course to be considered, as well as the question of if they are applicable on Gotlandic conditions. However, I suggest that the stone material itself signals permanence and rules out anything similar to Cæsar and Tacitus descriptions of agricultural system and property rights to land, as valid for the mid millennium. Their description is however probably in accordance with how the Celtic fields where cultivated and thus describe an earlier form of organisation and system of property rights.

I think that there was a shift in how property rights to land were perceived in connection with the establishment of the mid millennium settlements, possibly under the influence of the Romans, partly in line with the thoughts of Herschend and Carlsson. It is of course impossible to say how strong these rights were. I do not believe that this included the idea of selling or giving away to outsiders. Land and farms could be inherited and be transferred to others based on kinship, but not without asking the rest of the community. I think it is more correct to say that people had rights to use land, rather than land rights, and that issues regarding this were still handled by a larger group. This also meant that a legitimate member of the society, fulfilling his obligations, could not be denied the right to settle and cultivate land.

Identifying farms and villages

For the coming analyses, different sets of data are used, but they are all subsets of a dataset created mainly by extracting data from FMIS, but with additions from other sources. It has to be recognised that FMIS is a living, dynamic database, and not final and static. It alters all the time when records are added, errors are corrected and features are reinterpreted. This makes it impossible to give a fixed number of how many there are of a certain feature, since it varies over time. The data cleansing and analysis for this project has been conducted over some time; together with an increase in knowledge, this may lead to previous classifications being found to be wrong. New information may also point to

an error in the database or to the discovery of new features. All these scenarios mean that the databases changes between the occasions when data was accessed, but since this is a small scale analysis covering the entire island, these minor changes and differences do not affect the results.

The present FMIS system available for research has some disadvantages. This has to do with the heterogeneous nature of the recorded data concerning methods and time. It has been gathered during a period of more than 70 years and was not designed for digital storage in relational databases from the start. Even though FMIS is an enormous and fantastic resource, it is not always easy to work with. Besides errors in how records are classified, the structure of the information makes it hard to master.

FMIS was scrutinised for all records concerning house foundations; all records that did not concern Iron Age stone house foundations were excluded from the accessed data. In FMIS there are many misclassifications and it has to be stressed that the short objective text description makes it difficult to judge if the record describes a Iron Age stone house foundation or not. The absolute majority of records are straight forward, but a number of records are not so clear, and a subjective classification based on the present knowledge had to be made. Some house foundations in important locations were inspected in the field to make a final classification, as described above. This rendered a database with around 1 970 house foundations extracted from FMIS. The full text description with most of the relevant attributes is stored in a single text field, and only available in the online version of FMIS, *Fornsök*. The text of each record had to be manually copied from *Fornsök* into the GIS-database of the project. In addition, to get a suitable database structure, the relevant attributes had to be separated into columns of their own.

Many of the house foundations in FMIS also lacked a more precise location and were only stated to be positioned within a larger settlement area. Most of these had a text description of their relative position, which made it possible to plot them out in an approximate position within the settlement area. Some lacked this information, but most of them were visited in the field, and plotted with an ordinary handheld GPS. For a few, it was not possible to find a more precise location; these were distributed at random within the mapped settlement area.

In addition to this, the oldest historical maps were rectified for all parishes. The maps will be described in chapter 5. In these maps, the house foundations and other major ancient remains can often be seen in the fields as patches of wasteland. In many cases, the maps dating from the major land reforms were consulted; these were the *Storskifte*s maps, mainly from the latter part of the 18th century and first decades of the 19th, and the maps of the subsequent *Laga skifte*. Almost 300 additional stone house foundations were identified in this way and plotted.

Some now disappeared Iron Age Stone house foundations was also identified from the old geological maps, on which known ancient remains were marked, prior to the national survey by the Swedish National Heritage Board which started in 1937. Many of them were already identified by the surveyors of FMIS in the 1980s and were listed in FMIS, but some additional stone foundations were identified. The house foundations derived from these historical maps lack dimensions and orientation and can thus not be used in all analyses.

In total almost 2 250 house foundations are identified from these different sources, of which some 1 800 are still preserved and visible in the landscape on Gotland.

The data model used in the GIS-software package ArcGIS, which was used in the analysis, also complicates matters. It does not allow mixed types of geometries in the same table, so the FMIS database is divided into three separate layers for the different geometry types; one for points, one for lines and one for polygons. In addition, the structure of FMIS has a fourth table for mixed types of ancient remains that are a part of a compound feature; this is called the NIL-file with the attributes, but no geometries. This table has to be joined to one of three geometry tables to be plotted, but the feature will then be plotted at the position of the compound feature, which in most cases is a polygon feature. In the case of the Iron Age stone house foundations, this is mostly a larger settlement area.

The Iron Age house foundations can be found in all of these tables. Only around 650 house foundations are depicted with a polygon, showing its approximate dimensions and orientation. In the point table, around 1 160 are found and around 60 are stored as line objects. The rest are found in the NIL-file and have no geometry, mostly classified as part of some other type of feature, many times due to input errors.

Besides the house foundations plotted from historical maps, a number of house foundations in FMIS also lack information about dimensions

and orientation. There are also damaged house foundations, which makes their true dimensions uncertain. In all, 1 624 of the house foundations can be regarded to have accurate information about the dimensions and orientation. For these an algorithm was developed, which created polygons depicting the stone house foundation with the correct length, width and orientation, at the accurate position. This enables a detailed visual analysis of how the stone house foundations are situated in the landscape and relative each other, which is not possible with FMIS as it is, and is a fundamental part in some of the analysis.

By doing basic statistical analysis and really describing the Gotland data from its own right, the result of any future comparisons will not be biased. Consequently, if the definitions and decisions are made on a solid foundation of how the Gotland material is constituted, and not based on the situation in other areas, the result will be much more comparable, as Nyhlén (1968:193, 1981:51) advocates. The comprehensive material from Gotland is exceedingly suited for this kind of analysis, even though it is not without problems and some additional source critical aspects have to be discussed first.

For the first set of analyses, the length, orientation and position of the house foundations are crucial; this means that the dataset with all house foundations with known length and polygons is the only one possible to use. However, house foundations with unknown length may occur in connection to house foundations with known length, and thus influence the result of the analysis. Since only around one hundred house foundations with unknown length are situated close to house foundations with known length at the distance chosen in the analysis, the effect is minor. The alternative to clear the database of all records affected by these incomplete records is not an option, since a large part of the database would then be lost. Especially, most of the larger groups of house foundations would be lost, where many house foundations are interconnected and one damaged foundation would exclude the whole group. For example, large parts of Vallhagar would be excluded. This would skew the analyses more because there are not so many large groups and they are central in the analyses. The incomplete records affect all different sizes of groups of house foundations, since they are distributed in a random fashion, and will thus not bias the result in any particular direction. A possible exception is that the farms with only one stone house foundation might be a few more in number. The problem can be seen in the same light as house foundations that have been destroyed in cultivated land under the plough. A third strategy could be to include the entire database in the first set of analysis, but since some 600 records lack the relevant attributes, it will bias the result even more.

House foundations of unknown length will thus influence and introduce a certain degree of uncertainty to the results for the first set of analyses, no matter which data set is used. Nevertheless, the selected approach is seen as the best. The drawback is mainly for the reader, because the numbers will change slightly between the different analyses and make them harder to follow, but the differences are minor and not significant, as will seen. This is something to bear in mind in reading the tables and diagrams; even if the numbers presented are exact, they have to be taken with a margin of error. In scientific terms, it can be said that the precision in the calculations are high, but the accuracy is lower, but the methods are both reliable and valid. In the textual description, I will try to compensate for this when the tabular data and calculations are presented, by rounding off the precise numbers in discussions. However must the actual numbers must be presented in the tables to enable the reader to follow the calculations in the analyses. This uncertainty does not influence the results to the degree that it alters the conclusions that are drawn.

The aim of the analysis in the coming sections is to establish the most typical situations and general qualities of the mid millennium farms and villages. It must however be stressed that I do not believe this to be without exceptions. Human activity and cultural praxis and norms have a tendency of constantly breaking rules and defying mathematical equations, which is long since proven by economists. The analysis also shows the complexity in the material and the exceptions to the rule are often the most interesting cases to study, but here the result of the analyses must merely be seen as the best fitting generalisation, and by no means any all-embracing rule.

Finding a metrological definition of a farm

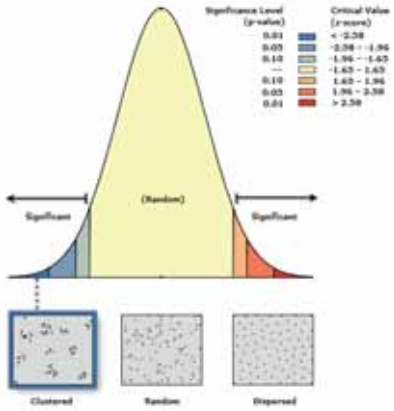
In this section, the Iron Age stone house foundations will be analysed, both statistically and visually, as a means to establish some criteria to

define and describe the geometrical and spatial aspects of a farm. First will geometrical methods and basic descriptive statistics be used to find a distance between house foundations, which can define a farm. This analysis will group the house foundations in clusters, which will be analysed further by descriptive statistics. This analysis will be followed up with a visual interpretation of every cluster, in which the individual farms will be established. One central issue is the distances between the house foundations, since a farmstead often consists of more than one house. The most typical farm is often considered to consist of two or maybe three house foundations, one larger and one or two smaller, situated closely together (Carlsson 1979:34).

A cluster analysis presented in fig 3.1.1 shows the stone house foundations to be clustered with a very high level of confidence. To some degree, the natural landscape of Gotland, with areas of barren land and many bogs, contributes to this, but it does not explain all of the clustering.

The nearest neighbour distance (NN-distance) was calculated using the tool 'average nearest neighbour' in ArcGIS, of which the result can be seen in table 3.1.1. The full dataset has a skew to the right and it is not normally distributed. This is because there are many outliers with long distances to their nearest neighbour. In the first three quartiles, up to a distances of 150 metres, the skew is not too bad and at distances less than 80 metres, which is 68 % of the stone house foundations included in the analyses, the data is very close to normally distributed, with the mean, median and mode values close to each other. The top 32% with over 80 metres to the nearest neighbour shows a completely different picture, with considerable distances to the nearest neighbour. These are probably many of the

Figure 3.1.1 showing the statistics for a nearest neighbour cluster analysis of all known house foundations with known length



Given the z-score of -55.11, there is a less than 1% likelihood that this clustered pattern could be the result of random chance.

Observed Mean Distance:	198 m
Expected Mean Distance:	696 m
Nearest Neighbour Ratio:	0,285
z-score:	-55,107
p-value:	0,000000
Study Area: 3 147.47 km^2 (=The area of Gotland)	

Table 3.1.1. Descriptive statistics of the nearest neighbour distances for the 1 624 Iron Age stone house foundations with known length.

All distances	Freq 1 624	**Under 80 metres**	Freq 1 097	**Under 250 metres**	Freq 1 306
Percent of total	100.0%	Percent of total	67.5%	Percent of total	80.4%
Mean distance	198.5	Mean distance	34.6	Mean distance	52.8
Median distance	41.6	Median distance	32.1	Median distance	34.7
Standard deviation	398.5	Standard deviation	14.3	Standard deviation	48.2
Mode	28.0	Mode	28.0	Mode	28.0
Skew	4.1	Skew	0.7	Skew	2.3
Under 50 metres	Freq 953	**Under 150 metres**	Freq 1 215	**Over 80 metres**	Freq 527
Percent of total	58.7%	Percent of total	74.8%	Percent of total	32.5%
Mean distance	30.5	Mean distance	41.8	Mean distance	539.7
Median distance	31.0	Median distance	33.7	Median distance	341.3
Standard deviation	9.8	Standard deviation	26.7	Standard deviation	563.0
Mode	28.0	Mode	28.0	Mode	158.0
Skew	-0.2	Skew	1.9	Skew	2.5

solitary farms, or houses with other functions, which will be discussed shortly, but the long distances are also likely to be caused by the more recent removal of house foundations, mainly due to modern farming. In some areas where it is likely that many farms occurred in the mid millennium, very few Iron Age stone house foundations have been preserved.

The objective of the following analysis is to create clusters of house foundations at different nearest neighbour distances, to be able to define and identify individual farms. The method is quite straightforward. Round buffer zones are created as polygons around each centroid (geometric centre) of the house foundations. The polygons will then be merged; all polygons intersecting each other will form larger polygons. With a spatial join between the polygons and the database record of individual house foundations, each house foundation is assigned to the corresponding buffer-polygon, thus forming a cluster, which can be analysed. For the first part of the analysis, the term cluster will be used as a pure analytic concept, even if it only consists of one house foundation, since we have not yet established whether each of the clusters is a farm. Once farms are identified, the term farm will be used instead.

Two different distances are tried, starting with 80 metres since this is around 68 % of all house foundations, which is the same amount as one standard deviation in a normally distributed statistical population and also because the skew of the data that can be seen at longer distances seems to start close to this distance. This also substantiates a more general assumption that distances over 100 metres between house centres on a farm unit are not likely. It is hard to see a reason for such long distances between houses. The only activity that would motivate a long distance is hazardous occupations such as a blacksmith's workshop or other work that could cause fire due to showers of sparks. In historic times, there are examples of placing the smithies quite far from the other buildings on a farm. The second distance that has been analysed is 50 metres, which is around 59% of the sample. The 80-metre distance will be compared to house foundations with a distance equal or shorter than 50 metres to its closest neighbour, in order to see which distance should be used as the maximum distance between house foundations in a farm.

A comparison between the 50-metre and 80-metre groups exhibits some differences between the groups, as can be seen below, in table 3.1.2. The main difference is that the 80-metre distance produces fewer solitary house foundations and a greater number of larger clusters, as would be expected. There are 1 029 clusters at 50 metres and 916 clusters at 80 metres. The most interesting difference is between the clusters with two house foundations.

As mentioned before, a predominant axiom is that a 'typical' farm consists of two or three house foundations, of which one is bigger than the other. These preliminary results seem to contradict this, since more than half of the clusters consist of only one house foundation, regardless of distances to the nearest neighbour, but the clusters with two house foundations are the second largest.

The method used to choose between the two distances, is to analyse the sizes of both house foundations in the different 2-house foundation groups with the group that forms the difference between the two groups. In other words, the relative complement of the 50-metre group in the 80-metre group will be analysed, as shown in fig 3.1.2. The sizes is defined as the length in metres. This group consists of 41 clusters and thus 82 house foundations. It can clearly be seen that the relative complement (the C group) is a distinct group of its own (Table 3.1.3). The mean values are all higher for the C-group. A statistical Student's T-test shows that the differences are statistically significant for all house foundations; the largest, but also the smallest.

Table 3.1.2. showing the difference in cluster sizes between nearest neighbour distance of 50m and 80 m

50 metre groups		***Difference***		**80 metre groups**	
# of groups	# of house foundations	*groups*	*house foundations*	# of groups	# of house foundations
Solitary					
677	677	*151*	*151*	526	526
2 house foundations					
210	420	*6*	*12*	216	432
3 house foundations					
82	246	*17*	*51*	99	297
4 house foundations					
37	148	*3*	*12*	40	160
5 house foundations					
14	70	*6*	*30*	20	100
6 house foundations					
4	24	*0*	*0*	4	24
7 house foundations					
3	21	*3*	*21*	6	42
8 house foundations					
0	0	*2*	*16*	2	16
9 house foundations					
2	18	*1*	*9*	3	27
Sum					
1 029	1624			916	1 624

This statistical test was checked by a supplementary visual examination, which reveals a different picture. Of the 41 clusters, only twelve can be interpreted as constituting two closely situated neighbouring farms each consisting of one house foundation. Twenty-nine where interpreted as one farm with two houses, mostly due to the layout and sizes of the two house foundations in the cluster. The difference in the mean lengths between the C-group and the A- and B-groups, which is the cause of the difference shown by the T-test, must then be caused by more dispersed farms with longer and larger house foundations. Longer house foundations mean that the distance between the walls is not as long as it seems, since the distance used in the analysis is measured between the centroids of the house foundations.

The result of the analysis is thereby somewhat ambiguous and not so easy to interpret fully. Since the longer distance seems to be connected to larger house foundations, and thus means that the farm buildings are kept in close proximity to each other, one can conclude that the 50-m cluster describes the qualities of house foundations that form a farm, better than the 80-metre clusters. On the other hand, if the 41 more dispersed farms are to be included, the 80-m clusters must be chosen in the subsequent analyses of distances. The 80-metre distance is therefore chosen as the maximum distance between houses in a farm. The choice of nearest neighbour distance will of course change how clusters are created all along the line, as seen in table 3.1.2, but an analysis of the statistics of all clusters consisting of up to five house foundations gives the same picture as those clusters with two house foundations.

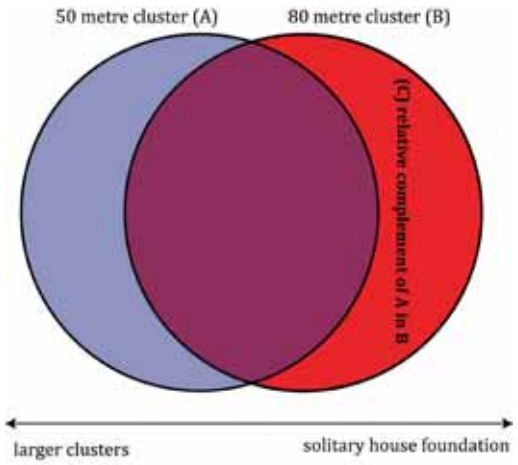


Figure 3.1.2. Relative complement of A in B

Table 3.1.3. Statistical comparison between the length of the stone house foundations in the 50-metre group, the 80-metre group and their relative complement, the C-group.

2 house foundation 50 m (A)				**Relative complement of A in B (C)**				**2 house foundations 80 m (B)**		
№ of clusters 210			***T-test***	№ of clusters 41			***T-test***	№ of clusters 216		
Both	***Mean***	***20***	***p=0.01***	***Both***	***Mean***	***22.2***	***p=0.01***	***Both***	***Mean***	***20***
	Median	19			Median	22			Median	19
	Mode	15			Mode	20			Mode	20
	Stdv	7.2			Stdv	7.84			Stdv	7
	Skew	1.1			Skew	0.40			Skew	0.5
	Max	67			Max	44			Max	44
	Min	7			Min	8			Min	7
Largest	***Mean***	***24.2***	***p=0.02***	***Largest***	***Mean***	***26.8***	***p=0.02***	***Largest***	***Mean***	***24.2***
	Median	24			Median	27			Median	24
	Mode	20			Mode	28			Mode	20
	Stdv	6.8			Stdv	7			Stdv	6.3
	Skew	1.4			Skew	0.1			Skew	0.27
	Max	67			Max	44			Max	44
	Min	10			Min	11			Min	10
Smallest	***Mean***	***15.8***	***p=0.05***	***Smallest***	***Mean***	***17.5***	***p=0.05***	***Smallest***	***Mean***	***15.8***
	Median	15			Median	16			Median	15
	Mode	15			Mode	20			Mode	15
	Stdv	4.8			Stdv	5.5			Stdv	4.8
	Skew	0.8			Skew	0.6			Skew	0.8
	Max	32			Max	33			Max	33
	Min	7			Min	8			Min	7
Table 3.1.3a				Table 3.1.3b				Table 3.1.3c		

Analysing the clusters

The diagram and table below show the basic statistics for the lengths of the 1 624 house foundations used in this analysis, which constitutes the statistical subpopulation, the sample. The data is not in accordance with a normal distribution because it has a skew to the right, but the mean, median and mode values are quite close. This is due to some very long house foundations. The longest is RAÄ Burs 55 with a length of 67 m. It was excavated in the years 1928-31 by Johan Nihlén (Nihlén 1932), and stands out as an extreme. There is, however, one odd thing with the diagram below. Certain lengths are more common, which is the even 5 metres marked with darker shade in the diagram. One can speculate if this is due to some kind of ancient measuring system, but there is most likely a simple explanation to it. The surveyors most probably rounded off their not so precise measurements of the house foundation to an even number. Some of the values in the darker pillars in the diagram should thus be distributed to the neighbouring values, which would smooth the curve. Therefore, a trend line is added showing the moving average over 5 values, so the overall trend is more visible.

Even if the histogram does not show a normal distribution, standard deviations will be used in the analyses to define different breakpoints, since apart from a few extreme values, which however are of importance, there is a tendency to a normal distribution. Standard deviation and such measurements usually depend on a normal distribution of the population. Nevertheless, in this case, even if not all statistical demands are fulfilled the size and distribution of the sample of house foundations is sufficient for a usable approximation for our purposes. To do a log-transformation of the data, which in statistical terms would be the proper thing to do, would only make things more complicated and would not alter the results in any decisive way.

The mean length is 20.2 metres and the standard deviation (stdv) is 7 metres. This would in a normally distributed population mean that around 68% of all house foundations are between 13 and 27 metres in length, but since the population of house foundations is not perfectly in accordance with a normal distribution, the actual value is 71%. Two standard deviations are between 6 and 34 metres of length and should include some 95% of the data in a normally distributed population, but the actual value is 96% of the house foundations. On the left side (lower values), the range of two standard deviations is outside the data, since there are no house foundations shorter than 7 metres. On the right side (higher values), there are 74 house foundations with a length of 34 metres or more. In a perfectly normal distribution of a population, they would

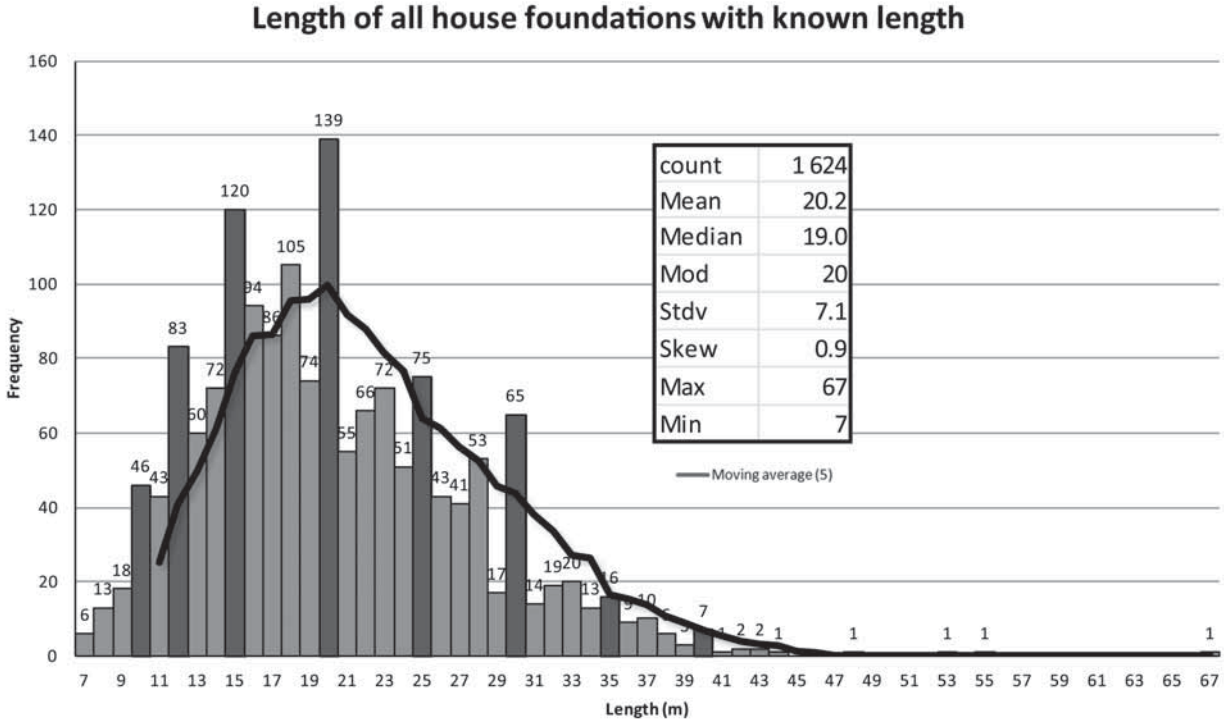


Figure 3.1.3. Histogram showing the length of all Iron Age stone house foundations with known length.

Table 3.1.4. Overall statistics for the different cluster sizes

	1	2	3	4	5	6	7	8	9	ALL
# of clusters	526	216	99	40	20	4	6	2	3	916
# of house foundations (hf)	526	432	297	160	100	24	42	16	27	1 624
Mean length of hf	20 m	20.0 m	20.5 m	19.9 m	18.4 m	17.4 m	20.6 m	18.2 m	20.8 m	20.2 m
Median length of hf	19 m	19 m	19 m	18 m	17 m	16 m	20 m	18 m	20 m	19 m
Mod length of hf	20 m	20 m	15 m	16 m	17 m	17 m	18 m	22 m	15 m	20 m

be about 2.2%, but since there is a skew to the right in the data, they are 4.6% of the house foundations. The way in which these large stone house foundations are distributed both in space and across the different cluster-sizes, will be analysed further later on.

The first analysis concerns whether there are any differences between the different cluster sizes, regarding the length of the stone house foundations belonging to the clusters. The overall statistics for the different clusters are presented in table 3.1.4. The highest mean value is found in the clusters with seven and nine house foundations, with 20.6 and 20.8 metres respectively. The lowest over all mean, is found in the clusters with five house foundations, with a mean of 18.4 metres. At this stage, no real conclusions can be drawn from this, so the clusters have to be analysed in more detail.

Solitary house foundations

This is the largest cluster group with 526 house foundations, which is 32% of all house foundations. Not all of these can be interpreted as farmsteads, mainly because they are too small. A full farm must have a minimum of housing space for different functions. No house at Vallhagar with a length shorter than 19 metres was interpreted to contain both dwelling space and a part for cattle (Vallhagar part I 1955:100-247; Stenberger 1955b:1050f). Both parts need to be included in a farm for it to be self-contained and to function round the year. Exactly where to draw the line is difficult to say, but if the line is drawn at under 15 metres, this leaves 400 solitary farms, and at a length of less than 18 metres, there are only 310 solitary farms left. The domination of the solitary house foundation as the principal farm type is not evident any more. A limit was set at less than 18 metres, to keep a 'margin' of 1 metre. Smaller solitary house foundations located at a distance from other house foundations probably represent many different functions. Some typical situations have been identified and can be divided into the following cases.

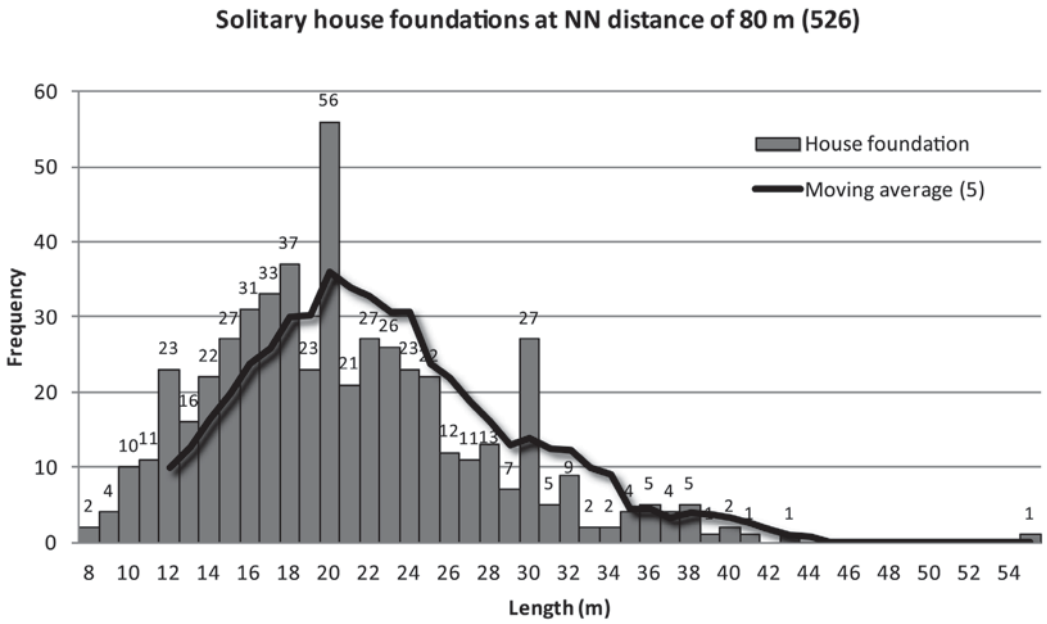


Figure 3.1.4. Histogram showing the length of all Iron Age stone house foundations in the solitary group

Solitary house foundations less than 18 metres in length that are located:

1. Close to modern fields and might be fragmented farms. Most probably, they have been farms, with more house foundations, but the other house foundations have been destroyed because of ploughing. These house foundations are often situated in modern fields or at the edge of them, as small humps of waste land.
2. Isolated stone house foundations, which mean more than 200-300 metres from other farms. It is however not uncommon that several of these smaller house foundations are located together at some distance from each other forming loose 'clusters'. These can be compared with similar ones situated on the *Stora Alvaret*, a barren limestone plain on Öland (Fallgren 2006:29)
3. Situated near other farms, but further away than 80 m.
4. Isolated and in close connection to grave fields.
5. Isolated in connection with enclosure walls or fossilised fields.

Of course, combinations of all these examples exist, but there are not many. The most suitable case is then chosen. Of the around 160 small solitary house foundations, around one third (51) occur close to modern fields (case 1) and can thus be the only remaining house foundations of a larger farm. Nearly one quarter (35) are placed in isolated areas, relatively far from any other farms (case 2). The same amount (36) are situated in isolated places close to stone enclosure walls/fossilised fields (case 5). They might perhaps be related with *fäboddrift* (shieling), in which the cattle are moved to a small 'summer farm' for grazing. This is advocated by Claesson & Thålin (1940:20f), who also associates them with certain types of hillforts, which they believe might have similar functions. Stone house foundations, located on poor soils or barren land, far from other farms are interpreted by Herschend as possibly being occupied by people who made a living on various kinds of industry or crafts, other than farming (Herschend 1988:45f). The last major group is case 3, which are small house foundations located close to farms (32). There are some in such a situation, close to house 22-24 at Vallhager, which Almgren (1957:230) believes are *backstugor* (huts or cabins) or *torp* (crofters house). Herschend suggests that, what he calls 'cattle-less' farms probably existed during the period. These farms were dependent on other farms and since they could not produce everything they needed themselves, they were not self-contained and probably had to work as some form of labourers for full farm-owners to fill all their needs (Herschend 2009:208). This could be a plausible interpretation to these house foundations. Only a few foundations are associated to case 4, located close to grave fields. In addition, a few are not isolated, but are situated very near grave fields. Altogether, they are not even a handful.

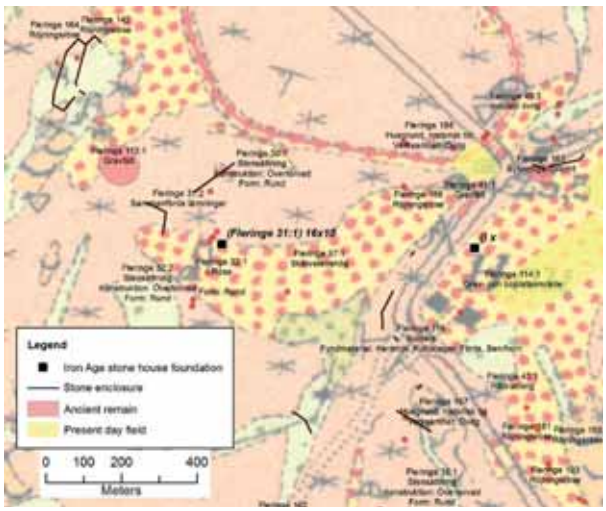


Figure 3.1.5. A small house foundation situated on poor and barren land outside the preferred settlement areas, close to several graves; this represents case 4

The small solitary house foundations in situations as in cases 2-5 are interpreted to have other functions than being farms. The interpretation is not as clear when it comes to case 1, those lying close to modern fields, but not so close to other farms. Therefore, only some of them are considered farms and the others might be houses with other functions. All in all, 136 of all different cases are classified as not being farms in the coming analyses.

Clusters consisting of two house foundations

The cluster type with two stone house foundations are often said to represent a very 'typical' mid millennium farm (Nihlén & Boëthius 1933:96ff). The data for both the 50-metre distance and the 80-metre distance are shown in diagrams and tables to visualise the marginal differences there are between the two distances regarding the statistics. The histograms below show how the lengths are distributed between the two house foundations. It displays two peaks, as would be expected, if we have a farm with two

houses of different sizes, but from the histogram, it cannot be concluded if they form pairs.

Whether the statement is true or not, can be answered by analysing the pairs in each cluster regarding the difference in length between the two. The difference is expressed as an index created by dividing the larger house foundation with the smaller. This means that in a pair with an index value of two, the larger house foundation is twice as long as the smaller, e.g. a pair that are 20 metres and 10 metres in length or 28 and 14 metres. An index value of 1.2 means that the larger is 1.2 times longer, e.g. 34 metres and 28 metres. An index value of one means both house foundations are of the same length. In the diagram below, the result of the analysis is seen.

Depending of the chosen threshold value, the result will differ, as shown in the table 3.1.5. A reasonable value could be 1.3, which means, for example a pair with a 20 m and a 16 m house foundation, or 15 m and 12 m, or 24 m and 19 m. At this threshold, it is true in 66% of the cases that one of the house foundations is 1.3 times larger or more than the other. The higher threshold value chosen, the less true it will be. At a threshold value of 1.5, only half of the cases are true.

Nevertheless, the statement that two house foundations situated together is a typical farm has some bearing and could be used to describe quite a common situation, but is far from predominant.

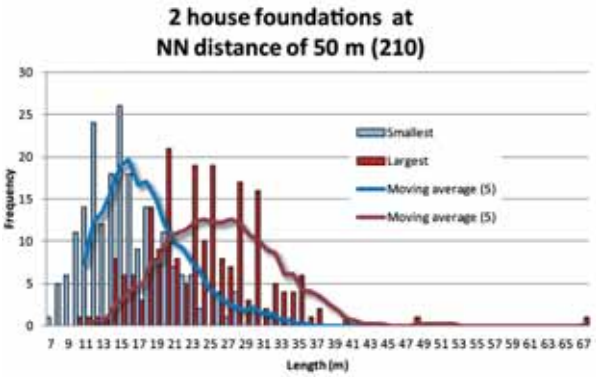


Figure 3.1.6a Histogram showing the lengths of both house foundations in clusters of two at an NN-distance of 50 metres. There are 210 such clusters

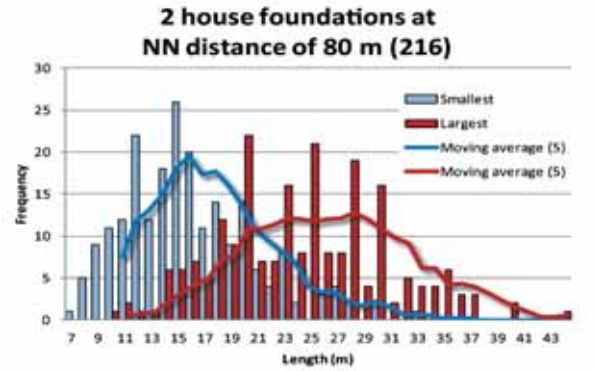


Figure 3.1.6b Histogram showing the lengths of both house foundations in clusters with two founda-tions at an NN-distance of 80 metres. There are 216 such clusters

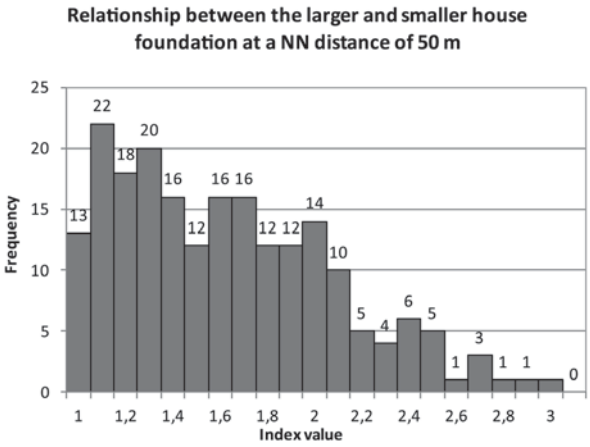


Figure 3.1.7a The relationship between the larger and the smaller house foundations at a NN distance of 50 metres

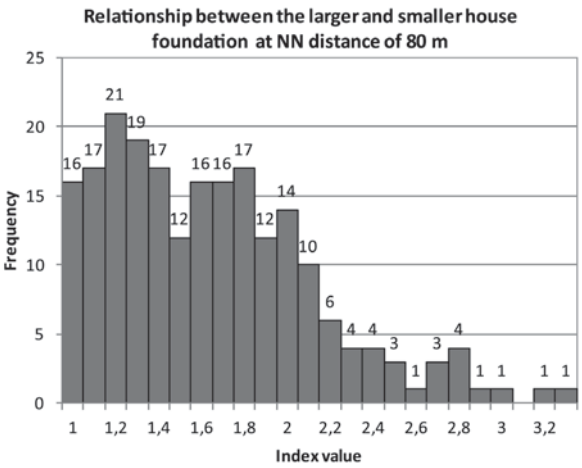


Figure 3.1.7b The relationship between the larger and the smaller house foundations at a NN distance of 80 metres

Table 3.1.5. Comparison between index values at 50 m and 80 m

	NN distance 50 m		NN distance 80 m	
Index value larger then...	Frequency	%	Frequency	%
>= index 1.2	157	75%	162	75%
>= index 1.3	137	65%	143	66%
>= index 1.4	121	58%	126	58%
>= index 1.5	109	52%	114	53%

Clusters with more than two house foundations

When it comes to the clusters with more than two house foundations the picture gets more complex and harder to analyse by statistical means. The diagrams in fig 3.1.8, show the clusters with up to five house foundations. In the diagrams, it can be seen that the different length intervals overlap to a large degree and they are hard to interpret and get any meaningful information out of them. The diagrams show that the larger clusters are very heterogeneous, since there are several clusters, in which the smallest house foundations are quite large. This indicates that all house foundations are large in the cluster, but the opposite seems to be as common; that there can also be only quite small house foundations in a cluster, since the largest house foundation is of a smaller size. To clarify the situation a visual analysis of the map is needed, which will be done later on.

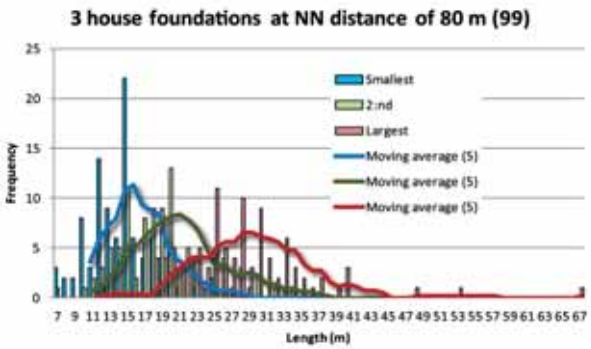


Figure 3.1.8a Histogram showing the lengths of all house foundations in clusters with three house foundations at NN-distance of 80 metres. There are 99 such clusters

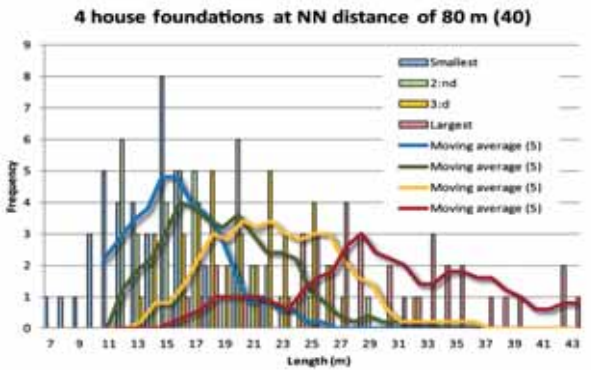


Figure 3.1.8b Histogram showing the lengths of all house foundations in clusters with four house founda-tions at NN-distance of 80 metres. There are 40 such clusters

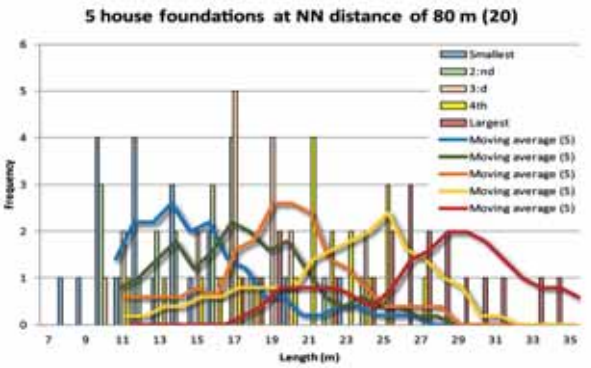


Figure 3.1.8c Histogram showing the lengths of all house foundations in clusters with five house foun-dations at NN-distance of 80 metres. There are 20 such clusters

Nihlén and Boëthius (1933:82) set the threshold value at 35 metres for the largest type of house foundation, which they called Type I. Under this type, they list 53 of the 1 100 house foundations known in the early 1930s. The threshold value of two standard deviations is 34 metres. There are 74 house foundations of this length, or longer, which is 4.6% of all 1 624. The distribution is seen in fig. 3.1.9.

Clusters with large house foundations

As discussed earlier, there is a tail end to the right in the histogram in fig 3.1.3, showing the length of the 1 624 house foundations used in the presented analyses. The extreme values at the right side of the diagram will be analysed to find a definition for large house foundations. Some additional analyses are also made to see how the larger house foundations are distributed in space and over clusters of different sizes.

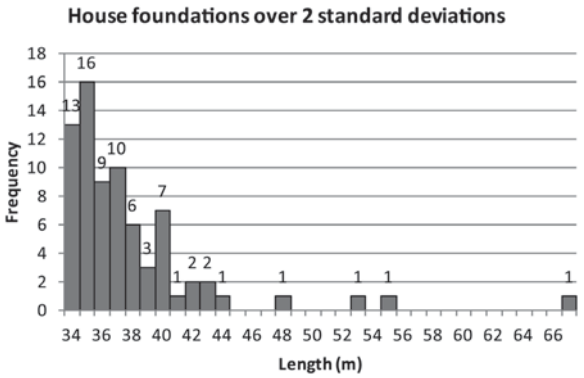


Figure 3.1.9. Diagram showing the lengths of all large house foundations with a length over 2 stdv, which is 34 metres.

Looking at the rate of clustering for every metre in lengths for all house foundations between 30 metres up to 35 metres, the Z-score comes closer and closer to 0 the longer the house foundation is, which means the rate of clustering becomes lower and lower. A Z-score value of between -1.9 and 1.9 means that a random pattern cannot rule out. Table 3.1.6a, shows that the house

foundations that are 34 metres or longer are clustered, but with much lower significance and a corresponding Z-score of -2.02, which is very close to a random distribution. If the threshold value is set to 35 metres or longer, as in the study performed by Nihlén and Boëthius, they are distributed in a random pattern with a Z-score of -0.73 (table 3.1.6b). There are 61 house foundations of this length, which is 3.8% of all. According to this, it cannot be concluded that the larger house foundations are evenly dispersed over the area, but rather no pattern at all, and that the larger house foundations are randomly distributed. If the topography is considered, with all bogs, lakes, forests and other natural obstacles on Gotland, an evenly distributed settlement pattern could probably not be found. In regions with a more homogenous landscape-type over large areas, like the plains in Skåne, a dispersed settlement pattern might be possible to find.

In table 3.1.7, it can be seen how Iron Age stone house foundations over and under the length of 27 metres are distributed over the cluster sizes. There are 303 house foundations longer than 27 metres and 1 321 shorter, which is 19% and 81% respectively. It is clearly seen that there is not much difference in the distribution between the house foundations longer than 27 metres and the ones shorter. The distribution and proportions are nearly the same in the different clusters up to four house foundations, but in the larger clusters, there are some differences, which will be analysed further.

The same pattern emerges for all threshold values up to two standard deviations, which is 34 metres of length. Starting from 34 metres, the pattern changes and the longer house foundations are concentrated to the smaller clusters. There are only three house foundations longer than 34 metres in clusters larger than four house foundations; these are 34, 35 & 35 metres long, which means that there are no house foundations longer than 35 metres in a large cluster.

Table 3.1.6a. Table showing the statistics for a nearest neighbour cluster analysis of all known house foundations with known length of over or equal to 34 metres

Given the z-score of -2.02, there is less than 5% likelihood that this **clustered pattern** could be the result of random chance.	
Observed Mean Distance:	2 860
Expected Mean Distance:	3 261
Nearest Neighbor Ratio:	0.877
z-score:	-2.023
p-value:	0.043
Study Area: 3 147.47 km² (=The area of Gotland)	

Table 3.1.6b. Table showing the statistics for a nearest neighbour cluster analysis of all known house foundations with known length of over or equal to 35 metres

Given the z-score of -0.73, the pattern does not appear to be significantly different than **random**.	
Observed Mean Distance:	3 416
Expected Mean Distance:	3 592
Nearest Neighbor Ratio:	0.951
z-score:	-0.7299
p-value:	0.465
Study Area: 3 147.47 km² (=The area of Gotland)	

Table 3.1.7. House foundations over and under 27 metres (under or over 1 standard deviation)

Cluster size	1		2		3		4		5		6		7		8		9			
% of all	32%		27%		18%		10%		6%		1%		3%		1%		2%			
	%*	freq	%*	freq	%*	freq	%*	freq	%*	freq	%*	freq	%*	freq	%*	freq	%*	freq	% of total	freq
< 27 m	*32%*	*426*	*26%*	*346*	*18%*	*234*	*10%*	*134*	*7%*	*90*	*2%*	*21*	*3%*	*37*	*1%*	*14*	*1%*	*19*	*81%*	*1 321*
>=27 m	*33%*	*100*	*28%*	*86*	*21%*	*63*	*9%*	*26*	*3%*	*10*	*1%*	*3*	*2%*	*5*	*1%*	*2*	*3%*	*8*	*19%*	*303*

Table 3.1.8. Distribution of large and small house foundations of lengths over and under 34, 35 and 36 metres

Cluster size	1		2		3		4		5		6		7		8		9			
% of total	32%		27%		18%		10%		6%		1%		3%		1%		2%			
	%*	#	%*	#	%*	#	%*	#	%*	#	%*	#	%*	#	%*	#	%*	#	Sum	% of total
Under 34 m	*32%*	*500*	*27%*	*413*	*18%*	*281*	*10%*	*150*	*6%*	*99*	*2%*	*24*	*3%*	*41*	*1%*	*16*	*2%*	*26*	*1550*	*95%*
Over 34 m	**35%**	**26**	**26%**	**19**	**22%**	**16**	**14%**	**10**	**1%**	**1**	**0%**	**0**	**1%**	**1**	**0%**	**0**	**1%**	**1**	***74***	**5%**
Under 35 m	*32%*	*502*	*27%*	*417*	*18%*	*285*	*10%*	*152*	*6%*	*100*	*2%*	*24*	*3%*	*41*	*1%*	*16*	*2%*	*26*	*1563*	*96%*
Over 35 m	**39%**	**24**	**25%**	**15**	**20%**	**12**	**13%**	**8**	**0%**	**0**	**0%**	**0**	**2%**	**1**	**0%**	**0**	**2%**	**1**	***61***	**4%**
Under 36 m	*32%*	*506*	*27%*	*423*	*18%*	*287*	*10%*	*154*	*6%*	*100*	*2%*	*24*	*3%*	*42*	*1%*	*16*	*2%*	*27*	*1579*	*97%*
Over 36 m	**44%**	**20**	**20%**	**9**	**22%**	**10**	**13%**	**6**	**0%**	**0**	**0%**	**0**	**0%**	**0**	**0%**	**0**	**0%**	**0**	***45***	**3%**

House foundations over 36 metres are absent in the large clusters and lengths over one standard deviation, over 27 metres, is always underrepresented in large clusters, as can be seen in the table 3.1.9. The large house foundations are found in clusters of 1 to 4 house foundations. Nearly half of the really large house foundations, over 35 metres, are found among the solitary house foundations; there is obviously no relationship between large house foundations and large clusters. In view of this, it can be deducted that large house foundations are not the same as the large farms. A reasonable explanation of why the large house foundations are mostly found in solitary positions or in two house clusters is that the larger house foundations represent multi-functional buildings. Instead of building separate buildings for different functions, several functions where placed in one larger building.

This is to my mind a strong argument for the view that the large clusters are villages and consist of many farms. The smaller clusters can also be villages, depending on how the sizes of the house foundations are allocated in each cluster, which can only be seen in a visual interpretation.

Table 3.1.9. The table shows how the larger house foundations are distributed among the small and large clusters

	Size of 80-metre clusters				% of all
	Small (1 to 4) 87% of all Hf		Large (5 to 9) 13% of all Hf		
	%	freq	%	freq	
Under 27 m	86%	1 140	14%	181	**81%**
Over 27 m	91%	275	9%	28	**19%**
Under 28 m	86%	1 173	14%	189	**84%**
Over 28 m	92%	242	8%	20	**16%**
Under 29 m	86%	1 223	14%	192	**87%**
Over 29 m	92%	192	8%	17	**13%**
Under 30 m	86%	1 238	14%	194	**88%**
Over 30 m	92%	177	8%	15	**12%**
Under 31 m	87%	1 296	13%	201	**92%**
Over 31 m	94%	119	6%	8	**8%**
Under 32 m	87%	1 308	13%	203	**93%**
Over 32 m	95%	107	5%	6	**7%**
Under 33 m	87%	1 327	13%	203	**94%**
Over 33 m	94%	88	6%	6	**6%**
Under 34 m	87%	1 344	13%	206	**95%**
Over 34 m	96%	71	4%	3	**5%**
Under 35 m	87%	1 356	13%	207	**96%**
Over 35 m	97%	59	3%	2	**4%**
Under 36 m	87%	1 370	13%	209	**97%**
Over 36 m	100%	45	0%	0	**3%**
Under 37 m	87%	1 379	13%	209	**98%**
Over 37 m	100%	36	0%	0	**2%**
Under 38 m	87%	1 389	13%	209	**98%**
Over 38 m	100%	26	0%	0	**2%**
Under 39 m	87%	1 395	13%	209	**99%**
Over 39 m	100%	20	0%	0	**1%**
Under 40 m	87%	1 398	13%	209	**99%**
Over 40 m	100%	17	0%	0	**1%**

Visual interpretation

The statistical analysis of the clusters revealed a lot of hidden knowledge about the spatial distribution and qualities of the house foundations, but did not give the final answer about what can be considered a farm. For this, a visual interpretation based on the new knowledge gained by the statistical analysis is needed. For the visual interpretation, the destroyed house foundations that are closely situated to the ones with known length have to be included. A little more than one hundred additional house foundations are added in the visual interpretation; this means that the figures from the previous purely geometrical and statistical analysis may change slightly, which has been discussed earlier. The visual interpretation is only carried out on the 80-metre clusters. Henceforth I will refer to farms, since individual farms were identified in the visual interpretation. The concept of cluster is mainly used as an analytic concept for the geometrically created groups of stone house foundations.

Of the original 216 clusters with two house foundations, 136 are located in what we can call a 'typical' farm situation. As can be seen from the statistical analysis, around 66% of all had the 'correct' relationships regarding the lengths of the house foundations. Regarding the visual analysis, it can also be concluded that 63% were positioned in the 'correct' arrangement; the meaning of this is that the two house foundations should be arranged in an angel or in an offset position to one another and be different in size. Fig 3.1.10a-b shows two examples of this,

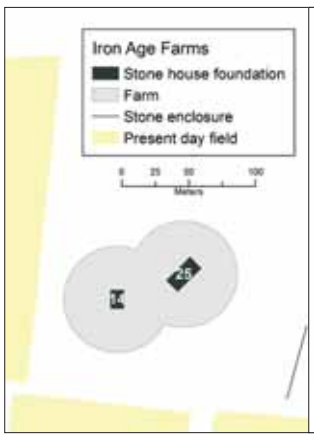


Figure 3.1.10a. A two-house farm with a 'correct' arrangement and relationship between the two houses (RAÄ Stånga 18).

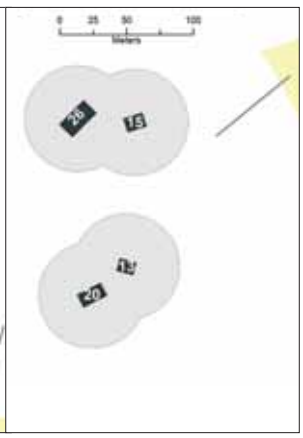


Figure 3.1.10b. Two two-house farms with the 'correct' arrangement and rela-tionship between the two houses (RAÄ Guldrupe 88 & 89).

which according to Klindt-Jensen (1955a:978) is common both on Gotland and Öland. Only 24 of the two-house clusters were reinterpreted in the visual analysis; in most cases because house foundations with unknown lengths are situated within a distance shorter than 80 metres, thus creating a larger cluster. Only seven were regarded as two closely situated one-house farms; this circumstance was based on their relative sizes and long NN-distance. They are all quite large, roughly of the same size, and are not positioned so close to each other. All but one pair was over 27 metres in length. After the visual analysis, there are 340 farms consisting of two houses, since many of the larger clusters are also reinterpreted as consisting of more than one farm.

One criterion for identifying farms in larger clusters is based on how the house foundations are grouped within the cluster. If there is no obvious farmyard and the houses form subgroups like a two-house cluster or one two-house group and one larger, situated at some distance from each other, this is interpreted as more than one farm. When enclosure systems are preserved, they can also be of help in the interpretation. If stone enclosure walls cut through clusters, these are normally interpreted as boundaries between farms, since they are believed to not only serve as enclosure walls between different land usages, but also divide farms in clusters. However, there are exceptions to this rule, as it seems.

Of the original 99 clusters, containing three house foundations only around 20 were reinterpreted; after the visual analysis, there were 144 farms consisting of three house foundations.

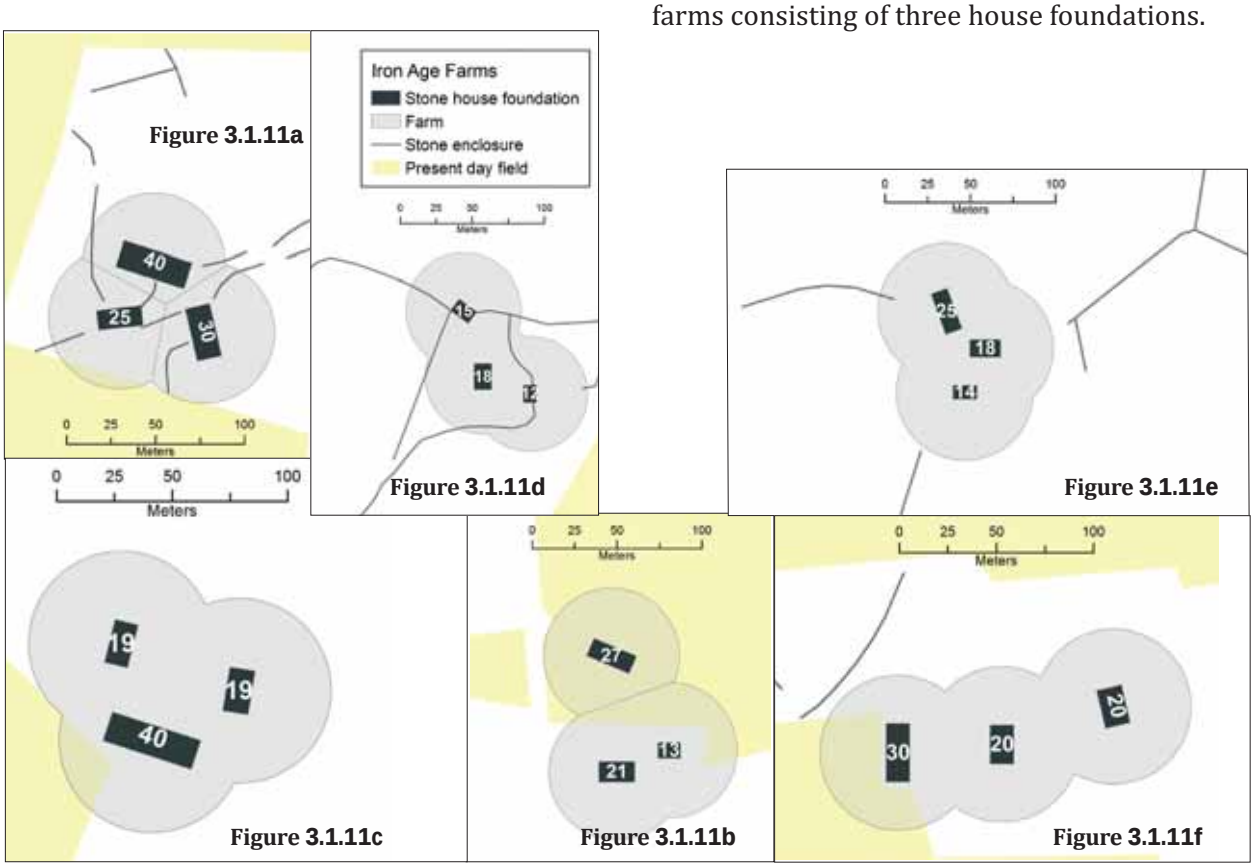


Figure 3.1.11a. A cluster of three house foundations, which is interpreted as three farms based on their sizes and the system of stone walls between the three houses. A cattle track leads to the short ends of all three houses, which probably are functionally divided, with a cow-house and dwelling part. The rest of the stone enclosure walls also separate the infields between the farms (RAÄ Lojsta 4).

Figure 3.1.11b A cluster of three house foundations divided into 2 + 1 farms, based on the grouping and sizes of the house foundations. Two of the house foun-dations are grouped as a typical two-house farm and the third house foundation is quite large and is located at some distance from the other houses (RAÄ Lojsta 58).

Figure 3.1.11c A cluster of three house foundations, which is interpreted as one large farm (RAÄ Hejnum 221)

Figure 3.1.11d. A normal sized farm with three houses (RAÄ Hall 12)

Figure 3.1.11e. A three-house farm, a bit larger than average (RAÄ Hejde 30)

Figure 3.1.11f. A farm with three houses spread out. It could also be interpreted as three small farms (RAÄ Garde 16)

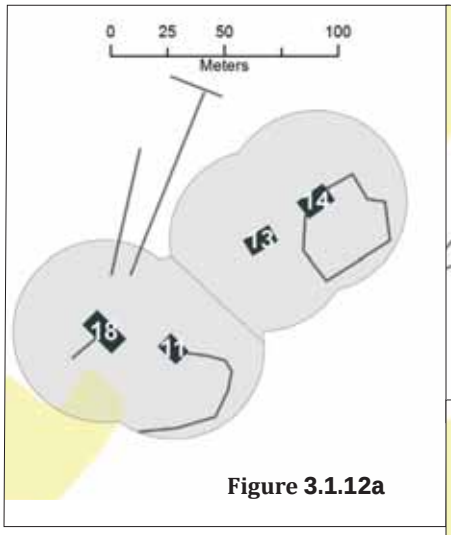


Figure 3.1.12a. A four-house cluster consisting of two farms placed near each other (RAÄ Hablingbo 47)

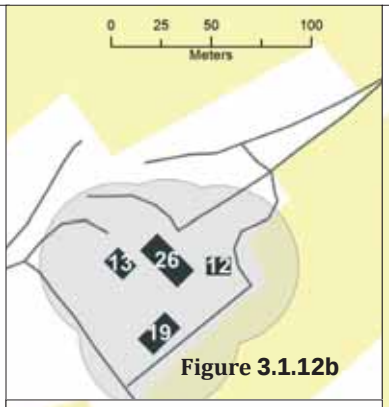


Figure 3.1.12b. A four-house farm (RAÄ Rone 33)

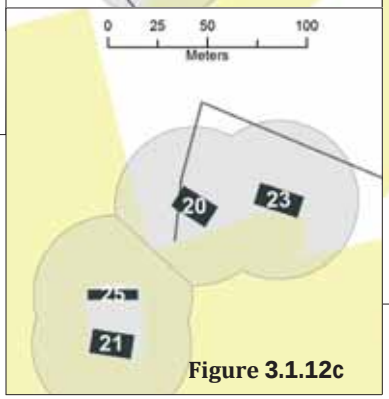


Figure 3.1.12c. A cluster of four consisting of two farms (RAÄ Lau 27)

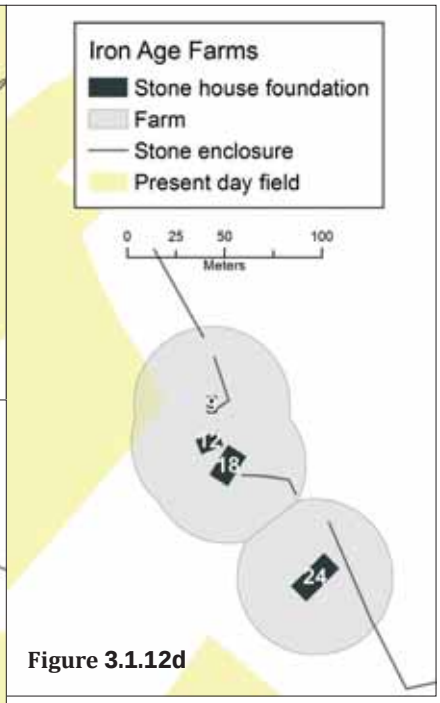


Figure 3.1.12d. A three-house farm and a single house farm in a cluster of four (RAÄ Fårö 118)

Half of the original 40 four-house clusters were reinterpreted, and nearly all of the reinterpreted consisted of two equally sized farms. The total number of farms with four houses is 31 after the visual interpretation.

Also nearly all of the larger clusters, were reinterpreted as consisting of more than one farm. Some of the clusters with 4-5 houses are also considerably spread out, with a distance of around 100-200 metres between the outer walls of the outermost houses, and can hence hardly be one farm. Some of the larger clusters only contain very small house foundations that are considerably spread out and are thus sometimes hard to interpret.

Only two of the large clusters were not divided into several smaller farms. One is an outlier on Fårö, which consists of five small house foundations and is hard to interpret as anything else than a farm, but it is somewhat of an anomaly. It consists of one larger building, 19 metres long and a second smaller building of 9 metres in a 'classic' two-house formation. Further, three small houses were distributed at some distance from the other two houses and must be some type of ancillary buildings. The other large cluster that was not reinterpreted consists of six small house foundations within the hillfort at Herrgårdsklint. Most of them were excavated in 1940 by Mårten Stenberger. Their morphology differs from other house foundations in the respect of being grouped so closely and they are very irregular in their construction. Not much was found inside the house foundations during excavation and there is even doubt as to whether the buildings were roofed. The interpretation made by Stenberger is that they represent something else than a farm, and were only for temporary use, most likely as a fortification (Biörnstad 1955:916ff). This is a reasonable interpretation, since they also lie at some distance from arable land.

The geometrical and mathematical approach used to analyse and explore the house foundations worked well and gave a good picture and results for the smaller clusters, up to three house foundations, but when it comes to

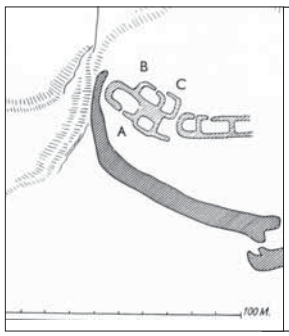


Figure 3.1.13a. The house foundations at Herrgårdsklint (from Biörnstad 1955:916 fig 369).

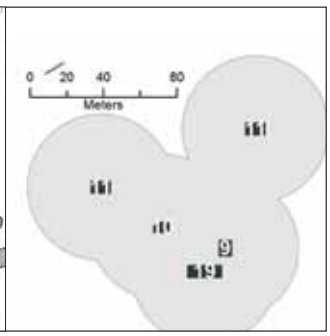


Figure 3.1.13b Five, small and scattered house foundations on Fårö, which are interpreted as one farm (RAÄ Fårö 146)

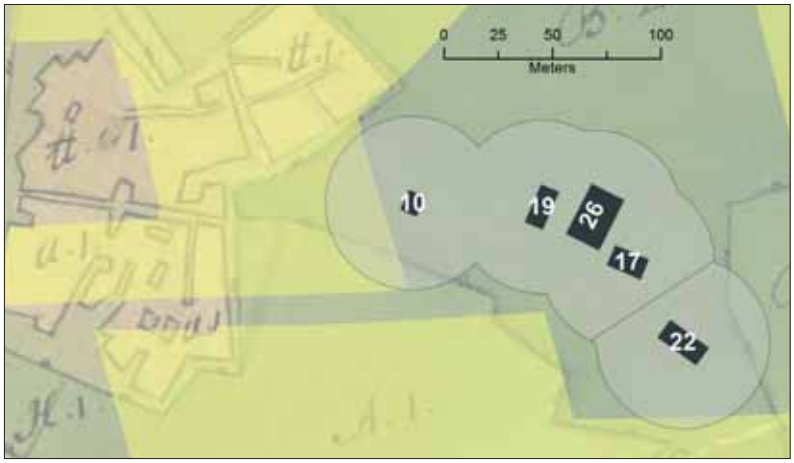


Figure 3.1.14a. A five-cluster divided into two farms, of which one is a one-house farm. The small house foundation of 10 metres lying at a distance from the others is included in one of the farms, although it might be part of another farm. It is situated close to a modern field and in the historical map from 1742 over Västergarn (H90-1:1), there are several patches of wasteland, which might have been removed house foundations (RAÄ Västergarn 15).

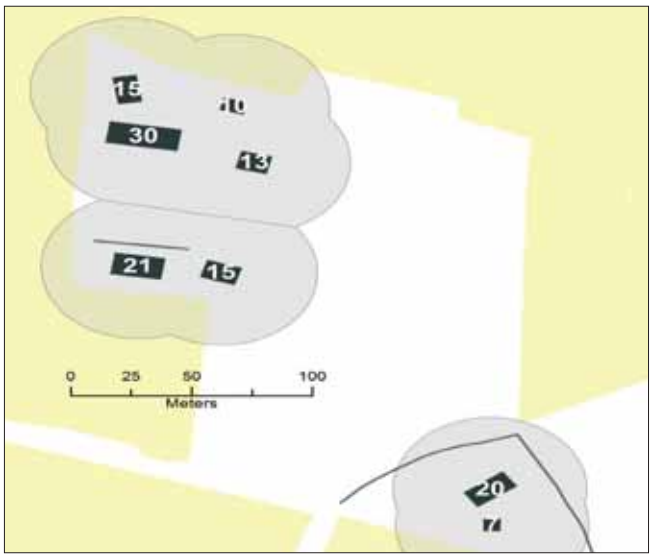


Figure 3.1.15a. A cluster with six house foundations divided in two farms (RAÄ Silte 7) and a farm with two houses nearby.

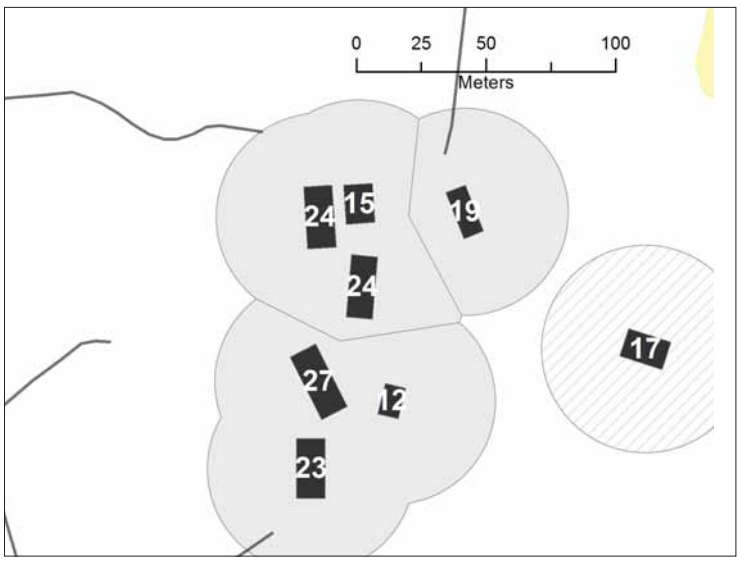


Figure 3.1.15c. Several farms and a smaller solitary house foundation, which probably had some other function (RAÄ Grötlingbo 29).

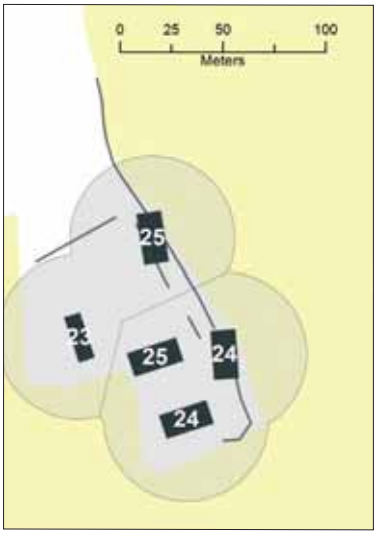


Figure 3.1.14b. Botvalde in Stånga (RAÄ Stånga 31). This five-cluster is interpreted by Nihlén as one large farm with four households (Nihlén & Boëthius 1933:36f). I have interpreted it as two farms.

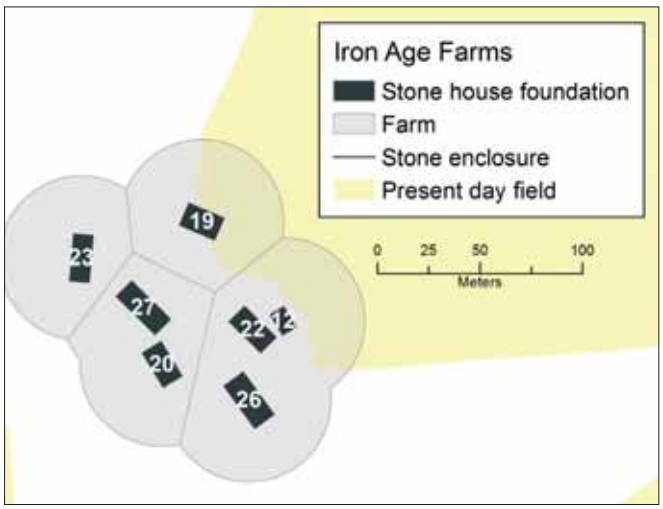


Figure 3.1.15b. Four farms in a seven-cluster. One is a bit bigger than the others are, and has three houses (RAÄ Vamlingbo 49).

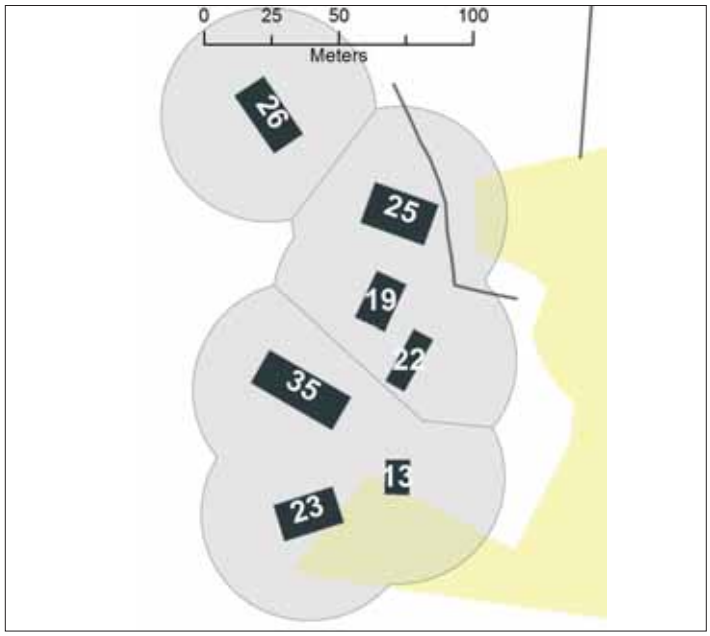


Figure 3.1.15d. Several farms in a seven-cluster (RAÄ Bäl 64).

the larger clusters, the picture gets blurred in the statistics and hard to interpret. If the standpoint was taken that houses within a certain distance always belonged to one farm and the more houses the bigger farm, everything would have been easy, but our visual interpretation of the clusters reveals that nearly every large cluster contained more than one farm. It is however often very hard to see exactly how the clusters can be divided into different farms, but the idea of the large clusters not being one single farm is correct, to my mind. One thing, which points towards this interpretation, is Biörnstad's remark that since nearly every one of the excavated houses at Vallhagar contained hearths makes it is hard to find any outhouses. Another point in line with this statement is the fact that the composition of the finds does not differ so much in the different houses (Biörnstad 1955:959). In addition, the fact that so many cases with the 'typical' farm situation, with one or two smaller house foundations close to a larger house foundation in the 'right' arrangement, were found even in the larger clusters is a strong argument that my interpretation is correct.

When the rest of all the 2 250 identified house foundations are added to the database, some 1 249 mid millennium farms are known as to location.

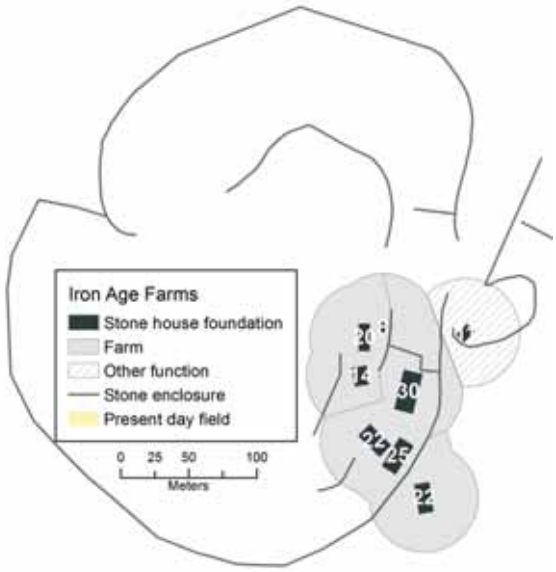


Figure 3.1.16a. A cluster with eight house founda-tions, which probably forms a three-farm village plus an ancillary building with unknown function. The preserved enclosure system makes it quite clear how the farms are grouped. One farm is larger than the others are. The enclosure of the infields formed by parts of the system of stone walls is around 10.5 hectares (RAÄ Etelhem 10).

Figure 3.1.16b. A large cluster divided into three farms (Vall 15). The system of stone enclosure walls and the grouping makes the farms evident. There is an ancillary building with some other function (or it is a part of a fourth destroyed farm); it might have been a collective resource or belong to any of the farms. There is a solitary farm (RAÄ Vall 48) around 200 m to the south. Since it is a heavily cultivated area today, there have probably been more house foundations in the neighbourhood, today removed.

Identifying the more dispersed villages

Since many of the larger clusters were identified as consisting of several farms, they must be seen as villages. As stressed before, it is of course impossible for us, some 1 500 years later, to know exactly how the mid millennium people defined the different units, so if they are referred to as farms or households, is purely academic, at least for now.

In studying a distribution map over Iron Age stone house foundations, it is clear that there is more to villages than this. Villages on Gotland are more than just some farms lying within a maximum distance of 80 metres from each other. On Öland, villages are more dispersed, which is probably also the case on Gotland. Fallgren has discussed the nature of villages on Gotland (Fallgren 1993:79) and has given examples of dispersed villages on Gotland in the parish of Anga (Fallgren 2006:82).

The same methodology used when identifying farms will be applied in identifying the more dispersed villages. In the diagram below, the nearest neighbour distances of all the 1 249 interpreted farms are presented.

As was suspected, most farms were not far from a neighbour. The high mean distance of 435 metres and the median of 271 metres are probably due to the large amount of solitary outliers because of recently removed house foun-

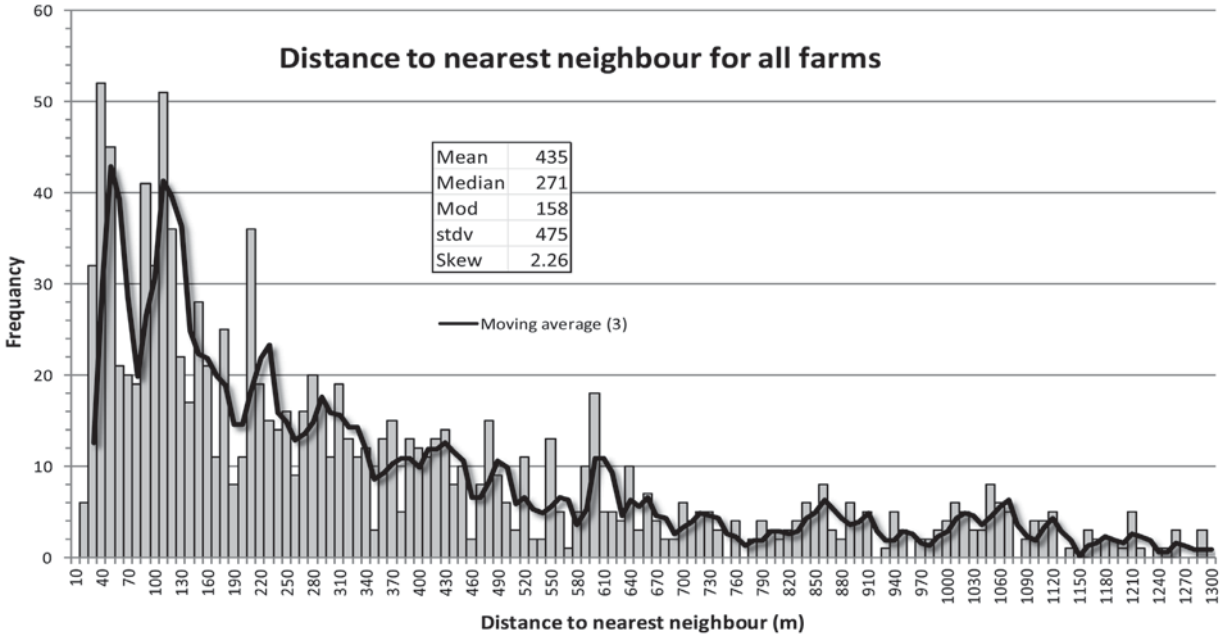


Figure 3.1.17. Diagram showing the distance to the nearest neighbour for all 1 249 interpreted farms, grouped in 10-metre intervals.

dations. In areas with an intensive activity of modern agricultural, the distance between the preserved house foundations might be long. The median value describes the data better, but is also high. A median value of 271 metres means that half of all farms have 271 metres or less to their nearest neighbour, which in the mid millennium must have been considerably shorter. Since the data does not follow a normal distribution, statistics like standard deviation does not make sense, so other methods for classifying the data will be used. In the table 3.1.10, the same data as seen in the diagram in fig. 3.1.17, is grouped on farm sizes and the cumulative frequency of distances to the nearest neighbour is calculated, in both absolute numbers and as percentage.

Table 3.1.10. The distance to the nearest neighbour for all 1 249 interpreted farms, grouped in 10-metre intervals and grouped by farm size.

	Number of houses in the farm									
	All farms		One		Two		Three		Four	
NN distance	freq	%	freq	%	freq	%	freq	%	freq	%
25	14	1.1%	0	0.0%	9	2.2%	4	2.5%	1	3.0%
50	134	10.7%	10	1.6%	81	19.7%	39	24.5%	4	12.1%
75	180	14.4%	27	4.2%	101	24.6%	47	29.6%	5	15.2%
100	266	21.3%	79	12.3%	125	30.4%	54	34.0%	8	24.2%
125	361	28.9%	134	20.8%	152	37.0%	65	40.9%	10	30.3%
150	419	33.5%	167	25.9%	167	40.6%	73	45.9%	12	36.4%
175	463	37.1%	188	29.2%	186	45.3%	76	47.8%	13	39.4%
200	498	39.9%	206	32.0%	199	48.4%	80	50.3%	13	39.4%
225	559	44.8%	243	37.7%	211	51.3%	90	56.6%	14	42.4%
250	597	47.8%	260	40.4%	224	54.5%	97	61.0%	15	45.5%
275	635	50.8%	288	44.7%	229	55.7%	102	64.2%	15	45.5%
300	671	53.7%	306	47.5%	243	59.1%	106	66.7%	15	45.5%
325	709	56.8%	328	50.9%	254	61.8%	111	69.8%	15	45.5%
350	729	58.4%	340	52.8%	260	63.3%	113	71.1%	15	45.5%
375	761	60.9%	358	55.6%	271	65.9%	116	73.0%	15	45.5%
400	787	63.0%	374	58.1%	278	67.6%	118	74.2%	16	48.5%
425	816	65.3%	388	60.2%	288	70.1%	121	76.1%	18	54.5%
450	843	67.5%	408	63.4%	293	71.3%	123	77.4%	18	54.5%
475	864	69.2%	425	66.0%	296	72.0%	124	78.0%	18	54.5%
500	883	70.7%	438	68.0%	302	73.5%	124	78.0%	18	54.5%

Fallgren has identified the distances between farms in villages to be between 5-200 metres on Öland (Fallgren 2006:77). On Gotland, only 42 % of the farms have a neighbour within 200 metres. Of the farms with two or three houses, 50% and 55% respectively, have a neighbour within 200 metres, but only 34% of the one-house farms. This implies that solitary farms are quite common, but also here the recent removal of house foundations exaggerates this tendency. Most probably, a lot more of the solitary farms have had closer neighbours, but this is of course hard to verify.

The main method for identifying villages in the following analyses must be based on distances between farms, since very little other data is available. This method is of course sensitive to recent removal of farms. If only one farm is missing, the 'chain' of farms building up the village network is broken, and the village will not be identified. In some cases, there are stone enclosure walls or grave fields, which might assist to some degree. One crucial part in identifying the more spread out villages, besides the distance, will therefore be the systems of stone enclosure walls in the cases they can be used. This requires a visual interpretation of the map and the result is presented in the following section with some examples of identified villages.

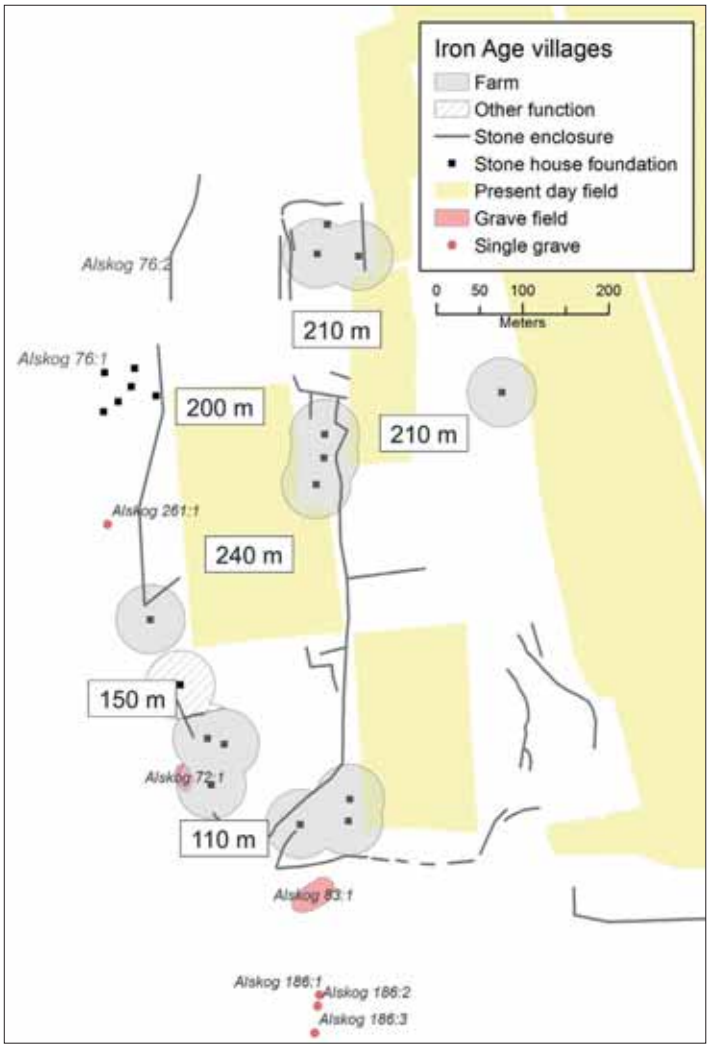


Figure 3.1.18a. The area is called Visne ängar and is an Iron Age village with 6 or 7 farms. In historical times, it was used as meadows and was divided be-tween several farms in the parish of Alskog. It is un-clear when the village was abandoned, but it might have been populated to some degree even after the stone house foundations were deserted. The six house foundations (RAÄ Alskog 76:1) in the northwest corner of the area are very diffuse and it is uncertain if they are Iron Age house foundations. They can be of a later date, since a stone lined well indicates that the settlement had a continuation in later periods (RAÄ Alskog 76:2). Picture stones and graves in the southern part are dated to the Vendel period (Wennersten 1973:117).The Iron Age village was situated on a patch of moraine soil, along the edge of a bog. The bog to the east is now ditched and tilled. There are no other house foundations in the vicinity. The system of stone walls, extending down to the estimated edge of the former bog, encloses around 40 ha.

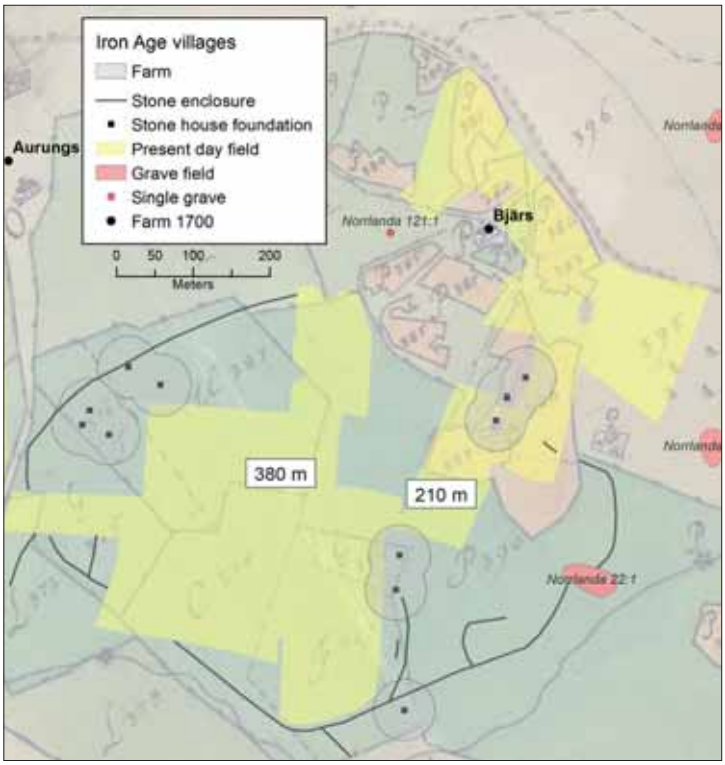


Figure 3.1.18b. A village in the parish of Norrlanda superimposed on a historical map (LSA, H64-1:2). The system of stone walls around the village of 3-4 farms encloses 30 ha. The stone walls surround a large meadow that is divided between many historical farms. Judging by the patches of wasteland in the historical fields, there might have be more, now vanished farms in the village. (© Lantmäteriet, published with permission I2012/921)

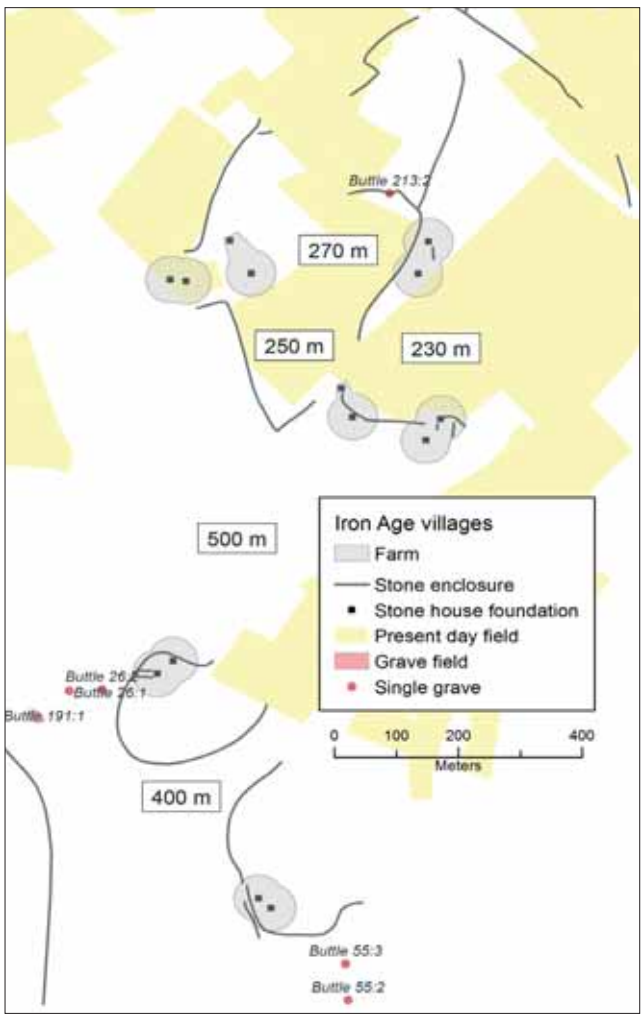


Figure 3.1.18c. A village with five farms and two solitary farms in the parish of Buttle. The system of stone walls around the village en-closes an area of around 40 ha. There have probably been more farms in the village, since large parts of the ancient enclosure are culti-vated today. The two small enclosures to the south, with two house foundations each, should be interpreted as two solitary farms. There are no identified grave fields in the vicinity, only two stone settings nearby one of the solitary farms

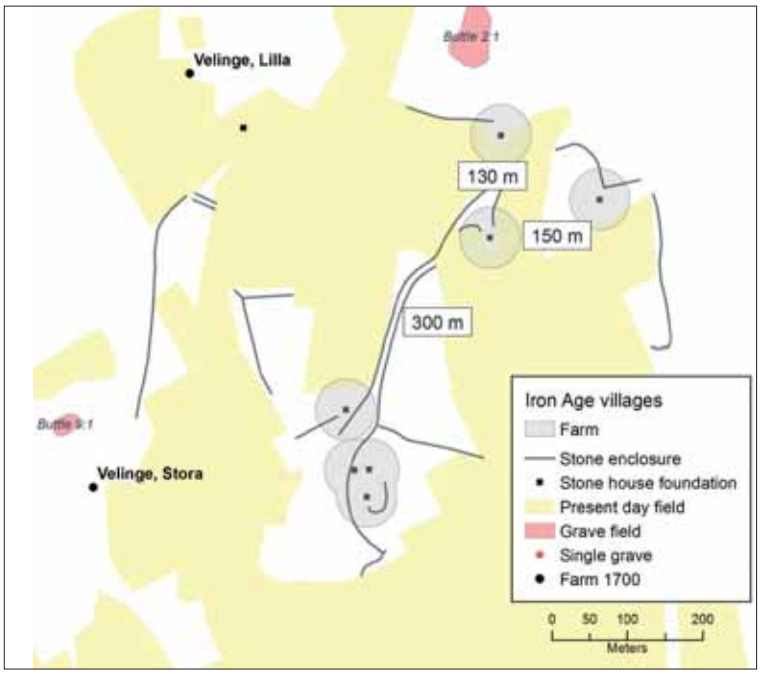


Figure 3.1.18d. Fragments of a village in the parish of Buttle. It is hard to tell how many farms there have been, since large parts of the former enclosure now consist of ploughed fields, but there are five farms left. A cattle track runs through the central parts, connecting all remaining farms. There are two grave fields in the vicinity.

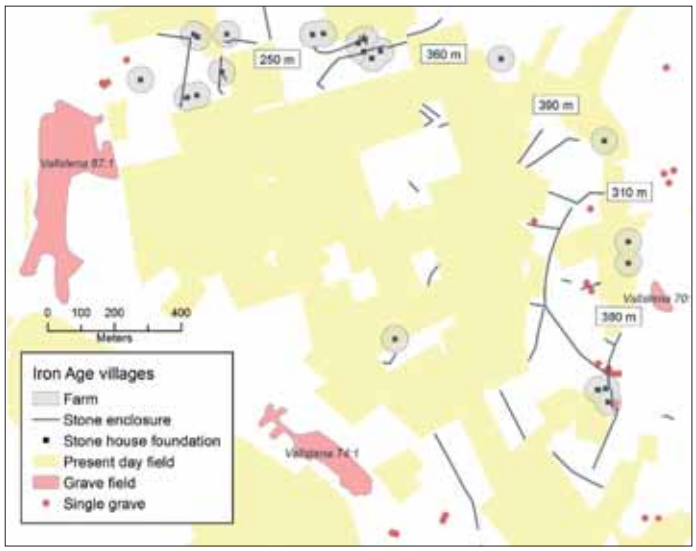


Figure 3.1.18e. One possible large village arranged like a ring around one large infield area of around 200 ha. Twelve farms are placed in the ring and one in the middle (now vanished). An alternative interpretation is that this constitutes two smaller villages, of which the northern one, with 8-9 farms, has its infields up to the north. There are two big grave fields and several small ones and many solitary stone settings in the surroundings. The two large grave fields are RAÄ Vallstena 87 with roots in the Bronze Age consisting of 480 graves, and RAÄ Vallstena 74 with around 67 graves.

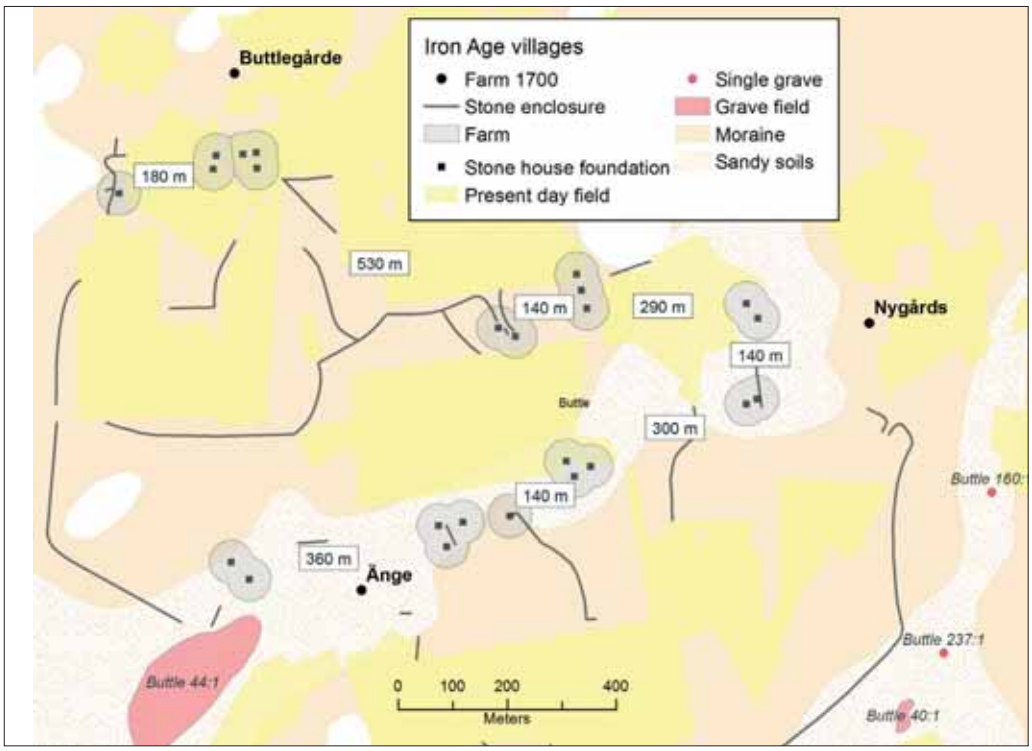


Figure 3.1.18f. Possibly two Iron Age vil-lages in the parish of Buttle (RAÄ Buttle 43 and others) consisting of 11 farms altogether. They are situated on the infields of three historical farms, consisting of five farm parts in all. Several of the Iron Age house foundations are situated on sandy soils, while the system of stone walls encloses land on moraine soils, which is not uncommon and can be seen at several places. The stone walls enclose around 142 ha. The three most northerly farms probably constitute one separate village, which is suggested both by the distances and by the enclosure system. The eight farms in the middle form the other village. To the west is barren land and another village is situated an additional 700 metres further away, with its own system of stone walls. Some of the house foundations are identified on a historical map (LSA, H14-1:1).

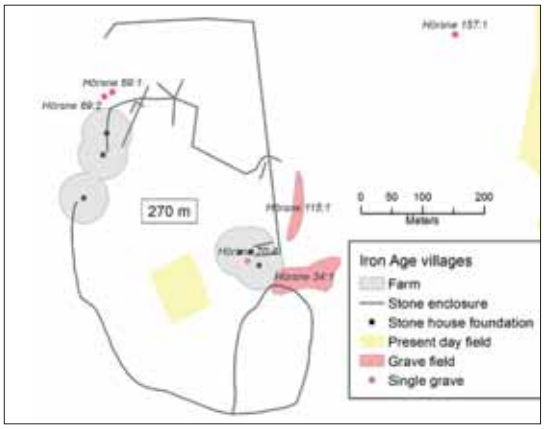
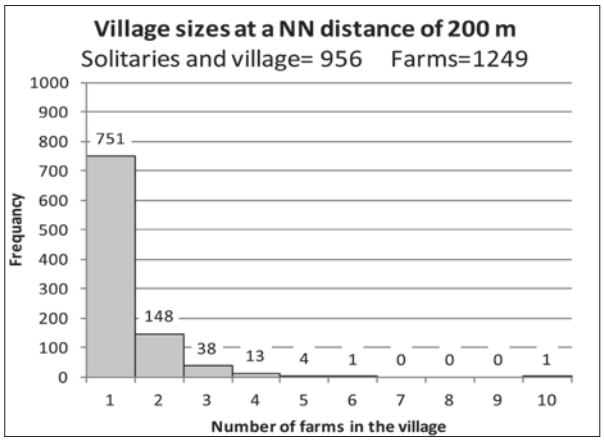
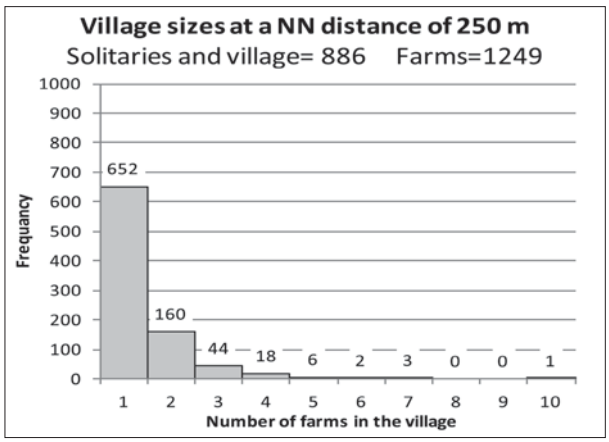
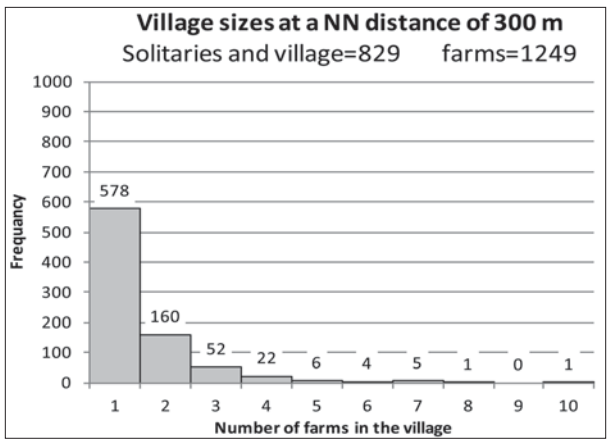


Figure 3.1.18fg. A small two-farm village, which seems to have a common infield area (RAÄ Hörsne 68 et al.). The enclosed area covers altogether around 20 ha. There are two small grave fields and some stone settings in the vicinity.







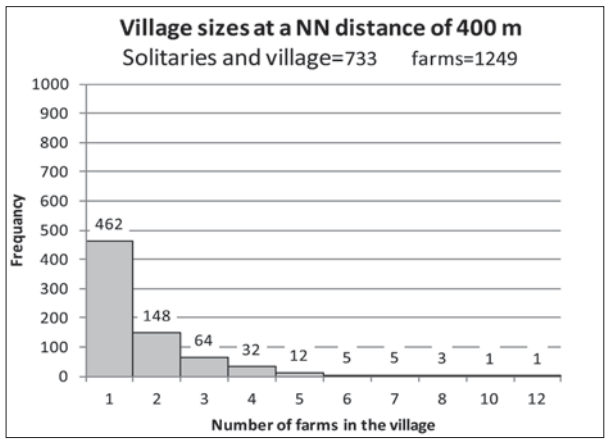


Figure 3.1.19a-d Number of villages at different NN-distances.

Considering the seven examples presented above, a distance further than 3-400 metres between the farms in a village does not seem likely, with a few exceptions. In the statistics, presented in fig 3.1.19, it can be seen that there are no great differences in the number of villages that can be formed if these distances are used. For the following analyses, the 400-metre villages will be used, because this will retain the largest villages and to some degree compensate for all removed stone house foundations. The negative effect will be that the two-farm villages might be overrepresented, since it might be doubtful whether two farms with 400-metres between them should be regarded as a village. However, the difference between the 300- and 400-metre villages in this respect only consists of twelve villages; hence, this will not affect the general conclusions.

Despite the fact that the type of analysis made here, is very sensitive to removed house foundations, only approximately 37% of the farms are solitary farms and almost 40% of the farms are found in villages with three or more farms. The majority, almost 60% are solitary farms or found in pairs. The data set for this analysis included all known farms, but not all stone house foundations, since some of are regarded not to be farms. According to the estimates, which will be presented in the next chapter, around 700 farms with unknown locations are missing in the analysis. If we took account of all missing farms, the number of farms in villages probably would increase.

Table 3.1.11. Group statistics for 400-metre villages

Villages		№ of farms in villages		
Village size (№ farms)	Freq.	frequency/village size	Reversed cumulative	%
1	462	462	1 249	100.0%
2	148	296	787	63.0%
3	64	192	491	39.3%
4	32	128	299	23.9%
5	12	60	171	13.7%
6	5	30	111	8.9%
7	5	35	81	6.5%
8	3	24	46	3.7%
10	1	10	22	1.8%
12	1	12	12	1.0%
sum	*733*	*1 249*		

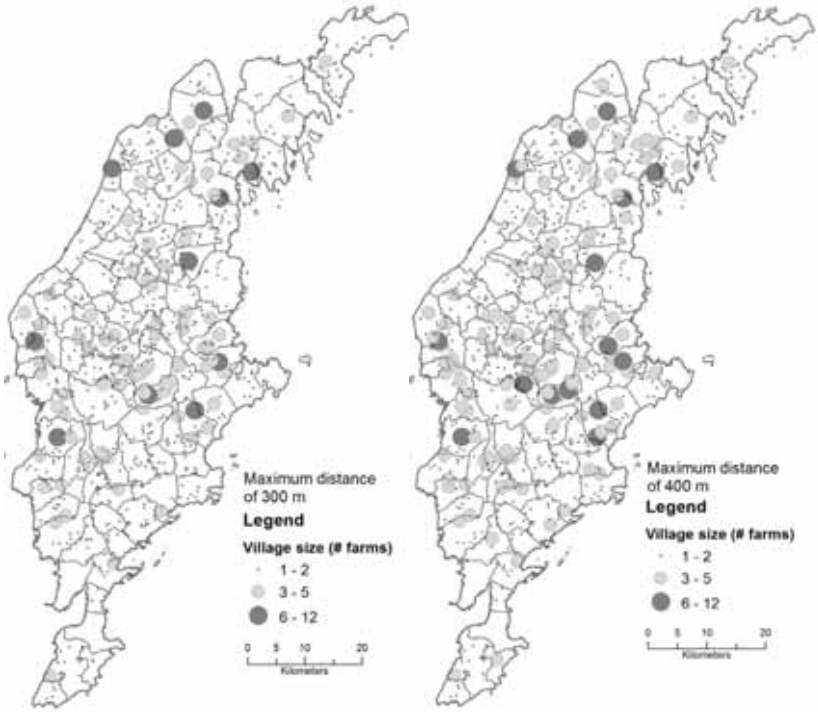


Figure 3.1.20a and b The distribution of Iron Age villages on Gotland with a maximum distance between farms of 300 m (left) and 400 m (right). The map is based on known house foundations only. As can be seen from the maps, there are no significant differences. The number of larger villages with a distance of 400 metres between the farms are a few more.

Large farms

The structures of farms are very similar on Gotland and Öland, with dispersed villages, but there are some differences. The statistical analysis of the relation between the cluster sizes and the large house foundations, showed a reverse relationship than could be expected. On Öland, according to Fallgren, the large house foundations are found in farms with many house foundations, which are considered to constitute the large farms and represent the higher estate in society (Fallgren 2006:143). However, on Gotland most (61%) of the largest house foundations, over 34 metres, are solitary or in a two-house cluster and not part of a large cluster. It is quite clear that the largest house foundations do not constitute large farms and neither does the largest cluster. This was confirmed by the visual analysis, which showed that the larger clusters consisted of many farms. After the visual interpretation, the share of largest house foundations, over 34 metres, in small clusters/farms have increased to around 75%. The interpretation has strengthened the trend, but not created any new pattern not already present.

If all farms are plotted according to their size, based on the length of all houses in it, the curve is a gentle slope to the right, but with some gaps and peaks. It is important to stress that the curve looks the same for the 80-metres clusters before the visual interpretation, so this was not introduced by the visual interpretation. A reason for this rugged appearance is probably recent removal of stone house foundations and incomplete data, which always is a problem with archaeological data. The peaks seen at some even numbers, like 20 and 30, are similar to those in the

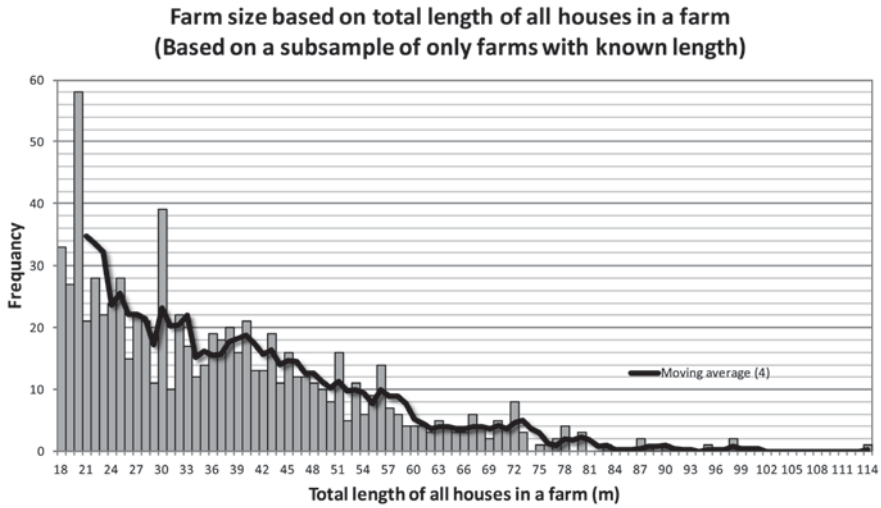


Figure 3.1.21. Diagram showing the total length of all houses in each farm. It is based on a subsample of around 800 of the visually interpreted farms, consisting of only the houses with known length longer than 18 metres.

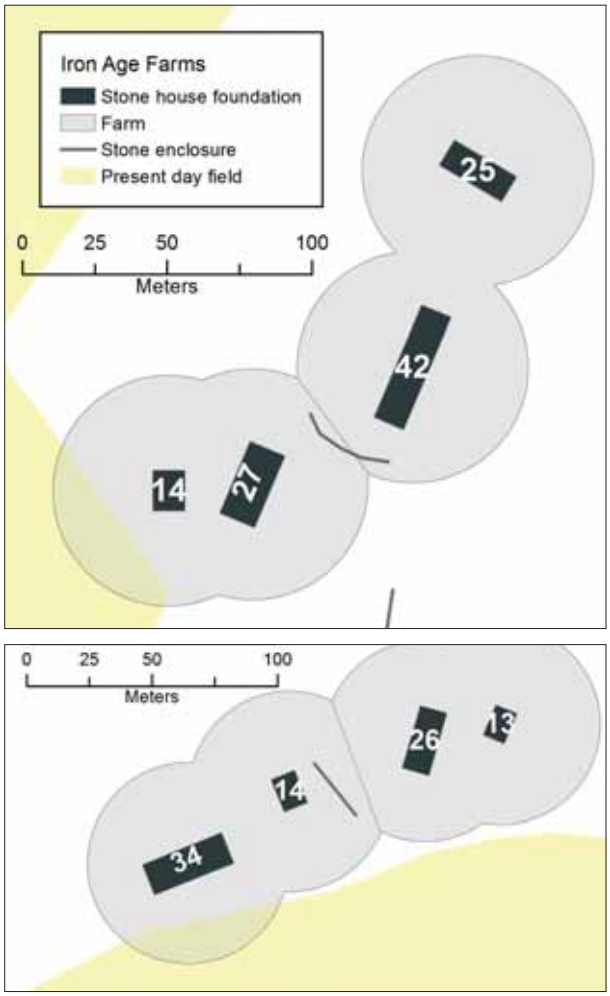


Figure 3.1.22a. A four-cluster divided into two farms, mostly based on the general layout and enclosure walls. The two house foundations to the left seem to be a group of their own. The remains of stone walls also cut through the group. The distance between the outer houses is 170 m and that is definitely too far for one farm (RAÄ Halla 26).

Figure 3.1.22b. A cluster with four house foundations that constitute two farms. It very much resembles the situation in RAÄ Halla 26 (fig. 3.1.22b) with a stone wall dividing the two farms, which are both 'classic' two-house farms, with a larger and smaller house at an angle or offset position to each other (RAÄ Halla 68).

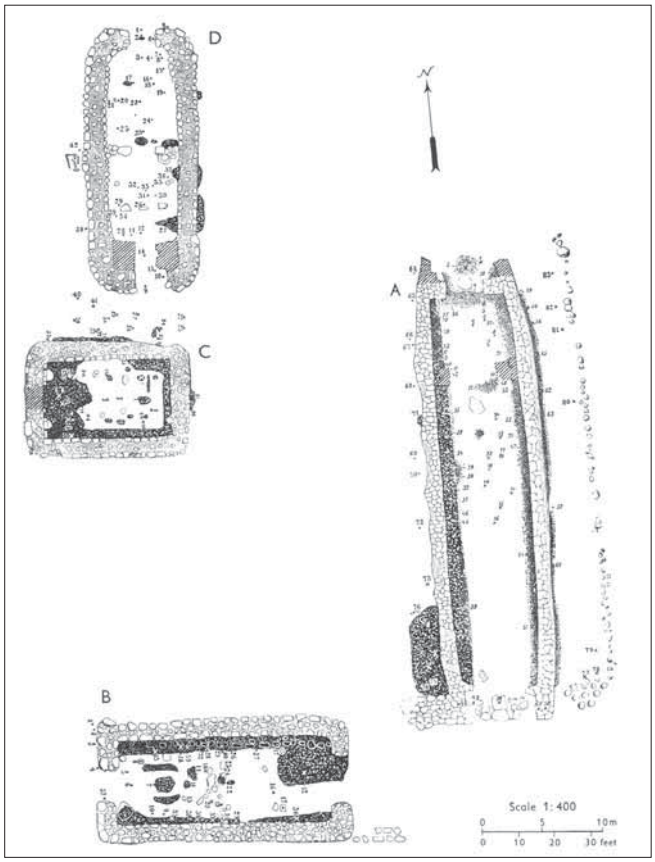


Figure 3.1.22c. The stone house foundations by the farm Rings in the parish of Hejnum. It was one of the first set of house foundations ever excavated in 1886 by Fredrik Nordin. It has always been interpreted as one farm, but if one looks at the situation of how they are grouped, it is not evident. They are grouped as two 'classical' two-house farms. Herschend (1988:50f) speculates on situations like this on Öland, as the smaller pair is a farm that was parcelled out from the larger one (Fig 341 in Björnstad 1955:866).

Figure 3.1.3, caused by the surveyors of ancient remains, rounding the lengths in the documentation. The many small farms with one house might also be overrepresented due to recent removal of stone house foundations, as discussed earlier.

It is hard to interpret settings like the ones seen in figure 3.1.22a-c, as anything else than more than one farm. As an example, Rings in the parish of Hejnum (fig. 3.1.22c) can be discussed. It was one of the first scientifically excavated groups of house foundations. The excavation was conducted in 1886 by Fredrik Nordin and as a result, he finally could establish the fact that the *Kämpagrav* indeed was the remains of a house from the Iron Age. In 1935, supplementary excavations were carried out by Lundberg and Nihlén and in 1950, Biörnstad conducted a third excavation to clarify certain aspects (Biörnstad 1955:864ff). The house foundations have been interpreted as one large farm, but the layout of the buildings and the results from the excavations suggest otherwise.

The entrance of house C is not oriented towards the supposed farmyard of a large farm, but face westwards, away from the other buildings. Based on the distribution of finds in building A, it seems to be a multifunctional building with a part for cattle and a part for dwelling. Building D can also be interpreted in the same way based on the different character of the flooring in the

southern and northern ends, but the finds are more evenly distributed (Biörnstad 1955:864ff). The four house foundations form two groups, where each is in the 'classical' two-house farm layout. The group consisting of buildings C-D appears to be separated from the large farm consisting of house foundations A-B. Since both farms seem to have all the functions of a farm, with both dwelling and cow-house, it should be interpreted as two farms and not one farm with two households. Herschend discusses a situation like this on Öland, where he interprets the smaller pair as a farm parcelled out from the larger one (Herschend 1988:50f).

On Öland, the most common farms have one or two houses, with some predominance for the two-house farms. Of the farms with three houses, around 100 are preserved on Öland. The largest farms, with four or more houses, are rare and only 18 are preserved today (Fallgren 2006:143). These numbers tally quite well with the situation on Gotland, as can be seen in table 3.2.6, in the next chapter. Since Gotland is larger than Öland, there are more farms, but the relationships between the different farm sizes are about the same. On Gotland, the situation is the opposite concerning the one- and two-farm houses, but this is a minor difference and might be due to recent removal, as discussed earlier.

Large farm represent some form of aristocracy in society according to Fallgren and he defines the large farms as those with many houses (Fallgren 2006:143). Evan if no aristocracy existed on Gotland, as will be discussed in a coming chapter, an argument for the three-house farms or larger to be the residences of the leaders in society is that a third house, could in many cases be interpreted as a hall. The hall is a place where a leader can receive guests and perform official tasks, not having to be in the privacy of his household. The hall acts as an interface between a public and a private sphere. According to Herschend, this concept has its roots in Rome and develops in Scandinavia from a single room, within the dwelling house in the pre-Roman Iron Age, to a separate building during the Roman Iron Age. This is normally a smaller one-roomed building, placed in the courtyard or in a separate fenced area close to the aristocratic farm (Herschend 2009:251f).

When studying the statistical data for Gotland, it is not possible just to say that a farm of a certain number of houses is large or not. Even if there is a strong correlation of 84% between the number of houses on a farm and the total length of all the houses, there are small outliers in each group cluttering the picture, as can be seen in the diagram in fig. 3.1.23. A visual study of the farms reveals that most of these smaller outliers are probably due to recent removal and incomplete data. There is one four-house farm on Fårö, which is a bit small, but on Fårö, most of the stone house foundations are small and Fårö is a special case in many respects. The rest of the small four-house farms could probably be explained by recent removal. There are also some three-house farms with very small houses, which could not be explained by recent removal and they should probably not be regarded as large farms. Some of the two house farms should probably also be in-

Table 3.1.12. Average nearest neighbour analysis of 26 farms with four houses.

Observed Mean Distance:	5 060 m	Given the z-score of -0.78, the pattern does not appear to be significantly different than **random** Study area: 3 147 km²
Expected Mean Distance:	5 500 m	
Nearest Neighbour Ratio:	0.92	
z-score:	-0.78	
p-value:	0.43	

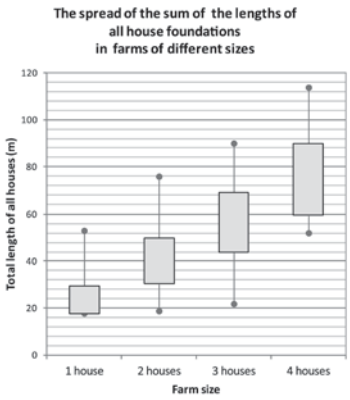


Figure 3.1.23. Length of all houses in each group of farms grouped by the number of houses. The diagram is based on a subsample of around 800 of the visually interpreted farms consisting of only the houses with a known length longer than 18 metres. The box represents one standard deviation and the whiskers the min and max values.

Table 3.1.13. Average nearest neighbour analysis of 40 farms all with an total length of over 70 metres

Observed Mean Distance:	3 858 m	Given the z-score of -1.57, the pattern does not appear to be significantly different than **random** Study area: 3 147 km²
Expected Mean Distance:	4 435 m	
Nearest Neighbour Ratio:	0.87	
z-score:	-1.57	
p-value:	0.12	

Figure 3.1.24. The distribution of the 26 largest farms, defined as farms with four or more houses. The map is based on a subsample of around 800 of the visually interpreted farms consisting of only the houses with a known length longer than 18 metres. Since the number of farms is few, there is a certain amount of sensitivity to recent removal of farms. Estimations of the number of vanished farms also show that these numbers must at least be doubled; therefore, around 50 farms of this size might have existed.

Figure 3.1.26a. Large farms defined as 3 or more houses and a total length of 60 m of all the houses. The map is based on a subsample of around 800 of the visually interpreted farms consisting only of houses with a known length longer than 18 metres. Since the number of farms is few, recent removal of farms might cause a bias. The estimations made over vanished farms, also show that these numbers must at least be doubled.

Figure 3.1.25. The distribution of the largest farms defined as farms with a total length of all houses of 70 metres or over, which are 40. The map is based on a subsample of around 800 of the visually interpreted farms consisting of only the houses with a known length of over 18 metres. Since the number of farms is few, recent removal of farms may bias the results. The estimations made over vanished farms, also show that these numbers must at least be the double, which means some 100 of these farms once existed.

Figure 3.1.26b. Large farms defined as farms with a total length of 60 m of all the houses. The map is based on a subsample of around 800 of the visually interpreted farms consisting only of houses with a known length longer than 18 metres. Since the number of farms is few, recent removal of farms might bias the results. The estimations made over vanished farms, also show that these numbers must at least be doubled.

cluded among the large farms, since both buildings are quite large, and at least one building could have multiple functions as discussed above. With regard to the idea that one house on the large farms might be a hall, one of the houses on these two-house farms, could be a multifunctional building with a hall function in a separate room, as in the pre-Roman Iron Age.

The overall picture is however that the number of houses indicates large farms, but not without exceptions. One important note to make is that all groups overlap, even if we regard that there is incomplete data and recently removed stone house foundations. In the diagram in figure 3.1.23, the min and max length, but also the length over and under one standard deviation (stdv) can be seen for all four groups. One standard deviation around the mean implies a range of about ⅔ of a population. These groups are not perfectly normally distributed, but the figures are close enough to be useful. As can be seen, the total length of houses is between 30-49 metres for approximately ⅔ of the two-house group; three-house farms measure between 45 and 69 metres; among the four-house group, house foundations are 59-91 metres in length. Table 3.2.6, in the next chapter, show an estimation of how many farms that once may have existed of the difference sizes. Only around 4% of the farms had four or more houses.

Another definition of large farms could be based on the total length of all houses in a farm. Studying the diagram in fig. 3.1.23 it looks like 70 metres is good breakpoint. The house foundations over 70 metres constitutes 5% of all house foundations, which are around 40 farms in the sample used in this analysis and an estimated 100 during the mid millennium. Nearly half of them consist of farms with four or more houses, two farms with two very large houses and the rest are three-house farms. All three-house farms over 70 metre are larger than one standard deviation.

The overall pattern between the two ways of defining large farms is very similar, which means that it is quite clear that the large farms are those with 3-4 houses of considerable length, with some few exceptions. The distribution maps above in figure 3.1.24 and 3.1.25 show that the large farms of four or more houses and also the ones longer than 70 metres, are distributed all over the island. Some of the largest farms lie in the same areas, and some areas are empty, most probably due to recent removal. An average nearest neighbour analysis also confirms the dispersed or random patterns of the largest farms, as seen in the tables 3.1.12 and 3.1.3. The pattern remains roughly the same when other selection criteria for large farms are chosen, as can be seen below, which indicates that the different farm sizes are rather evenly distributed over the island, which might indicate some kind of hierarchy, which will be discussed more later.

Farm sizes in villages

One interesting matter to analyse is the relationship in sizes between the farms in a village. There are several questions associated with this, like the origin of the village and the hierarchy between farms in a village. These two issues are also interconnected to some degree, at least on Gotland. This will also be analysed for the historical period. With few exceptions, there is nearly always one farm larger than the rest in each village. As will be shown later on, the results for the historical data are very similar.

The mean index for the different sizes of villages shows an interesting pattern. In the small villages with 2-3 farms, there is a greater difference in size between the largest and the second largest farms than there is in the larger villages, but since the sample size is much smaller for the larger villages, there is an uncertainty.

Table 3.1.14. Relationship between the largest and second largest farm in villages of different sizes

	Farm size					
Mean index	2 farms	3 farms	4 farms	6-5 farms	8-7 farms	12-10 farms
	1.6	1.6	1.3	1.5	1.3	1.2

The 40 largest farms, over 70 metres are overrepresented in villages. Two thirds of the largest farms are situated in 400-metre villages and 62% are situated in 300-metre villages. Since the figures are so close between 300- and 400-metres villages, the following analyses will only be made on the 400-metre village data.

Table 3.1.15. Distribution of large farms across different village sizes. The analysis is based on the visually interpreted villages

Village size	Frequency	%	Reversed cumulative	CUM %
1	13	32.5%	40	100.0%
2	12	30.0%	27	67.5%
3	5	12.5%	15	37.5%
4	4	10.0%	10	25.0%
5	3	7.5%	6	15.0%
6	0	0%	3	7.5%
7	1	2.5%	3	7.5%
8	2	5.0%	2	5.0%
Σ	*40*	*100.0%*		

As can be seen in the table 3.1.15, the distribution of the largest farms across different village sizes, does not significantly differ from all farms (see table 3.1.9).

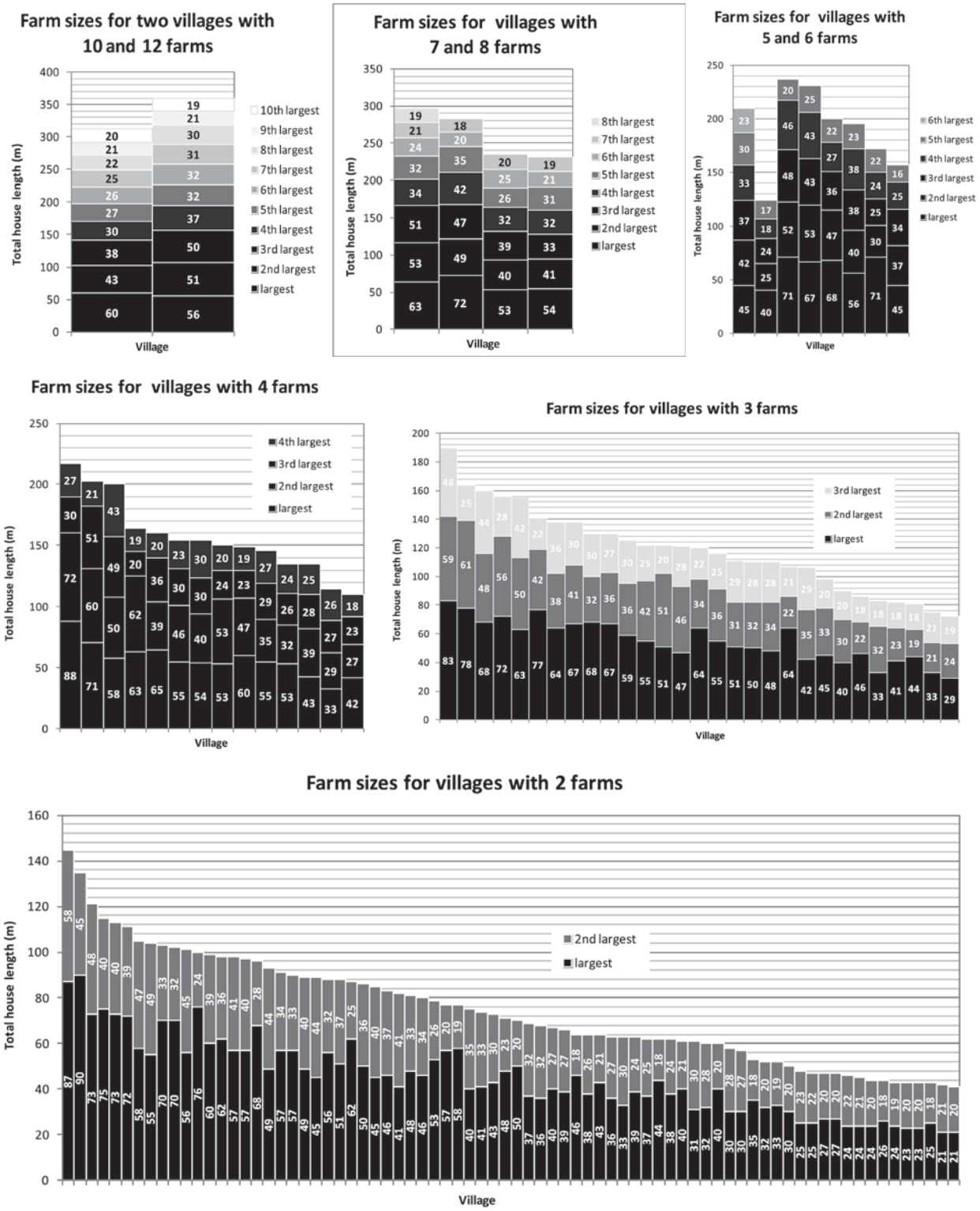


Figure 3.1.27a-f. Farm sizes in different sized villages. The diagrams are based on a sample of 134 villages, with almost complete data, consisting of 383 farms.

3.2 The extension of the Iron Age landscape

Since one of the prime goals of this work, besides the identification and analyses of villages on Gotland, is to see the changes in the development of the cultural landscape on Gotland, it is essential to find the settled areas of the studied periods. As can be seen from the last chapter, there are areas where no or very few Iron Age stone house foundations are found. The question is if it is because they did not exist or if they have vanished due to later activities, such as ploughing or development. One method of trying to identify areas with certain types of ancient remains or that have been used for different activities during different periods is called predictive modelling. Since the advent of GIS in archaeology, this has been a large field of application. The prime objective of this analysis is to identify the areas, which most probably were settled during mid millennium, and the ones most probably lacked settlements. In this way, likely boundaries for the central settlement areas of the period determined. Based on this model, a calculation will also be made estimating the number of vanished mid millennium farms.

About predictive modelling

Predictive modelling is used both in Cultural Resource Management (CRM) and for academic research in archaeology, since the need and demand for ways to predict and understand the reasons for the location of various archaeological sites are of great importance within both areas. Predictive modelling is one of the first more complex operations that were done in GIS by archaeologists, since it was the natural continuation of other non-computer based techniques developed to predict sites in North America. Very few surveys for archaeological sites had been conducted and there was a need to develop methods of predicting the areas of archaeological sensitivity for use in the planning of society on different levels (Podobnikar et al 2001:536).

Lagging some years behind, European cultural resource management and scholars began to use predictive modelling in the early 1990s (Leusen, van 1996:177f, Deeben *et al* 1997:77). One reason for the early start in America is the greater need of predictive models due to difference in legislation. In most European countries, archaeologists can survey and perform excavations on privately owned land, but this is not the case in America, where archaeologists most often are confined to publicly owned land (Podobnikar et al 2001:536).

In the Netherlands, which is one of the most densely populated countries of the world, and where roughly 1% of the country is under development each year (Kamermans & Wanslebeen 1999:225), predictive modelling has been largely embraced and much effort is spent to develop and explore new methods, which also has generated many publications on the subject (Kamermans et al 2009:10f). In many other European countries, different methods are also tried and are utilised in research, as well as in CRM work, but to my knowledge not in Sweden; at least not published.

A predictive model attempts to predict where archaeological sites or features are located, by looking for tendencies and patterns observed in a region, or derived by theory (Kvamme 1990:257). In the literature about predictive modelling, several different terms and concepts are used, which are sometimes very close in meaning. Consequently, a clarification of these basic terms will be made. In cultural resource management and in academic research, two different approaches are normally needed. The main focus of cultural resource management is to be able to predict where it is likely to encounter archaeological sites in an area. The need to explain why it is there is of minor interest. In academic research, the need for understanding the reasons and mechanisms behind the choice of a site location is often the central issue. The former is predictive in its aims and the latter is interpretive (Warren 1990a:90; Leusen, van 1996:181ff).

The predictive approach can be expressed as identifying location factors and the interpretive perspective can be regarded as a way of understanding factors behind the choice of location. The difference can also be expressed in the following way; in the predictive case, the present distribution of sites is predicted; and in the interpretive case, an explanation of the past distribution of sites is attempted (Leusen, van

1996:183f). It can also be viewed as the difference of using deduction from theory or induction from observations (Warren 1990a:90; Della Bona 1994:5). This would be the same as Martijn van Leusen's academic (deductive) approach and the CRM (inductive) approaches. Other terms that are sometimes used are empirical correlative and deductive models. The former is based on observations and the latter is based on deducted theory (Kvamme 1990:273).

In practice, the boundary between the two approaches is somewhat fuzzy since most predictive modelling is a cyclic process, in which both deductive and inductive input is used to refine the model (Kamermans & Wansleeben1999:225). Robert Warren argues that theories are always needed for choosing the independent variables, and if only observations are used in the selection of variables, there is a risk for the creation of a weak model (Warren 1990a). In the pure predictive case, there is a danger of a biased result when no attempt is made to understand the underlying reasons and structures for the location, because the archaeological material itself is biased (Leusen, van 1996:184).

The approach in the coming analysis is a combination of both, as most models are, since the selection of independent variables is based in prior knowledge and observations.

To produce a successful predictive map one needs to have several models for different types of sites, and sites from different periods. The preferences behind the choice of location of different types of sites, like settlement sites, have changed over time as well as the reasons for these choices. The different activities carried out by hunter-gatherers, Iron-age farmers, fishers etc lead to different strategies for choosing sites. At the best, one model can account for a couple of different kinds of related sites and features (Dalla Bona 1994:7).

Most predictive models use environmental variables that are measurable in the present landscape. This implies that there are at least two general assumptions. The first is that environmental factors played a key role when the prehistoric people chose their place to settle and the second is that these variables are still measurable in the present landscape (Warren 1990b:202). The almost exclusive use of environmental variables has led to criticism of predictive modelling as being to environmental deterministic (Leusen, van 1996:181f; Harris & Lock 1995:357f). In the majority of studies, this is true. A reason for this is that cultural factors are harder to map and fit into a GIS-system. Some analyses have attempted to take human cultural behaviour in account, with the use of algorithms to produce viewsheds for studies of intervisibility between archaeological features, friction surfaces, which can model movements in the landscape etc. However, as Kenneth Kvamme and Martijn van Leusen point out, the variables used in these models, are all derived from environmental data, such as Digital Elevation Models (DEM), and thus suffer the same limitations.

Alicia Wise emphasises the difference between ecological and phenomenological variables that can be used in GIS and criticises the fact that most GIS applications in archaeology today are based solely on ecological variables; and done so in the wrong way. She means that GIS is a perfect tool also for phenomenological variables and she outlines some ways to incorporate human perception and consciousness of the landscape and environment into GIS analysis (Wise 2000).

Another criticism of the use of predictive modelling is that the focus is often on the wrong things. For most model builders, it is common that only the predictive power of the model is important and the full potential of the model is not used. A GIS-system can be used to analyse patterns, but not random occurrences. The GIS can identify the non-pattern parts, but cannot analyse them (Gaffney & Leusen, van 1995:370f). Jeffrey Altschul points out that even if the predictive power sometimes is poor, there is still much information and knowledge to extract from the results, if you focus on the right things. In his study of Mount Trumbull he examines the outliers that did not follow the pattern, which he calls 'Red flags', which are the sites not predicted correctly. He argues that from such studies, much knowledge about the studied ancient societies can be gained (Altschul 1990:227ff).

In the present analysis, the areas that fall outside the model are of equal importance, and are used in the interpretations just as much, or even more than the areas predicted by the model. This is because the characteristics of the areas that were not settled in the mid millennium are important in the study concerning historical times and in the following comparative analysis between the periods.

All predictive models consist of three basic elements: Information, method and outcome. A predictive model uses a method to transform information into a prediction, the outcome (Warren 1990a:91). The information used in the

models consists of two parts, the dependent and the independent variables.

The dependent variable is the archaeological site or feature that we want to know how it is distributed. The unit of study is the parcel of land and the prediction concerns whether or not it has the characteristics of a site of the feature that is modelled, in this case Iron Age stone house foundations. It is not the features themselves that are predicted, the prediction concerns whether the independent variables of the parcels of land are similar to those that contain the features.

Kvamme lists several kinds of dependent variables that can be used. 1. Site presence or site absence, which is a binary technique that deals only with dichotomous dependent variables. It predicts the presence or absence of sites in a parcel of land. This is the most frequently used technique, and the one used in the present analysis. 2. Multiple types of sites is a polychotomous model, which can deal with many different types of sites and can predict the likelihood of the parcel of land containing a site of a specific class or not containing a site at all. 3. Counts or site density are models normally used for studies in which the study unit (parcel of land) is large. The frequency or density of sites or features is calculated with these methods. 4. Site significance deals with ranking different sites according to significance, which means that these models attempt to rank locations in accordance with their archaeological importance. The initial ranking must be done in theory (Kvamme 1990:269ff).

The independent variable consists of the characteristics that are recorded at each parcel of land; the correlation between them is then used to make the prediction. These characteristics can be divided in four major themes. 1. Environmental variables that can be measured at every unit, like elevation, precipitation, vegetation, soil type etc. From some of these variables, others can be derived, e.g. a Digital Elevation Model (DEM) can be used to calculate the slope, aspect and relief of a site, along with landforms, networks of streams, watersheds etc. 2. Cultural and social factors can be independent variables. These variables might be roads, other settlements, central places etc. Often they are derived from environmental variables, like viewshed, friction surfaces etc. 3. Positional characteristics are variables based on autocorrelation. If clustering, dispersal etc are observed, it can be used in the model. Models that can predict the coordinates of a site are also developed. 4. Radiometric characteristics are variables that use the measured reflectivity of radiation that is present in the unit. The raw data is most often remotely sensed data like satellite images and aerial photos. Ground cover radiation is however, in most senses, just a proxy for different environmental variables present in the unit (Kvamme 1990:271ff).

The term method signifies the models and techniques that are used in the prediction. The models/methods can also be described as a set of rules on which to base decisions (Kvamme 1990:261). There are several methods to use when making a predictive model in a GIS environment, which normally implement some kind of statistical method. These can be grouped in two major categories; methods based on trends in location only and methods based on trends in the characteristics of the location. The latter, which is the most common one, uses different characteristics measured at the sites to establish the trends in characteristics at the location. There are a vast series of methods and model types. I will only mention some of the more common ones. For a description of many of them, see Kvamme (1988b, 1990), Della Bona (1994) or Ejstrud (2001, 2003).

Boolean models are a straightforward approach that is easy to implement without any knowledge in statistics, and can be used when very little sample data is available. For each variable a threshold value is calculated and then stored in separate boolean layers, in which 1 meets the threshold and 0 does not. The layers are then added up; the higher the sum a location gets, the more criteria are met and thus it is more likely to contain sites of the predicted kind. There are of course drawbacks attached to the simplicity. The main drawback is that you cannot estimate the relative influence of each variable, since the variables are treated separately and equally valued. You can however assess the performance of each variable by calculating with how large area it contributes to the model (Stančič & Kvamme 1999:234ff).

In his study of Etruscan and Roman settlements in Albegna Valley, Italy, Philip Perkins uses this approach. Since the sites range from a long period and include different cultures, several models were created. The variables used in the different models were, elevation, slope, aspect and soil types (Perkins 2000).

A more complex and developed form of the Boolean model is the weighted map layer model. Instead of just assigning the digits 1 and 0 to variables, representing whether the criteria are

met or not, you have several thresholds, so each variable is weighted according to its importance in the model. This means that the more important variables contribute more to the result. The main drawback with this method is that you get very different results, depending on how you define your weights, since there is no rule or standard procedure for this. The weighting has to be based on knowledge or on assumptions of the feature predicted.

In developing a method for aiding the survey for agricultural terracing in Monte Pallano in Abruzzo, Italy, a weighted model including cultural/anthropogenic and environmental variables was used. The cultural/anthropogenic variables included among nearness to settlements and roads; environmental variables involved proximity to springs and water, exposure to the sun, how water acts and flows across a surface and slope (Countryman et al 2012:307ff). One of the first attempts of applying predictive modelling in Dutch archaeology used this approach. They solved the weighting problem by using an empirical method and simple statistics to calculate the weights (Brandt *et al* 1992).

Regression and correlation models are based on correlation between the independent and the dependent variables. Most statistical methods need a relatively large number of samples (>25) and are parametric, which means they have some underlying assumptions of how the data is distributed. For example, in many cases, like linear regression and discriminant function analysis, there is an assumption that the independent variables are normally distributed. This is often hard to meet in an archaeological context, and leads to extra work in transforming the data to meet these assumptions. In practice however, there are many examples of models performing well, even if they are not aligned with the underlying assumptions (Kvamme 1990:274).

Discriminant function analysis is a widely used method, and for example used in the Kromme Rijn area in the Netherlands, where it showed a good predictive power with the variables that were used. More than 75% of the settlements were predicted in the zones with the highest likelihood, which covered only 25% of the area (Deeben *et al* 1997).

Logistic regression analysis (LRA) is a regression technique, which is nonparametric and thus do not have any underlying assumptions of how the data is distributed. It can also handle variables on all scales, which is a major advantage. It has been widely used in many models, and is the one used in the present work.

Besides these well tested and often used techniques, more advanced have been tried in recent years in an effort of finding new methods of dealing with shortcomings concerning the quality of the models. This mostly involves trying out new advanced statistical methods in which uncertainty is handled and which have the ability of testing the final model. Many of the methods are however very complex and mastered by few archaeologists (Kamermans et al 2009:20). Among these statistical methods is Bayesian multi-period modelling, which has the benefit of being able to model expert opinions as a variable, alongside the other normally used variables (Leusen, van et al 2009:124). Another advanced method for handling uncertainty in the predictions is the Dempster-Shafer model, which is mathematically related to Bayesian methods and holds a number of benefits, particularly for CRM application, since it is easy to update, it is flexible and the results are easy to interpret (Leusen, van et al 2009:136).

In his work in testing different methods for predictive modelling for different types of sites in Denmark, Bo Ejstrud tests ordinary and weighted boolean models, logistic regression and Dempster-Sharef, in which Dempster-shafer falls out the best (Ejstrud 2001:146f). The method is however rare in archaeology and thus not very well tested nor described.

The outcome of the different types of models follows different scales of measurement: nominal, ordinal, interval or ratio. For the prediction of archaeological site locations, output in a ratio scale is preferred, since it can produce a probability surface. One often used method, which produces probability surfaces is the Logistic regression analysis (LRA). The output of various Boolean overlay methods produces an outcome on the interval or ordinal scale; the higher the value, the more of the used variables are present (Warren 1990a:93).

The prediction model for Iron Age stone house foundations on Gotland

The method chosen in the present work is logistic regression analysis (LRA). This is a statistical method that is quite frequently used and a standard method in many fields of analysis. Kenneth Kvamme introduced the method in archaeology in 1983, since then it has been often used because it is considered robust and well suited

for archaeological predictive modelling. The greatest drawback for most archaeologists has been that it is quite complex, but nowadays it is built in as a standard module in many GIS-applications and available in most statistical packages for standard PC's, so users do not need to understand the mathematics in any detail. The main advantages with LRA are that it can deal with all scales, nominal, ordinal, interval and ratio; it does not assume the data to be normally distributed and it produces a probability surface. This means that you can use dichotomous (binary) dependent variables, like presence/absence of sites in a unit and use soil classes (nominal) together with distances (ratio) in the same model. LRA requires that you have two data sets; one with all the variables measured at the sites where finds/remains occur and one with all the variables measured at randomly selected sites without finds of the predicted kind, which can be called non-find sites. The variables of the two data sets are then compared for significant statistical differences.

This was identified by Ejstrud as the weak point of the method in the way he implemented it and the cause of why it did not perform so well in his study. The problem lies in identifying sites that really are non-find sites, which with his material was hard to achieve. He used a combination of known non-find sites and a random function (Ejstrud 2001:95ff). In the present case, both the chosen method and the character of the sites themselves minimise this problem. A model development area was careful selected; this is an area that is not so heavily affected by modern cultivation or development, and where an absolute majority of the Iron Age stone house foundations are believed to be preserved and identified.

In this area, the non-find sites were generated with a random function in the GIS-package, and I believe the risk that many random points are generated at the location of unknown Iron Age stone house foundations to be small.

The dependent variable

The locations predicted in this study are the sites of the Iron Age stone house foundations; or rather, the characteristics of the site are predicted. In the main agricultural districts of the island, where the modern agricultural activity is intensive, Iron Age stone house foundations are scarce today. However, it is believed that there have been many farmsteads in these areas during the Iron Age, which today have no visible traces above ground. Furthermore, few are preserved in the urban area around Visby. As accounted for earlier, about 1 800 remaining Iron Age stone house foundations are visible in the landscape on Gotland today. Some additional hundred are identified in other sources; this means that FMIS contains nearly 2 000 Iron Age stone house foundations. During this work another 250 are identified in different historical maps, which means that the location of around 2 250 Iron Age stone house foundations are known today. In this analysis, only the 1 969 Iron Age stone house foundations listed in FMIS are included, since this analysis was done prior to the scrutinizing of historical maps in the quest for more.

It would seem natural also to include the stone enclosure walls, which most often are interpreted as functionally linked to the stone house foundation, but they will not be included. There are two main reasons for this. Firstly, they are absent in the same area as the stone house foundations. Secondly, the enclosure systems can be extensive; several hundreds of metres in length, covering large areas and it is only the sites for the Iron Age stone house foundations that are the object of study. These two facts thus make them poor predictors

Independent variables

A close correlation has been noticed between the mid millennium settlements, moraine soils and historical meadows. In a study by Carlsson (1979:91) of the GM1700 cadastral maps, the result showed that at least 50% of the remaining Iron Age houses were found in the meadows. The meadows are often situated in the lower and damper parts of the infields. A study made by Arrhenius shows that up to 80% of all Iron Age stone house foundations are situated on moraine soils (Arrhenius 1955:1062). If calculated as the density per area unit, it is more than twice as common (2.2) for Iron Age stone house foundations to be situated on moraine soils than on sandy soils, when normalised for the larger acreages of the moraine soils. It is quite clear that the moraine soils where favoured by the settlers during the mid millennium.

It is also noted that the houses are built on, or near, patches of non-productive land, most often the bare rock. However, the scale of the available geological data makes it unfeasible to include the small areas of limestone bedrock in

the analysis, since they are too small to be found on the map.

There are two sources of geological information for Gotland produced with different techniques and during different eras. One is an older printed geological map from the first half of the 20th century and the other is a modern digital database from around 2009-10. The old one is available as high-resolution tiff-files, which were rectified and then partly vectorised, for this work. The data for the old maps is collected by field walking and sampling and shows the soil type or bedrock of the surface layers. The modern digital database is made by remote sensing techniques and only some sampling along the main roads was made to verify the remote sensing results.

The more important difference is that the mapping depth of the digital database is 0.5 metres. This means that areas with surface soils thinner than 0.5 metres are classified mainly as 'other or unspecified soil' (SGU 2009a:2).

Of the 1 969 Iron Age stone house foundations used in this analysis, 1 656 (83%) are situated within 100 metres of the moraine soil shown in the digital database. If the same query is applied on the combined database, where the moraine soils from both maps/databases are merged, this results in a set of 1 742 (88%) house foundations. There are thus 86 Iron Age stone house foundations situated on thin moraine soils. The total area of the moraine coverage in combined layers is 150 233 ha. The area classified as moraine in the modern database is 120 210 ha. Even if parts of this difference probably can be due to errors in the mapping and misclassifications, it shows that around 20% (30 000 ha) of the moraine soils on the island are very thin and were not used much for settlement in the mid millennium, with the exception of a few cases. Iron Age farms situated on these soils probably had poor supporting capacity. For the predictive modelling, only the modern geological database was used.

It was also cleared from all very small areas of moraine. Several different thresholds were tried, among others 18 hectares, suggested by Dan Carlsson (1979:119f) as the mean size of

Table 3.2.1a-c. The number and percentage of the Iron Age stone house foundations in relation to the different variables for all of Gotland and of those in the model development area. A 100 metre buffer zone is also accounted for, due to geometrical errors in the used data, which according to SGU, should normally not exceed 50 m, but in rare exception may be up to 100 m (SGU 2009a:11).

Table 3.2.1a. Variable characteristics for all of Gotland.

Stone house foundations (1 969)	**Fields**	**Meadows**	**Infields**	**Moraine soils**	**Sandy soils**
Number of house foundations	251	891	1 141	1 201	379
% Of total	*12.7%*	*45.3%*	*57.9%*	*61.0%*	*19.2%*
...within 100 m	755	1 363	1 528	1 656	666
% Of total	*38.3%*	*69.2%*	*77.6%*	*84.1%*	*33.8%*

Table 3.2.1b. Variable characteristics for the model development area

Stone house foundations (276)	**Fields**	**Meadows**	**Infields**	**Moraine soils**	**Sandy soils**
Number of house foundations	48	109	157	117	22
% of total	*17.4%*	*39.5%*	*56.9%*	*42.4%*	*8.0%*
...within 100 m	122	195	208	208	79
% of total	*44.2%*	*70.6%*	*75.4%*	*75.4%*	*28.6%*
Control group sites (286)					
Number of sites	12	31	43	74	47
% of total	*4.2%*	*10.8%*	*15%*	*25.9%*	*16.4%*
...within 100 m	36	61	71	127	90
% of total	*12.6%*	*21.3%*	*24.8%*	*44.4%*	*31.5%*

Table 3.2.1c. Distribution of soil types on all of Gotland and in the model development area

Soil types	**Total area**	**Sandy soils**	**Moraine Soils**	**Sandy & moraine**
Gotland Area (ha)	312 481	81 907	120 210	202 117
% of total	*100%*	*26.2%*	*38.5%*	*64.7%*
Model development area (ha)	33 127	6 464	9 945	16 409
% of total	*100%*	*19.5%*	*30%*	*49.5%*

an Iron Age farmstead. This limit excluded more than half of the Iron Age stone house foundations on Fårö. A threshold of two hectares was finally chosen, since it only excluded 13 Iron Age stone house foundations, but would clear the prediction map from all smaller predicted areas, probably mostly not relevant.

As mentioned above, it has long been observed that there is a correlation between the infields, as depicted in the GM1700 maps, and the Iron Age stone house foundations on Gotland. A circumstance unique for Gotland is that the whole island, which means every farm in every parish, was mapped during a short time period and drawn in the GM1700 maps, which gives us a complete picture of the land use and location of the farms at the turn of the century between the seventeenth and eighteenth centuries.

In the 1980s human geographers at Stockholm University digitalized the farm tofts, fields, meadows, pastures and bogs into GIS-layers of vector format for the entire island, which is freely available. It was done as a part of the project *Markdatabas Gotland* (database of land use for Gotland). The database is somewhat generalised concerning the fields because sometimes the patches of tilled fields are so small, that it is the fenced areas around several field parcels which are depicted. This means that the sum of all fields in the database is slightly larger than in reality.

Based on this database, Mats Widgren calculated that around 70% of the stone house foundations are situated within the infields that were mapped around the year 1700 (Widgren 1984b:41). These results are similar to those calculation presented below. The difference of a few per cent can probably be explained by the difference in the GIS-methods that were used and in the underlying dataset of Iron Age stone house foundations.

In most predictive models, information derived from elevation data, so called Digital Elevation Models (DEM), is an essential and often dominating part of the variables. Elevation, slope, aspect and other calculated measurements are the basic components in many models (cf. Stančič 1999; Carmichael 1990; Della Bona 1996, Warren 1990), but since Gotland is so flat and hardly any elevation differences are present, the use of derived variables from a DEM is most often not meaningful.

Gotland and all of Scandinavia, was pressed down by the glacial ice of the last Ice Age. Ever since the ice melted, the island has been rising out of the sea. In addition, the water levels have shifted in the Baltic Sea, which means that the shoreline of the Iron Age is now on dry land; for the mid millennium it is estimated to around 5 metres above the present, but this varies and the difference is greater in the northern part of the island than in the south. The shoreline displacement model used is created by *Sveriges geologiska undersökningar*, *SGU* (The Geological Survey of Sweden) and is based on radiocarbon dated data from identified old shore lines in the Baltic region. This empirical field data is modelled in mathematical formulas and implemented in a GIS-application which uses existing elevation data to model both the extent and position of inland waters and the coastal shoreline for any point in time (Påsse & Andersson 2006:10ff).

During the 19th and 20th centuries, most of the wetlands and lakes on Gotland were drained to reclaim land for agricultural purposes. Only approximately 5-8% of the former expanses of wetlands are now left, so the landscape of Gotland is completely different today compared to before. It has long been noticed that a large part of the mid millennium settlements are located in the lower parts of the landscape, near the former wetlands, bogs and lakes. The SGU models the past distribution of the wetlands, even if it is quite generalised. This functions as a proxy for elevation data, since the wet areas are the lower parts of the landscape.

The shoreline displacement model created by SGU has some shortcomings and is not perfect, which affects the accuracy of the model. This depends on the quality of the elevation data that was used (Påsse & Andersson 2006:10ff). It has been noticed that archaeological data and the SGU-shoreline sometimes do not match on Gotland. This is probably due to weaknesses in the model itself and in applied elevation data, since it is not based on modern lidar-data. This creates a bias in the results. Nevertheless, the bias might not be so great, since the errors are most likely not systematic, but random and secondary; it is not the absolute position of the shoreline of the body of water that is used in the calculation, but the distance to it. Of course, this makes the results less accurate, but it is worth noticing in the statistics below, that the variable defined as distance to inland water, provides the least contribution to the prediction model; this is a marginal in respect to significance (0.059), which might be caused by the deficiencies in the SGU model.

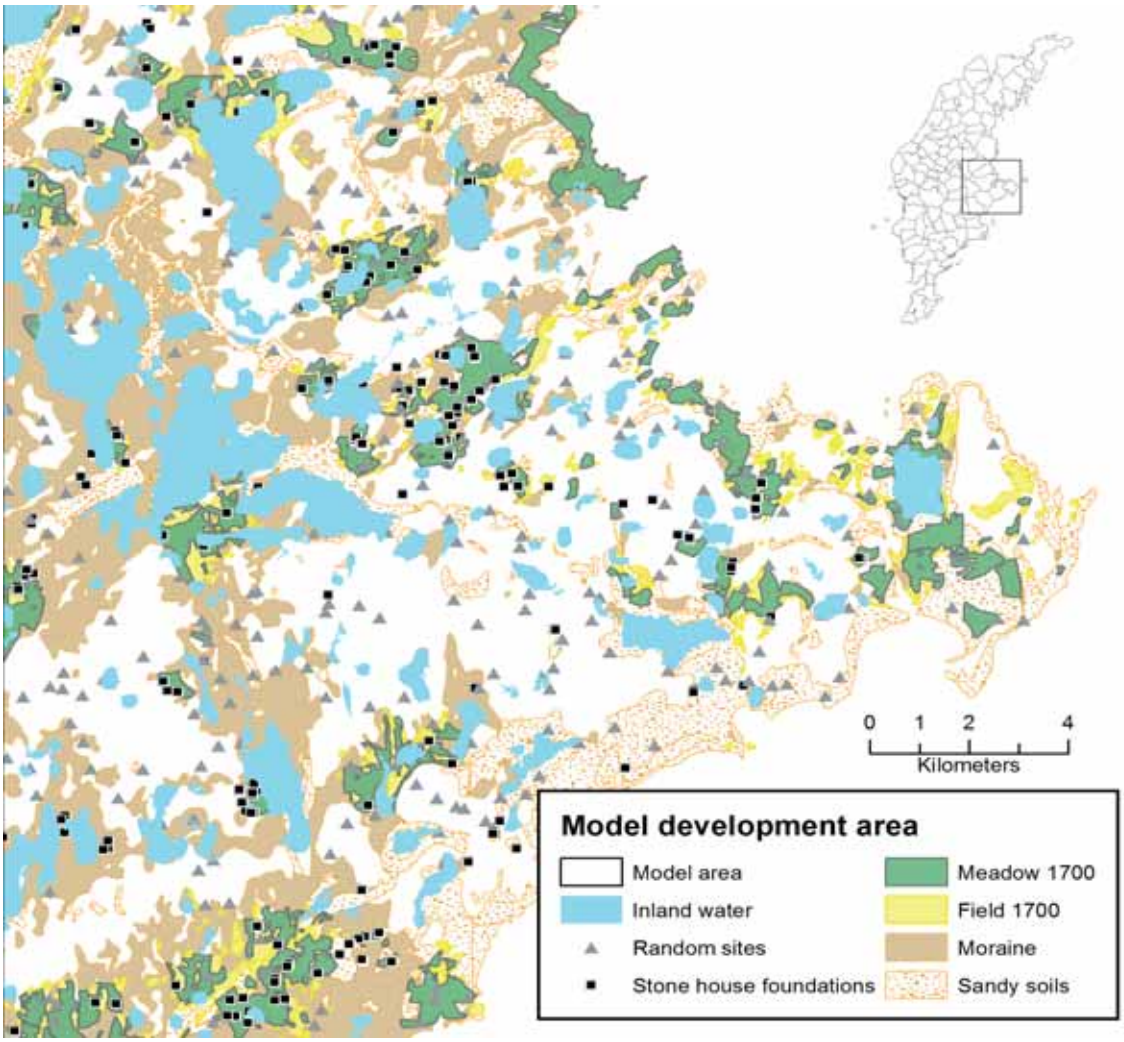


Figure 3.2.1. The model development area on the eastern part of Gotland

The meadows, moraine and inland water were transformed into raster layers of 5-metre resolution for the entire island and the distances were calculated from all features. The variable is the distances to the feature, not the feature itself.

It is always best to develop the model on a separate set of data; in this way, the result of the model can be evaluated with independent data (Kvamme 1990:279). Accordingly, a subset of the database was chosen for model development. A part of the island, 331 square kilometres, was chosen (see fig 3.2.1) as a model development area. This area is known for its many remains of Iron Age settlements and is representative for the natural landscape of Gotland. For the area of model development, a random set of 286 non-find sites was generated and all variable values for these points were extracted together with the values for the sites of the 276 Iron Age house foundations within the model development area. Tabular data for statistics concerning the different variables is presented below.

The independent variables chosen for the model was:

1. Distance to moraine soils > 2 ha
2. Distance to 18th century infields
3. Distance to inland water > 5 ha

The prediction model

The table 3.2.3a shows some general statistics for the selected variables and the entire model. All variables are highly significant, except 'HG_DistanceToInlandwater_st_5ha', but it is very close (p=0.059) and is thereby kept in the model. The R^2 values cannot be read as in an ordinary linear regression model, it is only a pseudo R^2. The McFadden R^2 is closer, but can still only give a hint of the fit of the model. A medium value is normally considered very good (Kvamme 1988b). The variables and the model may not meet all statistical demands, but these statistics can only give a clue to how the model will per-

Table 3.2.2. Group Statistics and T-test for different versions of the variables. Basic statistics and results from the T-test of the locations of the Iron Age stone house foundation (1) and the non-find sites (0) in the model development area. The values refer to distances to the features. The low values in the sig. column of the Levene's test suggest that significant differences between the control group and sites are present for all variables except the distance to inland water bodies larger than 10 ha.

Variables №	Name	Binary	№ of samples	Mean (m)	Std. Deviation	Std. Error Mean	Levene's Test for Equality of Variances F	Sig.
1	Distance to Inland water > 2ha	0	286	305.9	326.2	19.3	26.991	.000
		1	276	271.9	204.6	12.3		
2	**Distance to Inland water > 5ha**	**0**	**286**	**402.8**	**436.1**	**25.8**	**28.261**	**.000**
		1	**276**	**338.3**	**264.9**	**15.9**		
3	Distance to inland water > 10ha	0	286	526.3	499.2	29.5	4.492	.034
		1	276	477.3	427.5	25.7		
4	Distance to meadows	0	286	736.1	675.9	39.9	38.776	.000
		1	276	249.9	553.3	33.3		
5	**Distance to infields**	**0**	**286**	**636.8**	**631.8**	**37.3**	**62.704**	**.000**
		1	**276**	**187.9**	**440.4**	**26.5**		
6	**Distance to moraine > 2ha**	**0**	**286**	**305.1**	**384.1**	**22.7**	**53.660**	**.000**
		1	**276**	**123.5**	**251.1**	**15.1**		

Table 3.2.3a. Estimates, intercept and statistics for the used model

Parameter	Estimates	Stdv	Chi-square	Pr. > Chi-square
Intercept	0.968	0.159	37.116	< 0.0001
HG_DistanceToInlandwater_st_5ha	*-0.0005150*	0.000	3.552	0.059
HG_DistanceToInfields	*-0.0015952*	0.000	50.839	< 0.0001
HG_DistanceToMorain_st_2ha	*-0.0012501*	0.000	12.359	0.000

Table 3.2.3b. Results of statistical tests

Observations	Log Like.	Log Like. (indep)	Pearson's Chi-square	DF (Chi-square)	Pr. > Chi-square	L.R. Chi-square	DF (L.R. Chi-square)	Pr. > L.R. Chi-square	R^2	R^2 (McFadden)
562	-332.07	-389.46	741.03	558	< 0.0001	114.78	3	< 0.0001	0.224	0.14736

form; the most important test will be how well it predicts. To quote Kvamme (1988):

> *'When I asked them [professional statistician] about the role of statistical theory in model development, they suggested that I worry less about theory and more about how well the model works in practice'*

The chosen model has the following formula (rounded values), which was used when the probability surface (result layer) was calculated with the raster calculator in ArcGIS:

*P = 1/(1+EXP(-(0.967846 - 0.000515 * HG_DistanceToInlandwater_st_5ha* - 0.001595 * HG_DistanceToInfields - 0.001250 * HG_DistanceToMoraine_st_2ha)))*

All inland water and wetlands that existed around year 0 were deducted from the probability surface, as well as the coastline up to 5 metres, which was set as an average of the shoreline of the mid millennium. The model was also cleared from areas smaller than five hectares, since they cluttered the map and contained no mid millennium settlements. Iron Age stone house foundations are rarely found near the coast. An analysis shows that there are only 24 of them closer than 400 metres to the coeval shoreline and that 19 of these are concentrated in two different areas (the parishes of Boge and Rone). A border zone by the shoreline was thus also removed from the probability surface.

The result of the prediction can be seen in the table 3.2.4 for three different breakpoints. The chosen breakpoint was 0.54, since this was the best compromise considering the purpose of the modelling, which is to obtain a picture of the central areas most likely settled in the mid millennium. Even if a breakpoint of 0.6 means a better gain, it excludes too many Iron Age stone house foundations. Here, gain means the relationship between the predicted number of existing Iron Age stone house foundations and the area covered by the model, as seen in the table 3.2.4. The chosen model of 0.54 predicts 1 521 of the Iron Age stone house foundations, which is 77.2%of the 1 969 used in the analyses.

Table 3.2.4. The result of the prediction at three different breakpoints.

Breakpoint	Area in (ha)	% of total area ha (present 312 481)	% of total area ha (Iron Age 297 218)	№ of house foundations within the model (total 1 969)	% of total	Gain Present	Gain Iron Age
0.50	119 919	38.4	40.3	1 585	80.4	52.2%	49.8%
0.54	103 485	33.1	34.8	1 521	77.2	57.1%	54.9%
0.60	75 090	24.0	25.3	1 330	67.5	64.4%	60.7%

$$\text{Gain} = 1 - \left(\frac{\text{percentage of total area covered by model}}{\text{percentage of total sites within model area}} \right)$$

Comparison of farms and non-farms, inside or outside the model area

The model shows the central areas, most likely to have been preferred by the farmers on Gotland at the time, and Iron Age stone house foundations falling outside this must be regarded as the periphery, and outliers. This is to some extent verified by the fact that there is a significant difference in length between the house foundations that fall inside the model, and the ones that fall outside. The mean length of the outliers (18.7 m) is more than 2 metres shorter than the ones within the model area (20.7 m). The difference is statistically significant. Most of the non-farm clusters are small, consisting of house foundations in solitary locations. Nearly half of them (45%) lie outside or at the border of the model area. This is a much higher ratio than for all of the farms, since only some 16% of the farms fall outside the model area.

By refining the calculation from above and looking at how the mean length of the house foundations are distributed across the different farm sizes, it is clear that all farm sizes that lie within the model area have a higher mean length than the ones outside. There are significant differences, except for the three-house foundation farms where it is slightly weaker. There is also a small tendency that larger farms to a higher degree are located within the model, but it is not strong as seen in table 3.2.5.

This can have several reasons, but it strengthens the general assumption that the farms in the more remote areas are smaller and that these farms are agriculturally weaker, perhaps established later in time.

Table 3.2.5. Number of farms and non-farms of each size that fall outside or inside the model area

Cluster size	Frequency of all	Not farms			Farms			All	
		Frequency	Within model	% within model	Frequency	Within model	% within model	Within model (All)	% within model (All)
1	504	136	86	63%	368	293	80%	379	75%
2	340	0	n/a	n/a	340	276	81%	276	81%
3	145	0	n/a	n/a	145	127	86%	127	86%
4	30	0	n/a	n/a	30	24	81%	24	81%
5-6	2	1	1	100%	1	0	0%	0	0%
All	***1 021***	***137***	***87***	***64%***	***884***	***720***	***81%***	***806***	***79%***

Table 3.2.6. Comparison of the mean length of the house foundations in the different cluster sizes inside and outside the model area

Cluster/Farm size	All		Outside the model		Within the model	
	Frequency	Mean length	Frequency	Mean length	Frequency	Mean length
1	504	20.9	125	19.4	379	21.4
2	340	20.1	64	18.2	276	20.6
3	145	19.1	18	18.4	127	19.2
4	30	18.9	6	15.2	24	19.6
All	***1 019***	***20.3***	***213***	***18.8***	***804***	***20.7***

There are some house foundations in the calculation that are of unknown length, but not enough to have any crucial effect on the results.

n.b: The mean value of the row 'All' is calculated for all farms/clusters in each group, and not the values in the table above.

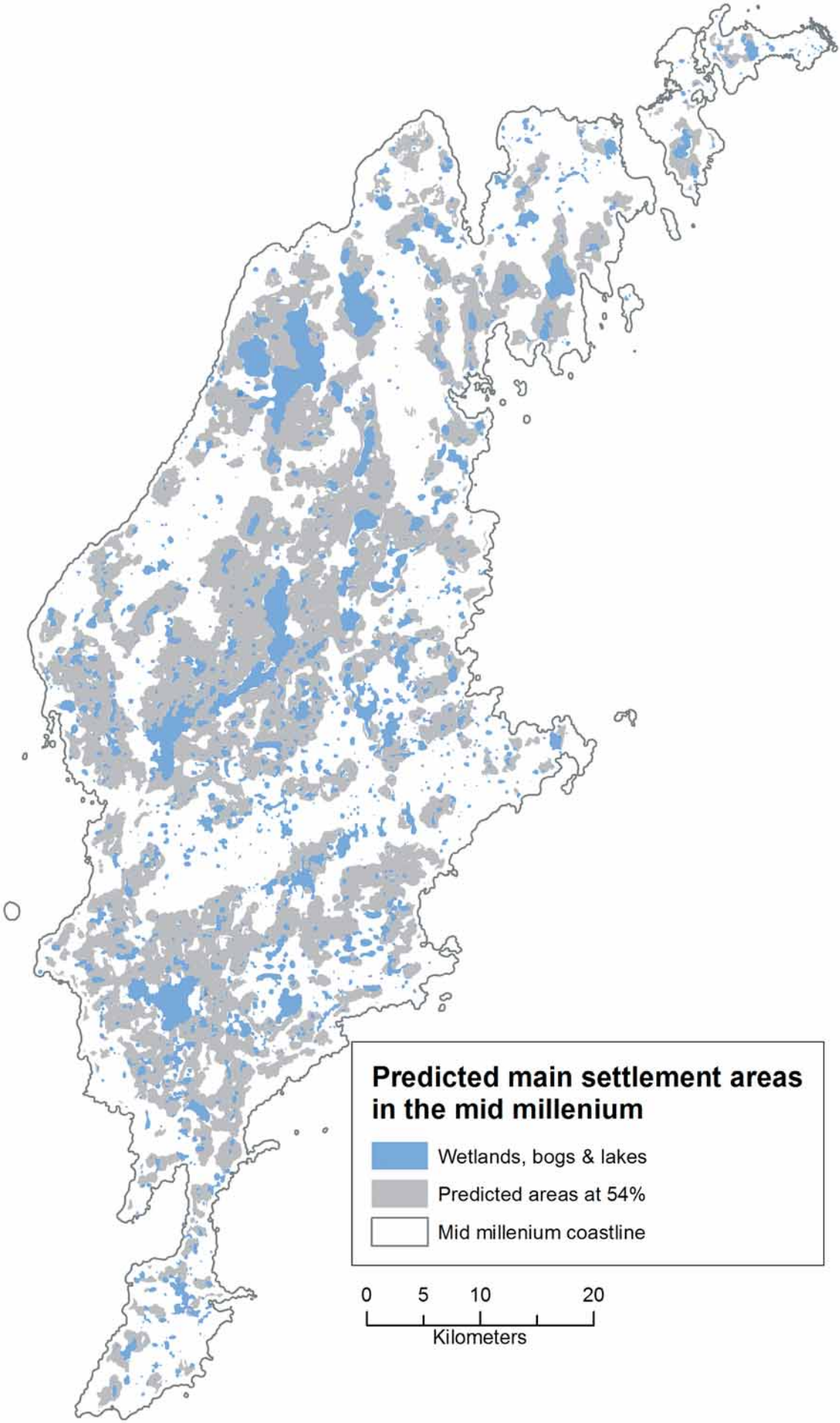


Figure 3.2.2. The result of the predicted areas with the breakpoint of 0.54 (54%), which shows the central areas in the mid millennium.

Removed Iron Age stone house foundations

Several estimations on how many stone house foundations and farms once existed have been calculated during the years. Dan Carlsson (1979:148) estimated that around 30-40% are missing, and that the total number was around 1 100 farmsteads, when he used an average of 2.9 houses per farmstead. The calculations are based on his assumption that there were more or less the same number of mid millennium farms as historical farms in Anga parish, which he generalised to cover the whole island. The difference is some 10%, less in the mid millennium. Siltberg has observed a major problem with Carlsson's calculations. They are based on a misunderstanding of the calculations made by Moberg of the number of farms in the year 1700. Carlsson's calculations assume the number of farms to have been 1 325, but Siltberg points to the fact that the correct number is 1 540, or 1 630 including vicarages. However, as Siltberg points out, this is no major problem for Carlsson's reasoning, since it just elevates his calculated settlement curve a bit, but it does not falsify it (Siltberg 1990b:126). To reconstruct exactly how Carlsson made his calculation is not possible, but the difference between 1 540 and 1 325 is around 10%; if we raise Carlsson's calculation to approximately 1 200 farms, this would correct his estimation of the number of farms.

Östergren presents several alternative ways of calculating the number of vanished Iron Age stone house foundations based on her own research on find places of Viking Age silver hoards and Roman denarius. She presents several different kinds of figures, and it is somewhat unclear which she prefers herself. The numbers vary between 1 418 and 1 517 farms with an average of three stone house foundations per farm (Östergren 1989:227f).

Nilsson's (2011) calculations are based on the number of stone house foundations located on different types of land in the year 1700, which he overlays with modern land types, to calculate the percentage of vanished stone house foundations on different combinations of land types. The method assumes that the stone house foundations have been removed mainly in the last centuries (Nilsson 2011:8ff), which is probably correct. He calculates that around 60% of the stone house foundations have vanished and that the original number was 4 735 divided among 2 762 farms. This gives an average of 1.7 stone house foundation per farm (Nilsson 2011:19). His method assumes a 100% correlation between the infield and pasture areas of the year 1700 and the Iron Age settlements, which is a drawback, as he acknowledges himself. This is probably the reason for his very high estimate of vanished stone house foundations. Even if the correlation between the settled areas during the mid millennium period and the year 1700 is high, it is not complete and there are differences in some of the preferred areas, which will be shown later.

The calculation of how many stone house foundations there were during the Iron Age can be done in several ways. I have chosen a method based on the now remaining stone house foundations. There are 1 801 stone house foundations still present in the landscape. According to the map, 31 are situated in presently cultivated fields, on major roads or in densely built-up areas (henceforth referred to as developed areas). Most probably, the main reason for this is positional uncertainty and that some are situated on small patches of wasteland in a field; for the following operations, they will be regarded as situated on land that is not cultivated.

Since Iron Age stone house foundations are substantial and contain a lot of stone, there is no reason to believe that they would have been removed unless it was entirely necessary. Some might have been used as raw material for other constructions, but this probably does not lead to the total elimination of the stone house foundation in most cases. A common occurrence is that later field clearance has spread secondary stone on top of them, but only on some parts, and they are still identifiable. Some might have been totally covered by clearance stones from more recent fields, and are thus not identified as Iron Age stone house foundations, but since they are of a considerable size, this is not likely to be particularly common.

Of course, there must also be vanished house foundations outside the model area and in areas that once were cultivated, but are now forested. These areas are however not large, since the acreages of discontinued cultivation are not as extensive on Gotland as they might be in other parts of Sweden. All in all, there is no reasons to believe that a large amount of Iron Age stone house foundations have disappeared in non-developed areas, but almost certainly there are still some that have not yet been registered in FMIS, and this could increase the number in the future. It is of course difficult to say how many they are,

Table 3.2.7. Calculation of vanished Iron Age stone house foundations.

	Ha	% of total model area	№ of house foundations in the calculation	Density of distribution of house foundations/ha	Total number of house foundations
Presently cultivated or developed area within model area	51 467	49.6 %		0,0404** (0.0269 x 1.5)	predicted ≈ 2 080
Model area presently not cultivated	52 256	50.4%	1 408*	0.0269	1 408
Outside the model area			448*		448
Model area	103 723	100%			3 936***
The percentage of vanished Iron Age stone house foundations					**≈ 54%**

* The number of all known stone house foundations, including some removed (55) foundations known from other sources, as explained in the text.

** These are the best soils on moraine, and were probably more utilised during the mid millennium, as they are today. This motivates a slight increase in the figures concerning the density of distribution for the exploited area.

*** Calculated with the formula for percentage decrease (3 936-1 801)/3 936 ≈ -54%. 1 801 are the number of preserved house foundations.

but probably not all that many. By comparing the number of stone house foundations, which are situated within non-developed areas in the dataset containing all known stone house foundations, with those still remaining in the landscape, an estimate can be done of the number of vanished ones. There are 1 371 house foundations still remaining, but 1 408 are known. This means that 37 have disappeared, which is around 2.7%.

Not all known Iron Age stone house foundations will be used in the calculation, since most of the 450 house foundations that have been identified from other sources constitute a subset of the vanished stone house foundations, which are predicted in this calculation. However, some of the removed stone house foundations situated outside the model area are included in the 448 known, which means the figures in the table does not sum up to 1 801 stone house foundations.

If we assume that the density of the distribution of stone house foundations is the same in the non-developed areas, as in the developed areas, the number of removed stone house foundations amounts to around 1 384. There is however reason to believe that the number of Iron Age houses was higher in the areas that are still cultivated today. These are the best soils, mostly on moraine soils and were probably more utilised during the Iron Age, as they are today. This would motivate a slight increase of the figures concerning the density of distribution for the developed area. Also the fact that the model is somewhat 'too wide' and includes a little bit too much of the outer edges of the landscape of mid millennium in some places, motivates such an increase. It is very hard to calculate what this figure should be, since there are no available data for such a calculation, but I choose a cautious approach and increase the density by 50%.

The results of the calculation show that around 54% of all Iron Age stone house foundations have been removed. If the c. 450 removed foundations, known from other sources, as explained above, are deducted this leaves slightly less than 1 700, with unknown location within the areas now cultivated or in any other way developed.

These results can only be regarded as a general picture for the entire island, with a relatively large margin of error. The size of this error is very hard to tell. Since all areas in the model are calculated with the same density of the distribution of stone house foundations, and we know that in reality this distribution is uneven, it can probably not be used to calculate how many Iron Age stone house foundations are missing in smaller areas, like parishes.

Estimation of the number of farms during the mid millennium

Based on the calculation on how many house foundations there once were on Gotland, a rough estimate has also been performed of how many farms of different sizes there were. The assumption here is that the ratio between farm sizes is the same for the vanished stone house foundations, as for the known. The disappeared house foundations were estimated to around 54%. Of the 1 021 clusters of house foundations, identified in the last chapter, 884 are farms, consisting of around 1 608 house foundations.

Together with the non-farms, there are 1 750 house foundations in the following calculations; this is roughly the number of preserved house foundations, which are 1 801. Accordingly, the 1 750 house foundations will be used in the following calculations, since the difference will be very small. The total number of house foundations in this calculation is slightly lower than in the result from the model, but this is because the numbers have been rounded off. Moreover, different data sets, with a different number of house foundations have been used in the different calculations. This has been explained earlier and is due to fact that not all information is present in all records. The numbers are however very close and can be regarded as a cross validation of each other and as a reminder of the roughness of this kind of calculations of the total amount of an archaeological feature. Such calculations are always impaired with great uncertainty and can never be considered more than a course estimate. A statement from Fredrik Nordin in 1886 is an amusing example of how wrong an estimate can be (Nordin 1886a):

'.. Med dessa äro omkring 70 'kämpagrafvar'' kända öfver ön och troligen kan man leta upp lika många till. Med all sannolikhet bör man derför kunna antaga, att inemot 200 ursprungligen funnits'

(...with these around 70 'kämpagravar' are known across the island, most likely it is possible to find an additional 70 and thus one can assume that there has been at least 200 from the beginning).

In table 3.2.8 it can be seen that the estimated number of farms during the mid millennium is around 2 000. It must however be stressed that this is the number of farms but also households, since it is impossible to distinguish a household from a farm in an archaeological material of this kind, as discussed earlier.

Based on these figures a simulation was made of the original distribution of Iron Age farms. Assuming that the removed Iron Age stone house foundations, known from other sources but not included in the calculations above, form farms in the same fashion according to the 80 metre distance rule, the locations of 1 249 farms are known. With the estimate that 1 987 farms once existed, there are 738 farms with unknown location. By generating 738 farms, as point objects in ArcGIS and distributing them with a random function in the areas of the model, which today are cultivated or developed, a mid millennium settlement map can be simulated. The larger a cultivated or developed area is today, the more farms have been randomly generated there, which is believed to be correct. The map probably gives a fairly good and general picture of where most of the missing farms once lay, but of course, it is not correct in any detail. The map in Fig 3.2.3, shows the inter-

Table 3.2.8. Calculation of number of farms grouped according to farm sizes.

	Present farms in the analysis			Estimated farms* (=present x 1.25)		Total number of farms			Number of House foundations	
Farm size	Frequency	Not farms	Farms	Not farms	Farms	Not farms	Farms	%	Frequency	%
1	504	136	368	170	460	306	828	42%	1 134	29%
2	340	0	340	0	425		765	38%	1 530	39%
3	145	0	145	0	181		326	16%	978	25%
4	30	0	30	0	37		67	3%	268	7%
5-6	2	1	1	1	1	1	1	<1%	22	<1%
All	***1 021***	***137***	***884***	***171***	***1 104***	***300***	***1 987***	***100%***	***3 932***	***100%***

*Calculated according to the formula for increase of percentage (1 750-3 936)/1 750=1.25). 3 936 is the estimated number of house foundations from the previous table. There is a small difference of 4 farms between the calculation in the previous table and this one, due to some rounding of numbers..

preted farms and not the Iron Age house foundations, this means that known house foundations are missing in the map, because they are interpreted as something else than a farm. It must be stressed that this is a simulation and it is not intended as a prediction map over the location of vanished farms, but as a generalisation and way to get a 'feel' for the mid millennium landscape; it is thus not a true picture

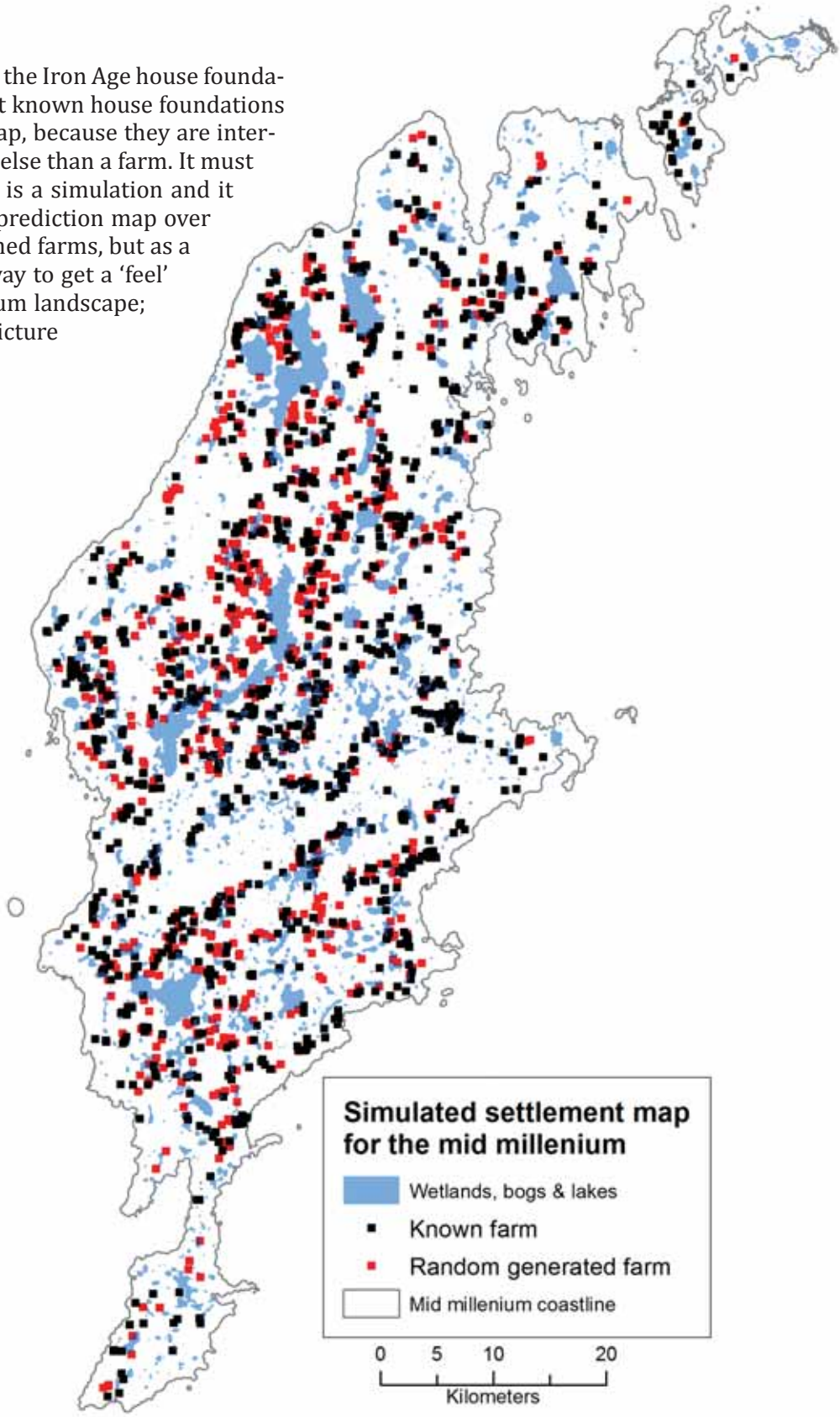


Figure 3.2.3. A simulation of how the settlement pattern might have looked around AD 500. The map is made by generating 738 farms randomly spread over the areas in our model where modern cultivation or development exist and adding them to the 1 249 farms with known location. The larger an area that is cultivated or developed today, the more mid millennium farms are generated there, which is correct. The map probably gives a good, general picture on a small map scale of where most of the missing farms once lay, but it is of course not correct in any detail, and cannot be used for local studies. Farms and not house foundations are shown in the map, which means that not all known house foundations are marked on the map, since probably not all house foundations are farms.

Chapter 4

The periods between the mid millennium and early modern times

The reasons for the abandonment of the Iron Age stone house foundations have been widely debated, which is partly already accounted for and will be further discussed later. In this chapter, only the traces of settlements, or sometimes rather the lack of them, from the Vendel period and up until the establishment of most of the historic farm tofts in the Middle Ages will be discussed. The source material for the periods between the mid millennium and the historical period is in most cases much scarcer, since the settlements of the periods do not leave any visible traces above ground and the written sources are few. However, for these around 1 000 years, there are some periods for which a somewhat clearer picture can be obtained. These periods are the Viking Age and the earlier part of the Middle Ages. In this work, it is not possible to cover all of these periods in any depth, but some smaller analysis will be made for the two periods.

The source material for studies of the settlement pattern of the Viking Age consists mainly of data collected in connection with different surveys and excavations of the find places of many of the silver hoards found all over the island. For the Middle Ages, the fact that it is a second 'stone-building-period' has left visible traces in the landscape. Besides these more tangible physical remains, there are also some intangible sources, like place names and a few older written sources providing both names and sometimes the location of old farms. To penetrate these, however, requires a lot of research and source criticism, which is beyond the scope of this work. Therefore, they will only be discussed in a more concise way.

The late Iron Age

The few traces of settlements and of in other finds from the Vendel period makes this somewhat of a dark age when it comes to Gotland and has been so for a long time (Nylén 1962:53). Not only the lack of traces from the period makes it harder to analyse, the interest for the period from the academic society has also been low. This does not only apply to archaeologists, but also other disciplines like history, linguistics and history of religion, and for all Scandinavian countries (Ljungkvist 2013:151). This fact makes much basic research necessary, which is out of the scope of this work.

Very few settlement sites have been excavated with dates from this period and there are no visible remains, as from the earlier period. This small exposition of some sites with Vendel period finds is by no means exhaustive, but aims towards providing an overall picture concerning the type of locations in which Vendel period settlements probably can be found. The compilation is based almost mainly on what can be found in FMIS and the work of some scholars, but this probably reflects the situation quite well. The Vendel period, and especially its early part, is probably the least known period in the prehistory of Gotland. Hardly anything is written about it and the settlements are practically unknown. There are only some very small peepholes and research about the period should be prioritised.

At Stånga annex, in the parish of Stånga, an interesting site was excavated by Dan Carlsson in the mid 70s. The site had a rather complex stratigraphy with traces from different periods and of different types, but the central issue here is that close to some Iron Age stone house foundations, two houses dated to the Vendel/Viking Age were found. One of the houses was even situated inside the walls of a larger Iron Age stone house foundation and another house was found approximately 20 metres away. Dan Carlsson interprets one house as a workshop from the Vendel/Viking Age and the other as a possible dwelling house (Carlsson 1979:77ff). There were two samples taken from the houses for radiocarbon dating. For this work the results were recali-

Opposite side: The reconstructed medieval farm house at Fjäle in the parish of Ala.

brated with the latest curve: OxCal v4.2.3 Bronk Ramsey (2013): r:5: IntCal13 atmospheric curve (Reimer et al 2013). The result is AD 338-764 at 2σ for a sample taken in a hearth (st5345) in house 2, which is the presumed dwelling house. The sample from a log (st5346) in the workshop house (house 1) gave the result AD 345 - 882 at 2σ. According to Dan Carlsson, the latter sample might possibly date the time when the house was abandoned (Carlsson 1976c:1). The result shows that it is quite possible that the houses are coeval and were in use at the same time, during the Vendel period, and thus be the successors of the Iron Age stone house foundations. The site has been further scrutinized by John Huttu, who also interprets finds in a trench, around 125 metres to the north, as a third house. He has based this on the artefacts that were found, dated to AD 700 to 800, possible going back to the 7th century (Huttu 1997:10ff).

According to Cassel, a Vendel period ear scoop and a key were found at Nihlén's excavation of the large Iron Age stone house foundations at Känne in the parish of Burs (RAÄ Burs 55). The ear scoop was found on a floor level superimposing the stone house foundation in one of the excavated houses, indicating the use of the settlement during the Vendel period. Cassel mentions that this information comes from 'the report' (Cassel 1998:92), which is not listed in the bibliography. However, I cannot find any reference to this find in Nihlén's account of the excavation in 1932, nor in his account of the finds in 1933 (Nihlén 1932; Nihlén & Boëthius 1933:237ff). In the catalogue of *Statens historiska museum* (The Swedish History Museum), a key is mentioned to have been recovered from a rubbish pit outside one of the houses (SHM 19990); therefore, this information is slightly uncertain. If Cassel's information is correct, it shows that the site might have had a continuity of settlement from at least Roman Iron Age up until the Vendel period. It is unknown whether or not the Iron Age stone house foundations was utilised during the whole period, or if any new houses was erected after the mid millennium.

The well known excavation of the deserted farm at Fjäle in the parish of Ala is an example of a farm with a continuity of settlement from early Iron Age up until the Middle Ages, also including remains of a building phase from the Vendel period. It is situated in a remote area, with many kilometres to any other coeval or later settlement. The remains of one house might be dated to the Vendel period. There are also the remains of a second, more diffuse house, superimposed by two houses of later date, from the Viking Age and Middle Ages (Carlsson 1979:132ff). These remains of houses are situated approximately 120 metres from the Iron Age stone house foundation dated to the mid millennium. Even if the traces of Vendel period houses are vague within the excavated settlement area, there are several excavated graves dated to the period (Carlsson 1986:24), showing an unbroken continuity of settlement. Even if the exact spot for most of the Vendel period houses is not found, they are most probably situated in the close vicinity since the settlement area is topographically well defined at Fjäle; it is placed on a distinct plateau, overlooking the infields.

The more remotely situated Visne ängar in the parish of Alskog is also interesting in this aspect. As described earlier there are some 16 house foundations which comprise around seven mid millennium farms situated in the area. Besides these stone house foundations, there are six diffuse house foundations (RAÄ Alskog 76:1) and a well (RAÄ Alskog 76:2) in the northern part of the area (see fig. 3.1.18a). Further to the south are the remains of two picture stones, which are probably from the Vendel period, but there are also rich late Vendel period graves (Wennersten 1973:117). Lena Thunmark Nylén, however dates the graves to the early Viking Age (Thunmark-Nylén 2006b:137). This suggests that the area of Visne ängar continued to be settled after the abandonment of the mid millennium farms. The well and house foundations of a later type indicate that they were abandoned at a later stage, possible during the medieval agrarian crises, just like Fjäle in Ala. Most likely, there were fewer farms in Visne ängar after the mid millennium, although it is difficult to say to what extent. If it is correct that there are six house foundations at RAÄ Alskog 76:1, this could perhaps indicate a village with two farms.

One other interesting site is Havor in the parish of Hablingbo, where several settlements with different dates are situated very close or superimposing each other. Within a few hundred metres, there are remains from Roman Iron Age until the Middle Ages. In a trench, about one hundred metres to the southwest of a ring fort and Iron Age stone house foundations, the remains of one, possibly two Vendel period houses are situated, superimposed by the traces of a Viking Age house (Manneke 2005:130f).

Furthermore, a site excavated in the parish of Linde is interesting in this context, even if it is

not fully analysed. In the middle of an area with Iron Age stone house foundations (RAÄ Linde 3 and 4), some structures occur, which possibly could be radiocarbon dated to the later part of the Vendel period or the transition to the Viking Age. More samples have been sent for radiocarbon dating, which are not yet analysed; these might clarify matters more (Carlsson 2013b).

At Burge in the parish of Lummelunda, Vendel period artefacts have been found on an excavated Viking Age settlement site (Thunmark-Nylén 1979:111, 1983a:57), indicating Vendel period activates. At some of the sites of Viking Age silver hoards that have been surveyed by metal detector in the *Skattfyndsprojekt*, Vendel period artefacts or other dateable finds have been encountered at around 27% of the 82 analysed sites (Östergren 1989:190). Of her 40 sites, which I consider to be very likely Viking Age settlements, which will be explained shortly, seven also contain Vendel Period artefacts, this is around 18% of the sites. The problem here is of course, as will be discussed later, the problem of distinguishing grave material, and other types of sites from settlement deposits.

There are very few, if any, sites only containing finds dated to the Vendel period that with any certainty can be classified as a settlement, the finds can as easily come from destroyed graves. A database query in *Fornsök* yielded only one site that consisted entirely of Vendel period dates, but close by, there is a 200-metre stretch with several undated remains, found during a salvage excavation in 2007 (RAÄ Norrlanda 88, 89, 380-383). A sample from a hearth gave a radiocarbon date of AD 590 - 670 (Wickman-Nydolf 2007:12). Just beside these trenches, three ship settings are located. According to Wehlin, ship settings are without exception dated to the Bronze Age on Gotland (Wehlin 2013:63ff). Therefore, there might be older traces, but the question is if there is an unbroken chronological sequence from the Bronze Age or not.

The picture that emerges is that the Vendel period settlements have a similar distribution as the Viking Age and mid millennium settlements. The Stånga case seems unique in that the Vendel period house was built within the walls of an Iron Age stone house foundation, but most probably there are plenty of Vendel period settlements very near Iron Age stone house foundations. This is of course hard to verify, since all excavations of Iron Age stone house foundations sites have been focused of the stone house foundation itself, and the surrounding areas of the stone house foundations have not been excavated, except for just an adjacent metre or two, as in the case with Vallhagar. The lack of larger excavated areas, except at some recently excavated sites in the Visby area hampers any conclusions on the continuity.

One source critical comment has also to be made here. Except for the last case, all examples above are from excavations of sites known to contain either mid millennium or Viking Age finds. This makes the Vendel period material somewhat biased, since it has hardly ever been specifically searched for, and is almost exclusively found at sites, excavated or surveyed because they are known to contain remains from some other period. If there is any third, unique type of location for Vendel period settlements, they are unknown.

Viking Age

Östergren's view of the Viking Age silver hoards as being more or less 100% true proxies for coeval settlements is to my mind not correct. On a smaller scale map, the silver hoards are of course indicators for settlement, since probably the absolute majority of hoards are deposited near or in areas of the landscape where most of the Viking Age activities took place. It is on a large-scale map this becomes problematic, when using silver hoards as exact identifiers of the location of the coeval farm tofts. This is an observation already done by many scholars. Among others, Anders Andrén argues that the silver hoards can be deposited in other locations (Andrén 2009:42). In addition, Gun Westholm points to the fact that different landmarks within a farm territory are likely sites for deposits. She lists a number of possible reasons and locations for depositing the silver, among others as a mark of property boundaries, or for use in the afterlife, etc. (Westholm 1990:23ff). Several others, which will be accounted for later, are also of the opinion that Viking Age silver hoards are deposited in different types contexts.

One weakness in Östergren's work is her definition of what constitutes a settlement site, which I find very unclear. She refers to different sets of criteria, which makes her reasoning hard to follow. She refers to fig 40 on page 54 in her doctoral thesis, where all the 83 places she analyses are listed, with twelve different criteria said to indicate a settlement site. At least two of them,

besides the hoard itself, must be accounted for at the find place of a hoard to classify it as a Viking Age farm toft. In the list, all but one site are classified as a farm toft from the Viking Age. In addition to this, she states that there are further criteria, which are not accounted for in her list in fig 40, for instance, the depth the hoard is found at, phosphates at the site etc. She also refers to a third list of eight criteria, somewhat different from the 12 in fig 40, of things that should be visible on the surface of a Viking Age settlement site. It is thus very unclear exactly what criteria she is using, but she finally states that the criteria seen in fig 40 shows that 94 % of the sites fulfil at least two of the criteria needed to be classified as a settlement site (Östergren 1989:64).

When scrutinised, there are 18 find places in the list only meeting one criterion, which is dark soil, and three fulfilling none. This gives more than 25% of the places having less than the stipulated two criteria. Her estimation that 94 % of the sites were settlement sites is correct, if only the three fulfilling none of the criteria were classified as non-farm sites. As I understand it, based on her own definition and the data she refers too, only 75 % of the find places can be regarded as the spot of a Viking Age farm. The same criticism is launched by Torun Zachrisson, but she only questions some 11% of Östergren's analysed find places as being situated on settlement sites (Zachrisson 1998:119ff).

This is a significant difference and makes silver hoards as a proxy for Viking Age farms more uncertain than she claims. Some of the other find places in her list have also few or weak criteria. To my mind, the number of apparent farm sites must be reduced. Many of the criteria she lists can also be connected to graves or other contexts. However, there is no doubt that a large portion of the hoards are found on Viking Age farm tofts, and many are also found within the remains of a coeval house, but not as large a portion as Östergren claims.

This can be confirmed when looking at the presentations of the silver hoards, made by Thunmark-Nylén in 'Die Wikingerzeit Gotlands' (The Viking Age of Gotland). Several silver hoards have been found in bogs and wetlands, for instance, at Skäggs in Väskinde (SHM1456), Rums in Grötlingbo (SHM1830), Kvarne in Eskelhem (SHM2100) and Enbjänne in Högrän (SHM6821) (Thunmark-Nylén 2006:467). Some are close to historical farms and some further away, but they can hardly represent the site of the Viking Age farm toft itself. Deposits in bogs and wetlands might be interpreted as some kind of sacrificial deposit.

An observation, made by Östergren (1983) was that the sites with hoards dated to the later part of the Viking Age more often had a much richer find material than sites of an earlier date. This was further analysed by Thunmark-Nylén (1986), who concludes that the earlier silver hoards were not deposited at farm sites, since the purpose was religious. She refers to a passage in the Old Norse kings' saga of Heimskringla. The silver was to be used by the owner in the afterlife and the treasure was not meant to be recovered; it could thus be deposited anywhere (Thunmark-Nylén 1986:23ff, 2006:463).

Another aspect of this is the connection to ancestral cult. It is almost certain that the name of 'Stavgard' (Stabbgard, Staurgard, Stabbgården, Stavgård and other spellings) refers to the presence of Iron Age stone house foundations at the site. Ingemar Olsson (1992, 1996:139ff) has investigated 50 parcels of land with the name of Stavgard, and shown that the name can be associated with Iron Age stone house foundations. In the Guta Law (GL chap. 4) there is a passage forbidding the worship of *stavgards* (Holmbäck &Wessén 1943:GL p.207.):

> *'...att blot äro för alla strängt förbjudna och alla forna seder, som följa med hedendomen. Ingen må åkalla hull eller högar eller hedniska gudar, helgedomar eller stavgardar. Om någon blir funnen skyldig därtill och blir det så mot honom med vittnen styrkt, att han har någon sådan åkallan med sin mat eller dryck, som ej följer kristen sed...'*
>
> *(...the pagan sacrifice is all strictly prohibited and all ancient customs that go with paganism. No one may invoke hult (grove) or högar (cairns) or pagan gods, shrines or stavgards. If someone is found guilty thereto, and it will be so against him attested with witnesses, that he has such invocation with his food or drink, not following the Christian faith...)*

After examining the problem, Torsten Blomkvist concluded that places with the name of *Stavgard* are most likely linked to Iron Age stone house foundations, but also to picture stones. He considers them to be connected to ancestor cult (Blomkvist, T 2002:151). Even if there is continuity of settlement until the Viking Age at some of the mid millennium settlements sites, it is likely that deposition of Viking Age silver hoards in

Iron Age stone house foundations has something to do with ancestor cult and that the silver hoard might be a sacrifice. Silver hoards have been found in Iron Age stone house foundations, like Hummelbos in the parish of Burs (SHM902), and at Kännungs (Saigs) in Hellvi, a silver-hoard was found by the side of a big stone in an Iron Age stone house foundation during excavation. It was found around ten centimetres above the floor of the house, clearly indicating it to be a secondary deposit in the house (Thunmark-Nylén 1986:40). Stenberger knows of seven confirmed cases, and some unconfirmed where hoards are found in Iron Age stone house foundations (Stenberger 1958:19f). A well known case is the seven Arabic coins dated to the Viking Age found in the largest known house foundation at the farm Känne/Kärne in the parish of Burs (Nihlén1932:82); another is a Viking Age coin found in a house in Vallhagar (Stenberger 1955a:1086f). There are also finds in or by stone walls from the mid millennium. One example is at Sigsarve in the parish of Hejde (SHM16077). Stenberger mentions 15 hoards known to be found in stone enclosure walls (Stenberger 1958:19).

The matter of ancestral cult is also discussed by Torun Zachrisson concerning silver hoards found on the mainland, although these are very few compared to Gotland. She sees the depositing of silver hoards in graves, as a way of stressing the link and connection to the forefathers and to the place itself. She mentions some cases where it is established that the hoard is found in an older grave (Zachrisson 1998:120). The Helgö Viking Age hoard is also one silver hoard found in connection with a coeval grave field (Zachrisson 1998:95). .

There are also a number of hoards, which might have been deposited in connection with graves on Gotland. The hoard must not necessarily be deposited within a grave, but rather in a grave context. Even if Viking Age coins are not common as grave finds, deposited with the buried person in the Viking Age, they do exist as in the case in Fröjel and in Bjärge in Vallstena parish (ArkeoDok 2008 No. 14:6). They can also be found as later deposits in older graves, like in the case of 130 coins found in a grave dated to the transition between the Bronze Age and the Iron Age in Domarlunden i Lärbro (Gerdin 1974:116) and at Liffride in the parish of Lärbro, a Viking Age silver hoard was found in a grave dated to the Roman Iron Age (Östergren 1989:49)

Nanouschka Myrberg goes even further and suggests that some hoards can be seen as representations of dead persons, constituting material obituaries, deliberately composed and not just randomly gathered (Myrberg 2009a:141f). According to Christoph Kilger, Arabic dirhams do not begin to appear in graves until the 10th century; several examples of excavated graves containing dirhams are listed, such as in GFC8992, SHM23445:1, GFC12675:1121, at Bjärge in grave 52/1992, GFC12675:92. The Arabic dirhams are deposited in both female and male graves; they were obviously not used as jewellery, since there are no loops or holes on the coins, which sometimes occur on Roman denarii found in Viking Age graves (Kilger 2008:331), discussed later. The site of the hoard found at RAÄ Stånga 141 was post surveyed with metal detector in 2009, and the find material indicates a destroyed grave field under the layer of ploughed soil, rather than a settlement (ArkeoDok 2011 No. 33). Another example is a site where bones and burnt soil were found at the find place of the hoard SHM 16450 (RAÄ Othem 186) and a grave was excavated nearby (Carlsson 2008:78f).

However, the matter is complicated by the fact that it is known that Viking Age graves can be situated very close to the coeval settlements. One example comes from Spillings in the parish of Othem, where a grave was found only 20 metres from the hoard, which was encountered in the remains of a house of unknown function. Widerström also emphasises the difficulty of distinguishing graves from settlements with only the support of a few finds and no excavation (Widerström 2008:47, 57). There is also an instance of graves located in close proximity to Viking Age houses in Visby, at the city blocks of Kaptenen and Fänriken. Several graves were found in the immediate vicinity of a silver hoard and the remains of houses (Wickman-Nydolf 2011:39ff). A third example is at RAÄ Eksta 239, where a silver hoard was found in 1897. At post surveying in 2009, it was interpreted as a settlement and probable coeval graves, situated at a distance of around 100 to 150 metres from each other. The hoard itself is most probably deposited among the graves, and not at the settlement site itself (ArkeoDok 2010 No. 8).

As an example of how complex it can be to interpret some situations, the case of RAÄ Linde 109 will be accounted for in greater detail. Within an area of 300 x 150 metres at the site Linde 109, two or possibly three, silver hoards were found, along with extensive traces of settlement and metal crafting (Gustafsson & Viberg 2011:5ff; ATA rapport Dnr: 321-5257-2000). The settlement or workshop is in the centre of the area, at

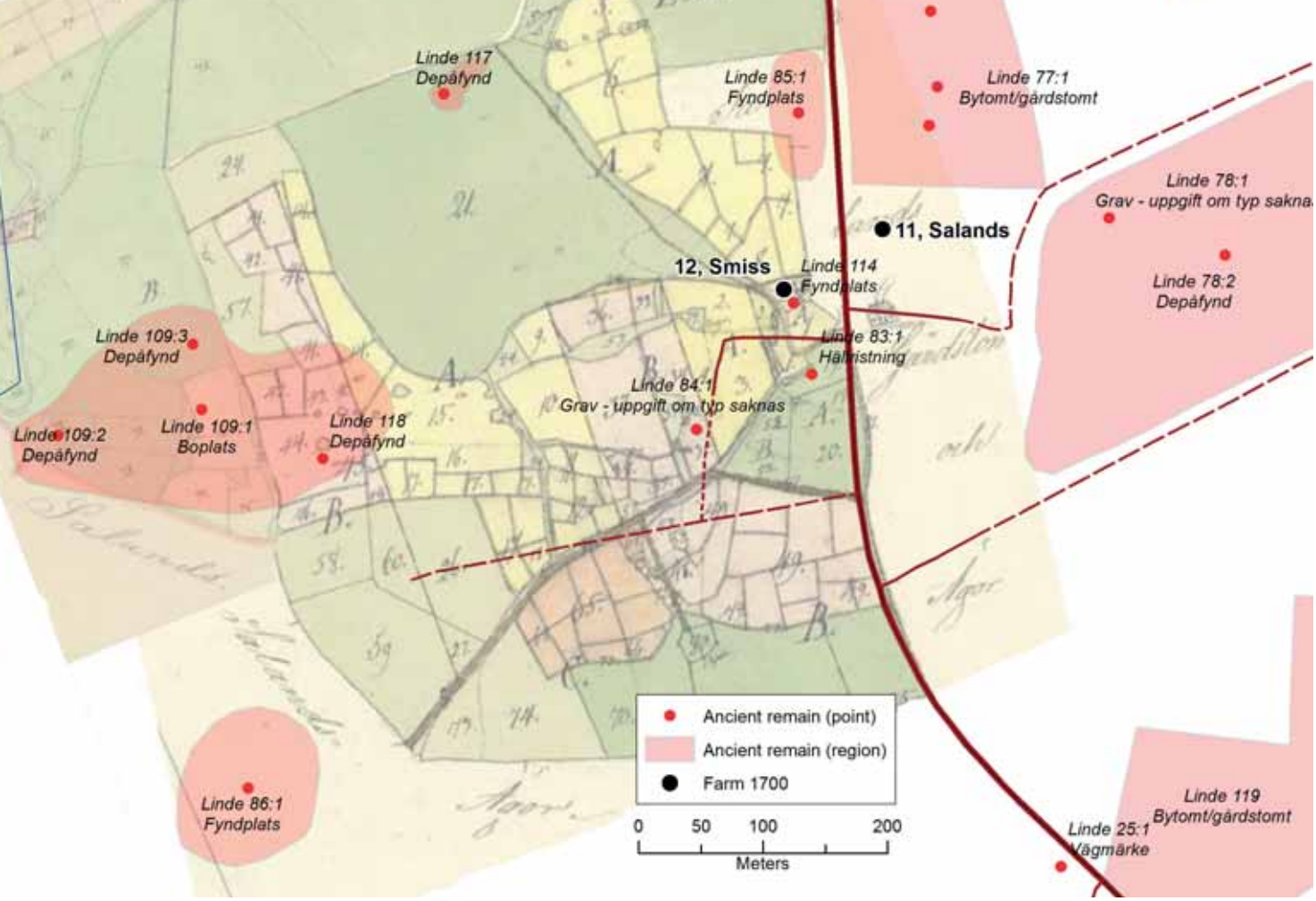


Figure 4.1. RAÄ Linde 109 and others. The ancient remains superimposed on two assembled historical maps; Storskifte 1826 (LSA, H56-15:1) and Lagskifte 1853 (LSA, H56-11:1). In the area of Linde 118, many small patches of wasteland can be seen in the map, which might be graves. These patches are also seen in the first map of the area, LMA, 09-LIN-3, from 1703. (© Lantmäteriet, published with permission I2012/921)

RAÄ Linde 109:1, as seen in fig 4.1. The two confirmed hoards have a terminus post quem (tpq) of AD 990 (RAÄ Linde 109:3) and of AD 1090 (RAÄ Linde 109:2). The possible third hoard has a tpq of AD 890 (RAÄ Linde 118).

When comparing the two reports with FMIS it seems like RAÄ Linde 118 is marked around 50 metres too far to the southeast in FMIS. This hoard contains altogether of eleven coins found at several different occasions; it is thus uncertain if it really is a hoard or just stray finds. When superimposing the find areas, as they are mapped in FMIS on the historical maps existing over the area (LMA, 09-LIN-3, LSA, H56-15:1 and LSA, H56-11:1) several patches of wasteland in the eastern part of RAÄ Linde 109:1 coincide with RAÄ Linde 118. Four inhumation graves have been found some 200-250 metres away, during construction work (RAÄ Linde 84), together with both Vendel period and Viking Age fibulas, indicating a grave field in the area (ATA rapport Dnr: 321-5257-2000). These islands of unused farmland, seen in the maps are thus most probably prehistoric graves, which are very near or even situated at the settlement/workshop area. Moreover, at RAÄ Linde 109:2 a pin, dated to the Roman Iron Age, has been found indicating graves, but there are no traces of settlements.The third hoard is found some 70 metres north of the settlement/workshop area where no traces of settlement or graves can be seen (ATA rapport Dnr: 321-5257-2000).

This means that there are two different contexts, which the hoards at RAÄ Linde 109 can be associated with, the settlement/workshops and the graves. The tpq-dates for the three hoards are also far apart in time, which indicate that they are not coeval. It is notable, that the only hoard found on the settlement/workshop site is the one with the uncertainty as to whether it really constitutes a hoard, or if it just consists of stray finds linked to the graves. The two probable hoards are found outside the settlement/workshop area; one which might be located in a grave context from the Roman Iron Age (ATA rapport Dnr: 321-5257-2000) and the other without any visible context. It is most probable that some of the hoards should be interpreted in the context of the settlement/workshop area, but maybe not all of them. A plausible interpretation is that two or three hoards are deposited at different times around a settlement area. Some of the hoards could be deposited in a grave context.

All the above listed cases are all examples of hoards, which can hardly be said to be deposited on a Viking Age farm site or within a dwelling house. In all, Thunmark-Nylén (2006) lists around 45 silver hoards deposited in these kinds of contexts, which is a great deal, since the circumstances surrounding the finds in most cases are shrouded in history, so the number of unrecorded cases is probably large, which also Stenberger (1958:21) points to.

Since the analysis of the Viking Age is a minor part of this work, no effort was made to examine other sources than FMIS for data. Since the find places of the silver hoards do not have a find category of their own, they might be classified as a number of different other types of sites. This makes it is hard to find all of them in FMIS. Moreover, the fact that there is secrecy around the find places and the results of some of the more recent surveys, due to the fear of plundering, means that some of the known find places and some of the latest results might be missing. This will however, not effect the conclusions, since they are of a more general nature. The resulting database contains quite a large number of records, however; altogether 300 Viking Age settlement sites and/or find places for Viking Age silver hoards were found. Of these, 249 are find places of hoards and 51 are classified as settlement sites in FMIS. Three of the hoards are found at harbour sites and are removed from the database, which leaves 246 hoards to classify. Since it is important for my analyses to secure, as accurately as possible, that the analysed sites really are Viking Age settlement sites, I will have a quite a strict approach in the classification. I will classify these sites with the help of data from FMIS and interpretations from more recent surveys of many of the sites. I will also reinterpret Östergren's data from 1989. The sites were classified in five classes, based on the degree of certainty of the find places representing settlement sites.

1. If no post-survey or excavation of the find place was conducted and the only reported find is the silver hoard itself, the likelihood of it being a settlement it is classified as **unknown**, and it is not included in the analyses.
2. According to Dan Carlsson, who is thoroughly experienced in investigating Viking Age settlements with metal detector, the sites are all rich in metal content, and several bronze objects are always found (ArkeoDok 2006 No. 9). Consequently, if a post-investigation is made and there are no other finds or these are only very scarce, alternatively, if other criteria, such as the placement in the landscape, are unsuitable for settlements the hoard is classified as **unsupported** as a settlement site.
3. If many other finds with the character of settlement finds are found, it is classified as a **likely** settlement site.
4. If distinct traces of houses and activities occur, for example, hearths, postholes and so forth, the site is classified as a **confirmed** settlement site.
5. As always, there are a number of sites constituting borderline cases, which are defined as **uncertain**.

The result of this examination shows that among the 249 find places, nearly half (45%) of these lack empirical data, or have no relevant information about the find circumstances, in some cases the exact spot of the find is uncertain. They are thus classified as unknown. Approximately 24% are confirmed/likely/uncertain and 31% of the hoards are possibly not found directly on a settlement site. Of the 135 sites where any type of post-survey or excavation has been performed, approximately 42% are likely to be settlement sites and 57% are unsupported as settlement sites (see table 4.1). If the same assessment is made on the 72[1] relevant find places analysed by Östergren (1989), exactly half can be regarded as probable settlement sites and half as unsup-

Table 4.1. Silver hoard sites classified according to their likelihood of representing settlements.

Classification	frequency	Percentage
Likely	38	
Confirmed	11	
Uncertain	8	
Sum	*57 (42%)*	*24%*
Not supported	78	
Sum	*78 (58%)*	*31%*
sub-total	*135 (100%)*	
Unknown	111	45%
Total	*246*	*100%*

1. The figure 72 is used because some of her 84 sites are disregarded; these cannot be regarded as find places of silver hoards. Some are confirmed settlements without any hoards, some were harbour sites and some constitute several hoards found within a very short distance from each other and merged into one site.

ported as settlement sites. The conclusion is that around half of the silver hoards are deposited in a settlement and/or workshop context and half are possibly placed in other contexts.

This is in agreement with the results from Dan Carlsson's metal detector surveys from recent years. For the past years, he has surveyed between 60 to 80 find places for silver hoards, commissioned by the county administrative board, as a means of salvaging the hoards from being plundered. He has not yet published any synthesis of all his reports, but his preliminary estimation is that most probably less than half of the hoards have any contact with coeval settlements. Most of those that are found on settlements are associated with workshops (Carlsson 2013d).

Ny Björn Gustafsson has also worked with many of these sites in his thesis. He has identified 89 sites with clear traces of non-ferrous metalworking, of which most are found through metal detection of find places of silver hoards. Gustafsson's investigations are also based on many of Carlsson's reports. Without specifying the matter any further, Gustafsson (2013b:48) states that a majority of the find places for silver hoards occur within buildings. Gustafsson classifies around 57% of the sites he uses in his analyses, as farm sites and approximately 30% are classified as workshop sites or potential workshop sites. If I have understood him correctly, these are considered to be specialised workshop farms. Harbour sites constitute around 7% (Gustafsson 2013b:21, 71ff).

Many of the sites not regarded as settlements, may of course be situated in the vicinity of a coeval settlement. Most probably there are also cases where several hoards are placed in connection with only one settlement site, and this site might be a village. One example of such a case is most probably RAÄ Linde 109, accounted for above.

These 57 find places of silver hoards, which were encountered at confirmed or presumed settlement sites, were merged with the 52 Viking Age settlement sites in FMIS into one geodatabase with 109 sites, of which 51 are dated by the tpq of the hoard. In the following, the spatial structure of these sites and their location in the landscape will be studied. The sample is small, which means that no precise conclusions can be drawn.

There is a tendency for the settlements to be clustered and of the 109 sites, several are quite close to each other. One area known for many Viking Age hoards is the parish of Grötlingbo, where at least seven sites are identified forming two clusters, which probably are village formations. Grötlingbo is situated in a narrow part of Gotland, with a short distance between the east and a west coast. Possible landing places on both coasts have been identified by Dan Carlsson (ArkeoDok 2006 No. 13). One of Gotland's largest grave fields, named Barshalder, is situated in the area, consisting of at least 6 000 graves, probably many more. Today, one third or more have been destroyed, and the remains are divided into several smaller parts, each with their own identification number in FMIS (see Rundkvist 2003 table 2a for a complete list). There are also three 'satellite' grave fields nearby (RAÄ Grötlingbo 2, Fide 3, Fide 30). Around 430 graves are excavated at all of these grave fields (Rundkvist 2003:15f). These were dated to a period between the Roman Iron Age and the late Viking Age (Rundkvist 2003:9), which shows a long continuity of settlement in the area.

The Barshalder grave field is about two km long and runs parallel to a road leading along the eastern coast of Gotland, which must have its roots back to the middle of the Roman Iron Age (Rundkvist 2003:55). The size of the grave field, suggests that this was a main road and it runs past the Viking Age settlements. Another road, which can be followed in the map of the 1700s covering Grötlingbo (LSA H35-1:1), is a so-called ring road; it is of prehistoric origin and encircles the area, which contains remains of fossilised fields and a grinding stone (RAÄ Grötlingbo 89, 156). There are also several Iron Age stone house foundations, indicating a long settlement history, probably dating back to the Bronze Age, if not even longer.

As can be seen in the map in fig 4.2, there are many probable deserted farms, of which some might be questioned, but most are probably indications of deserted farms. The high degree of mixing of parcels of land between the farms also contributes to the complicated picture. It is an extremely complex situation, not unusual on Gotland, which cannot be fully analysed here, but it shows the great difficulty that arises when sorting out the settlement history of an area. Plausibly, there have been several villages here dating from at least the Viking Age probably with extensive metal crafting, with workshops close to the landing places. There are finds of moulds for casting brooches, which might be attributed to the Kattlunds area (Gustafsson 2013a:9).

In the historical maps, there is clear evidence that the farms Kattlunds, Domarve and

Uddvide have a common origin. Kattlunds is an old *domargård* (farm of a judge), which probably dates far back. The first known judge was Botulf Kattlund in 1412 (Melefors 1983:117f). The present farmhouse is a medieval stone house with parts dated to the mid 13th century. Considering the substantial mixing of parcels of land between many farms, especially of the meadows, this indicates that further back in history, some

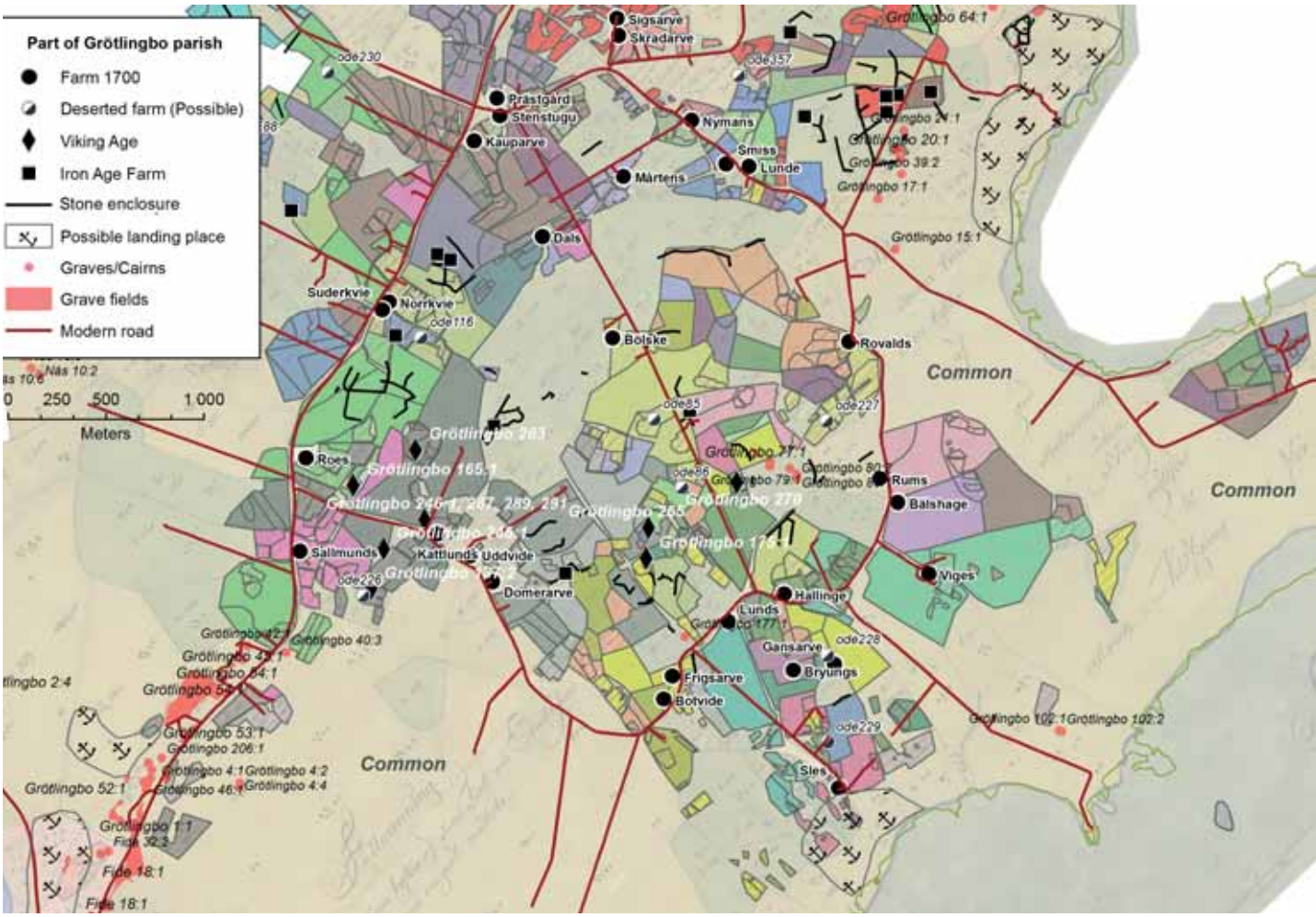


Figure 4.2. The southern part of the parish of Grötlingbo. The GM1700 map LSA, H35-1:1, superimposed by a fair copy of the infields. (© Lantmäteriet, published with permission I2012/921)

kind of larger unit also existed, which will be discussed more in coming chapters. To the south in the parish, there is a large area, which still in the 18th century functioned as a parish common for pasture.

During the mid millennium, the centre was probably situated slightly further to the north, indicated by a cluster of Iron Age stone house foundations that form a village. These are some of the few Iron Age stone house foundations lying quite close to the coast, which could indicate that this was one of the 'gateways' out to the world at this time. A possible landing place can be seen in the map. It is unclear whether this dates back to the mid millennium. No harbour or landing site, with such early dates have been found on Gotland, but they must exist, since it is clear that that people from Gotland had extensive external contacts at the time. There are some other areas on Gotland, which also could be early harbour or landing sites, like Känne in the parish of Burs, in Bogeviken; maybe at a site at Laxarve in the parish of Boge. Besides these examples, probably several others could be found by a targeted analysis.

Another very interesting area is in the parish of Levide. In between the farms Skinnarve, Magnuse, Ollajvs, Bondarve and Mallgårds on the border to the parish of Gerum is an area that in the year 1700 consisted of meadows. Today the area is more or less fully cultivated and only few visible remains of the prehistory are preserved. These are traces of three Iron Age stone house foundations, interpreted as one or two farms, and some stone enclosure walls.

The finds below ground are very rich, however. The area has been surveyed with metal detector several times between 1977 and 2000, mostly by Majvor Östergren and partly excavated, but mainly small trenches (Östergren 2004:7ff).

Almost 1 000 artefacts from a long period of time have been recovered, indicating a long history of settlement in the area. Apart from one or two odd finds from the Bronze Age, the finds are from the Roman Iron Age and onwards. There are quite a few finds from the Vendel Period, but the find material from the Viking Age is predominant (Östergren 2004:43). Among other finds, two Roman gold solidi and 22 denarii were found, but also 61 scattered Viking Age coins from at least two hoards. For a full inventory of the finds, see Östergren 2004.

Östergren makes a thorough analysis of the possible settlement history, which in most parts is very reasonable. She considers that there might have been up to six mid millennium farms in the area; this number might be somewhat high, considering my analysis of Iron Age villages showing that there are few villages this large. On the other hand, this might be one of the bigger villages. It is quite clear that there was settlement in the area during the Vendel period, but it is hard to establish the extension. Östergren suggests that there was an expansion during the Viking Age but it is hard to pinpoint how many farms/households that existed at the same time (Östergren 2004:43), which is certainly true. Maybe some seven Viking Age farms or households and/or workshop areas can be identified, although this is open to discussion, especially since it is clear that the late Iron Age people of Gotland commonly placed their graves close to the settlements, as discussed earlier. The many separate find areas are probably the result of several workshop areas, which is indicated by many finds of melted bronze and silver and at least one fragment from bronze casting was found (Östergren 2004:49ff).

Östergren discusses whether three or four farms were still in existence at the same site even in the beginning of the 14th century, but this is doubtful, since the find material is very scarce from this period. However, there is perhaps one deserted farm at ode513 (see fig 4.3) in the area (Eriksson 2010), which is indicated by the land parcel name of Snausarfe/Snousarfwe, that is a known farm name on Gotland.

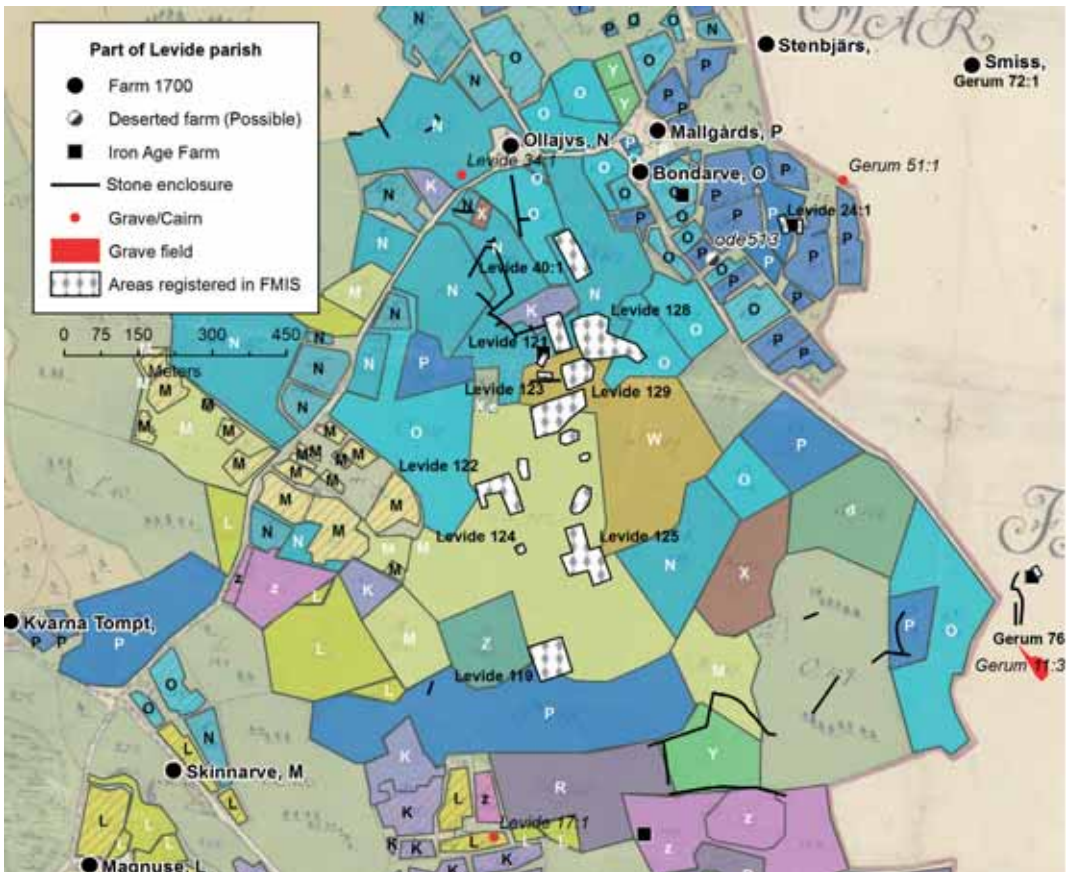


Figure 4.3. The area round the generic village with the farms of Ollajvs, Mallgårds and Bondarv in the parish of Levide. The GM1700 map LSA, H55-1:1, superimposed by a fair copy of the infields. (© Lantmäteriet, published with permission I2012/921)

It is quite clear that this area refers to a village, probably with its roots in the mid millennium. The village has most likely varied in size during the centuries. In studying the map, it is evident that the farms Ollajvs, Mallgårds and Bondarve have a common genesis, and the farms Skinnarve and Magnuse formed one unit, not too far back. Alternatively, they might all be part of a larger village, since there is some mixing of the parcels of land of the two groups. As can be seen in the map in fig 4.3, the parcels of land of the farms are very scattered and mixed, especially in the central area with meadows. Another point is that farms situated quite far away own land in this area, indicating some kind of larger community. Maybe the meadows have been worked collectively and were divided between the individual farms at quite a late stage; this would thus be a trace of a common.

The origin of the two small properties of Kvarna tomt (Mill toft) and Knif smiss (Knife smith), is unclear, but the names indicate that they have been inhabited by craftsmen and millers, for whom the farming was of minor importance, which would explain their small size. Kvarna tomt is situated just by a stream with a pond, and a mill is depicted in the map (LMA, 09-LEV-3). At least Knif smiss, can be reminiscent of crafting, perhaps started in the Viking Age, and might be a trace of the workshops. In 1700, both properties were owned by the farm Mallgårds.

At Västergarn many small properties, denoted as *tomt* (toft) in the GM1700, were also located in an area, where extensive workshop production most probably took place in the Viking Age/Early Middle Ages. This is indicated by the excavations that were conducted recently. Furthermore, there are several properties, defined as *tomt* (toft) on the eastern side of Paviken, which raises the question if a small farm classified as *tomt*, at least in some cases, can be traces of craftsmen's settlements. This is something worth investigating further in the future.

There are several more places like Mallgårds and Grötlingbo, with indications of more concentrated Viking Age settlements, even if the complexity varies. In Eke parish, near the farm Petsarve there is also an area with a concentration of possible Viking Age settlement sites, which most probably constitutes a village. More examples include the area constituted by RAÄ Havdhem 160, 192, 194, 151 and other sites, and yet another area with the sites RAÄ Stånga 150-152 and other sites.

Even if the sample of possible Viking Age settlement sites only amounts to slightly more than one hundred, it seems reasonable to state that villages also existed during the Viking Age. Östergren concludes that a concentration of the settlements can be discerned during the Viking Age (Östergren 1989:220), which this analysis seems to confirm. Dan Carlsson has in recent investigations of several find palaces of hoards, observed that not all places can be defined as farms and he sees a strong correlation with sites, which might be interpreted as workshops (Carlsson 2012). It is probable that several of the above mentioned areas, also contained different types of workshops. This is also confirmed by a recent study by Ny Björn Gustafsson (2013b). There is no reason to believe that workshops only existed at harbour places by the coast, since even the inland farms must have taken part in the workshop activities and trade.

As can be seen from the tables 4.2 below, there is a spatial connection between the Viking Age sites and the historical farm sites and land use, stronger than for the Iron Age settlements. Together with the fact, that the mean distance from the Viking Age sites to the farms in 1700 is almost half of the distance from the the Iron Age stone house foundations to the 1700 farms, it shows that in most cases, there was a movement of the Viking Age settlement sites towards the historical sites.

Some source critical aspects must however be addressed here. As Anders Carlsson (1983) mentions, the Iron Age stone house foundations and the Viking Age settlements are found in two different types of areas. The Viking Age sites are found in areas with modern cultivation and are revealed by stray finds of artefacts; but in these areas, the Iron Age stone house foundations have been removed to a higher degree and the sites have been covered by ploughed fields. The opposite is typical for the non-cultivated areas, where the Iron Age stone house foundations are preserved; if Viking Age sites are present in these areas, they are not found, since the areas are not ploughed or developed, which is discussed by Anders Carlsson (1983:18), accounted for earlier. This of course affects the result. One way of getting around this, at least partly, is to add more data of other kinds.

One source could be to use finds of hoards of Roman denarii and solidi but the problem is the same concerning the Roman Age hoards with finds of single coins, as with the Viking Age hoards, discussed above. The majority of all Ro-

man denarii found in Sweden are discovered on Gotland. According to Lennart Lind, some 6-7 000 have been recovered from 126 known find places of which almost 64% consist of one coin (53%) or two coins (11%). The time span of the denarius is AD 54-235 (Lind 1988:22, 46), but the solidus is a phenomenon of the latter part of the 5th and early 6th century (Herschend 1980:54ff). Östergren (1981:13) accounts for around 140 find places. These figures will probably change when the results of the extensive surveys with metal detector conducted on Gotland in recent years are compiled and published. Finds of Roman denarius and solidus and other gold objects are often used as proxies for the mid millennium in the same way, Viking Age hoards are used by many scholars, both on Öland and on Gotland (cf. Schnittger 1915; Stenberger 1947, 1958; Edgren & Herschend 1982).

In detailed studies, such as this, where the identification of the exact farm toft is the objective, this is not enough. In 1981, Östergren advocated that the Roman solidus and denarius, even solitary finds, could be used as proxies for coeval settlement sites (Östergren 1981:32). However, in 2004 she has revised this and argues that finds of one or two denarius cannot be used as indicators of mid millennium settlements, since Roman denarii are not unusual in Viking Age cultural layers on Gotland (Östergren 2004:46); some odd denarii even show up in hoards with Viking Age coins.

A quick, but far from complete survey of the on-line FMIS database (*Fornsök*) resulted in nine Viking Age hoards containing a few Roman denarii[2]. Since very few find places of hoards are noted in FMIS (probably less than 50) and on top of that, the text descriptions are most often is very incomplete, a thorough survey would probably yield many more. Roman denarii are also found as jewellery in several undated graves and graves dated to the Migration period, Vendel period and Viking Age (Östergren 1981:55ff). Therefore, if a solitary denarius is found together with settlement finds, the settlement can be of a different date than the tpq of the coin suggests. An example is the denarius found at RAÄ Linde 109, accounted for above. Should it be associated with the presumed Roman Age graves, or the Viking Age settlement or grave, or was the site settled already during the Roman period? A Roman denarius can thus as easily be associated with the secondary context, as with the original one. For this reason, the vast majority of the find places cannot be used, since 63% only consist of one or two coins.

There are different theories concerning why denarii appear in much later contexts. According to Östergren, it is most probably because they have been found during cultivation work during the Viking Age, in the same manner as during later times, possible when Iron Age stone house foundations were removed (Östergren 1989:226). Kilger sees, like Lotte Hedeger, a continuity in the way Roman denarius and bracteates are deposited in some Viking Age hoards and graves, which goes back to the Migration period. Kilger suggest that maybe the denarius is a conscious and deliberate link to the Scandinavian 'golden era' (Kilger 2008:331ff), which the Migration period sometimes is called.

There is a difference between Gotland and the mainland in what kind of contexts denarii are found. Even if the number of excavated find places of denarii are not many, and Gotland has the most, Gotland stands out in this matter, inasmuch as the majority of the finds are associated with settlement sites, in contrary to the rest of Sweden, where they are mostly associated with graves. Roman denarii are found at thirteen excavations on Gotland up until the late 1980s, of which ten are settlement sites and three are graves, according to Lind (1988:38ff). Of the eight coins found in excavations on the Swedish mainland and Öland, listed in table 5 by Lind (1988:39), two are found at settlements, five in graves and one was discovered as an offering in a bog on Öland. The number of denarii in graves on Gotland should probably be increased somewhat, since Kilger lists finds in three more graves; Ire in Hellvi, Väskinde in Källunge and Kopparsvik in Visby (Kilger 2008:331). Rundkvist also mentions one found by Greta Arwidsson at Barshalder (Rundkvist 2003:139), not listed by Kilger.

One of the two larger hoards of solidi on Gotland was discovered at Botes in the parish of Etlehem (SHM19155). It was found around 200 metres from a settlement site of unknown date, but at the edge of a wetland, the bog Tänglings myr, which could indicate a sacrificial deposit. At RAÄ Gerum 76, very close to the grave field RAÄ Gerum 11:3, Dan Carlsson recently found two denarius. Based on other find material, he associates this find with destroyed graves and not with settlement (ArkeoDok 2010 No. 7).
On the European continent, solidi are found in both graves and within houses. The large Biňa

2. RAÄ: Alskog 114, Ardre 85, Fole 170, Källunge 57, Linde 109, Norrlanda 179, Stånga 69, 226, Havdhem 193, Hemse 64:1, Roma 85

hoard, found near Bratislava in Slovakia, consisted of 108 solidi and found under the floor of a house. In Switzerland stray finds are mostly reported; these come from at least nine graves. In Norway, all finds of solidi are presumed to be grave finds, but these are seen as a special case, compared to the rest of Scandinavia (Kyhlberg 1980:10ff). Most gold objects dated to the Roman Iron Age and the Migration periods are believed to come mainly from destroyed graves, according to Kyhlberg (1980:21).

The matter of denarii and solidi is as problematic as the Viking Age silver hoards, since the contexts might be of different types. All these examples show that there are so many denarii and solidi found in many other contexts that a general conclusion of them being solely found on coeval settlements, especially within the houses, cannot be drawn. They can thus not as a general rule be used to indicate coeval settlements. Since most of the find places of the denarii are not registered in FMIS and most of the find circumstances are unknown, it is probably not worth the effort, in this work, to try to identify possible mid millennium settlements with the help of these finds. The result would probably be very few additional settlement sites.

The problem of the representativeness of sites, however, is to some degree compensated for, since the database with the 1 249 mid millennium farms contains several hundred removed Iron Age stone house foundations or sites of those demolished by ploughing. These have been identified from other sources, mainly historical maps.

Another problem and a largely unknown factor, discussed by Anders Carlsson (1983:27), is the time of abandonment of the more remotely lying stone house foundations, outside the historical settlement areas. The two examples discussed above, Fjäle in the parish of Ala and Visne ängar in Alskog, continued to be settled in later periods, both have quite clear visible traces of this, such as house foundations of a late type and wells. Moreover, the old infield area was still maintained in historical times by other farms, mostly as meadowland. This is, to my knowledge, not known at many other places. On the other hand, at some places like Fallet in the parish of Tingstäde (RAÄ Tingstäde 75) terraces occur, which might be remains of house platforms from the Vendel/Viking Age. At present, there is not much to say about these matters and there is need for a broader research effort. This state of affairs makes it necessary to be cautious in drawing too detailed conclusions based on the figures below, but the overall trend is believed to be correct.

The figures in table 4.2 show a clear tendency for Viking Age sites to be located closer to historical sites than the sites with Iron Age stone house foundations are. As an effort to compensate for the influence of removed stone house foundations, the distance between identified Iron Age stone house foundations and historical farm sites has been calculated separately in four parishes, where the amount of removed stone house foun-

Table 4.2. Showing distances to historical farms.

Viking Age	**Distance to**	
	1700 farm	**Coast**
All Viking Age sites (105)*	380 m	6.3 km
Only hoard sites (51 sites)	360 m	6.5 km
Hoards younger than 1040 (20 hoards)	320 m	5.7 km
Hoards older than 1040 (31 hoards)	369 m	7.3 km
Mid millennium		
All mid millennium farms on the whole island	669 m	
Parishes with a small proportion of sandy soils: *Akebäck, Anga, Barlingbo, Dalhem, Hogrän, Mästerby, Vall and Vänge (105 mid millennium farms & 119 historic farms)*	492 m	
Parishes with a high degree of sandy soils: *Alskog, Burs, Garde, Grötlingbo, Lau, Lye, Rone and Stånga. (115 mid millennium farms & 194 historic farms)*	761 m	
Parishes with many preserved stone house foundations *Kräklingbo, Anga, Norrlanda and Buttle*	480 m	
Number of Iron Age stone house foundations within certain distance intervals to historical farms		
Distance	**Frequency of mid millennium farms**	
0 – 100 m	26	
100 – 200 m	97	
200 – 300 m	130	
300 – 400 m	167	
400 – 500 m	130	
500 – 600 m	137	
600 – 700 m	119	
700 – 800 m	103	
800 – 900 m	82	
900 – 1 000 m	55	
More than 1 000 m	203	
Sum	1 249	

* Four hoards found in Visby are not included in the analysis. Visby is a special case and disturbs the pattern to a large degree since nearly all possible medieval farms had vanished in 1700.

dation is believed to be low. These are the parishes of Kräklingbo, Anga, Norrlanda and Buttle. In these parishes, the mean distance from the mid millennium site to the historic site is considerably shorter than the average for the whole island, but only 100 metres further than the mean distance from all Viking Age settlement sites to historical farms. However, moraine soils are predominant in these parishes; this means that the figures are close to those of parishes with a small proportion of sandy soils, which makes the actual cause of the pattern somewhat unclear. This will be discussed further in chapter 6

A general source critical aspect here is the presences of deserted farms, which might affect the result, but until the complex matter of deserted farms, which is discussed at the end of the book, is fully analysed the matter cannot be answered with more certainty.

If the Viking Age settlement sites, identified by silver hoards, are divided in two groups based on their presumed time of deposit, which is close to their tpq, some interesting results emerge. The year 1050 is often seen as the break point for when the last period of the Viking Age on Gotland begins, but in the analysis the year 1040 was chosen, in order to attain a better distribution between the two classes, since many hoards have a tpq in the 1040s. Among numismatists, they are referred to as late hoards, and are regarded as a special group. The mean distance to historical farms for the hoards with a later date than 1040 is slightly shorter than the hoards deposited earlier. The difference is not much, only between 13-15%. Östergren has calculated the same distances, based on her material, which results in the same, but stronger, tendency (Östergren 1989:196 fig. 185). There is also a tendency that the later hoards are located closer to the coast, as suggested by Östergren (1989:65), but this is not a particularly strong tendency, and since the mean distance to the coast is high in both groups, the linkage to the coast does not seem relevant.

Middle Ages

From the Middle Ages, there are some different types of data. According to Ersgård and Hållans, up until the mid 1990s, seventeen archaeological excavations concerning medieval farms were conducted in the Gotland countryside. Most of them were performed in the 1970s (Ersgård & Hållans 1996:31, 52ff). Dan Carlsson has conducted several excavations of Viking Age/Medieval farms in the past years, at sites such as Klints and Långume in the parish of Othem, Hultungs in Bunge and Ihre in Hangvar. Many of these excavations are not fully reported and the data is not easy to access. Furthermore, most of the sites excavated are not representative, since they most often were chosen because they were in a location, which was abandoned after the early Middle Ages.

There is, however, a source material that is more accessible and easy to analyse concerning the Middle Ages. In the High Middle Ages, a new era emerged of erecting stone houses, not only in the town of Visby, but also on the countryside, which are the ones referred to in the coming section. These houses must be seen in connection with the wealth due to the trade conducted by the Gotlanders, which the silver hoards are also a sign of, as well as the numerous churches. It is not so easy to establish when the houses in the countryside started to be constructed of stone. Based on a gravestone, mentioning a Licnatius from Stenstugu (stone house), who died the year 1200, it must be in the 12th century. Another fact that supports this assumption is that the construction of churches on Gotland started during the 12th century (Svahnstöm 1966:1ff).

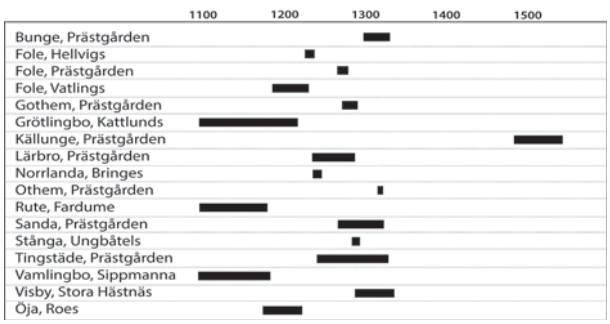


Table 4.3. The possible construction date of some of the medieval stone houses on Gotland (after Qviström 1995:35)

To determine the time when a building was first constructed is notoriously difficult by archaeological methods, most often it has to be done by other means. The most used method to date the stone houses is by stylistic comparisons with the medieval churches; this was mainly performed by Lithberg and Svahnström in the 1920s and 1950s (Qviström 1995:34), but their estimation of the dating is considered still valid.

On Gotland, around 175 profane medieval stone houses are known of which many are gone today. There are 62 still present, either as still standing and roofed or as ruins. Of these, 25 are vicarages and the remaining 37 are believed to be farmhouses, with some exceptions (Qviström 1995:27). The rest of the non-vicarages are known from older written sources, mainly Jöran

Wallin's Analecta Gotlandensia III from the mid 18th century and Hilfeling's books of travel from the years 1797, 1799 and 1800-01, but also from P.A Säve's ethnological and folkloristic records from the mid 19th century and some additional sources. From these descriptions, it is not always possible to determine the exact position of the described stone house. Sometimes it is stated, however, that a house is situated a certain distance from the historical farm, so one can most probably assume, that if no distance is mentioned, it is very near or at the historical farm site. I have found some additional stone houses in the text descriptions of the GM1700 historical maps (Ronsten 2011b). At the farm Sojdungs in the parish of Fole it says :'*... husen förfaldne, hafwer fordom wart Stenhuss medh walfd Kiälar under men Ru(i) nerat*'. (*...the houses fallen into decay, in past times there used to be a stone house, with arched cellar, but now a ruin.*). Also Stentollby in Fole has the same type of description: '*...Sten Huss På gården dock Mäst förfallit...*' (*...Stone house in the yard, but in decay...*). Seven possible stone houses were found this way, of which three were identified to a more exact location. The rest were more imprecise, describing stone houses in quite large fields or meadows near the farm toft, but without specifying exactly where in the field.

Based on the list presented by Qviström (1995:appendix), a GIS-database with the positions of all houses was created. The vicarages were not included and some houses were not possible to identify properly, so the database only consisted of 122 sites with stone houses. Many of the sites were identified as to location in FMIS and *Bebyggelseregistret*, which is a database, available online, with information about historical buildings (2012). The so-called *kastaler*[3], are not included in these figures. The certainty of the position was estimated and a list of 42 farms, with the exact positions, was extracted. The mysterious 'Viges Slott' (Viges castle), (RAÄ Näs 9) is not included in this, since it is an anomaly and might have some other explanation (cf. Siltberg 2010:305). Lithberg states in 1913, that nearly all of the 100 or so medieval buildings, known at the time are situated at or very near the historical farms (Lithberg 1913:22). The same result was obtained from an analysis in the present work made on the 42 stone houses in the database with an exactly known position. All but three are situated within 100 metres from the historical farm site; most of them at the farm toft itself. The three exceptions are; a deserted farm, 'Heilig Geist', excavated in 1938 (Bohrn 1942); the so-called *Sören Norrbys källare* at the farm Fardume in the parish of Rute; and a ruin 15x9 metre in size, about 300 metres from the historical farm toft of Alsarve in the parish of Ardre. It is unclear if this is a deserted farm, or an older toft of the farms Alsarve or Kaupungs, or something else. Not far from the ruin is the so-called Gunnfjauns chapel and the hillfort of Kaupang; the ruin might have been associated with the alleged trading place on Kaupang hill.

The conclusion is that during the course of 13th century, almost all farms that existed at the time, and still existed in 1700, had moved to the location they have in the historical maps. There are of course exceptions and examples of later movements. I do not mean that all farms found in historical times existed in the 13th century, which will be discussed further on. Similar results are reached in a study concerning an area in the outskirts of Malmö, in southern Sweden. Seven historical village tofts and several Viking Age settlements were scattered in the area. From around year 1000 and onwards the historical village tofts were established and in the cause of the 13th century, all settlements had moved to the historical tofts (Schmidt Sabo & Söderberg 2012).

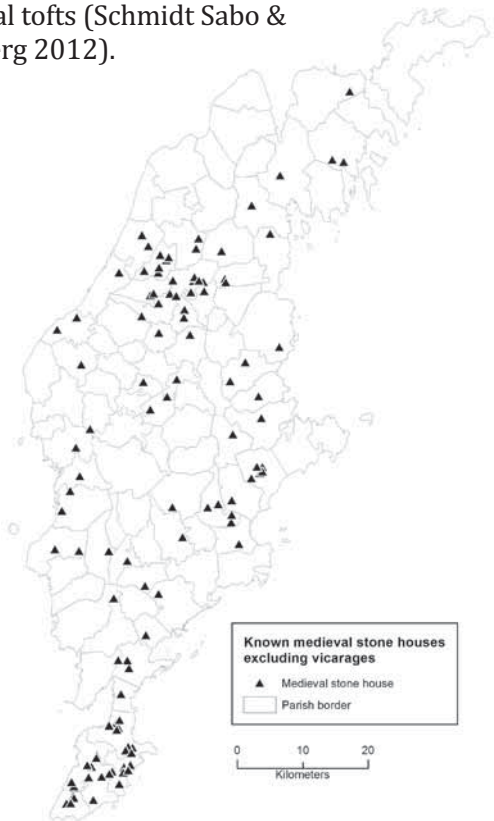


Figure 4.4. Distribution map of all known medieval stone houses, excluding vicarages.

3. A *kastal* is a smaller, fortified tower on the countryside, most often situated near the church in some coastal parishes. There are around 17 still standing, and the location of some more are known.

Chapter 5
Generic villages in the historical material

When it comes to the historical period, Gotland offers a very comprehensive source material, concerning the landscape. This makes it possible to start in another end compared to the analyses for the Iron Age, in which it was necessary to start by finding a way to define a farm and a village, based mostly on distances and to some degree on stone enclosure systems. When it comes to the historical data, a unique source concerning Gotland exists. There are maps and cadastres for the entire island, in which every farm and their land is depicted, which makes it possible to identify farms and generic villages in a better and more robust way. Farms and parts of farms are listed and described in the maps, . These historical maps makes it possible to identify each farm's parcels of land and to see exactly how each farm is distributed in space, and thus how the different farms and their land are mixed. This map series is presented below, and is referred to as GM1700.

Many examples of generic villages and solitary farms will be given in the following chapter. The presented examples are not only the self-evident, but also the less well defined examples, to demonstrate the complexity of the source material. Consequently, some of them are very clear, and easy to interpret, but some are not so distinct and are open to several interpretations.

The source material

In the peace treaty of Brömsebro in 1645, Gotland definitively became Swedish. Under most of the Danish rule, the old medieval taxes and the Guta law were in force. The Danes did not map the island and the existing foreign geographical maps of the island were of poor quality, made on a small scale, and did not depict the farms or their properties. In 1646, the Swedish land surveyor Meijer completed a new map over Gotland. Even if it was a great improvement in quality, it was still in a small scale and did not account for the individual farms, it could not be used for taxation purposes (Ronsten 2011a:14f).

From the mid 1600s, three Swedish sources exist, listing all or almost all of the farms on the island, but they all lack maps. In 1646, the year after the Swedish takeover of Gotland, the Swedish officials made a map-less cadastre, henceforth referred to as Jb1646, of most of the farms, but not all (Siltberg 1986:178). In 1653, a survey of all the farms was conducted for tax purposes and resulted in two volumes; the *Revisionsbok* from 1653 (Book of revision), henceforth referred to as Rev1653 and the cadastre of 1654, Jb1654. The original of the Jb1654 is kept in the Vatican library and there are some other copies in Sweden. The Rev1653 has the most comprehensive description of the farms and is the one mostly used in research. It exists in three different copies, all in Swedish archives, with some minor differences, but one copy is incomplete (Sundberg 1974:15ff). There are only minor differences between them (Siltberg 1974:17f) and none of importance for this work. The purpose of the Rev1653 was to note everything of importance for the taxation of each farm. The taxes themselves are accounted for in the Jb1654, which does not have as detailed farm descriptions as Rev1653. The Rev1653 is also published as transcripts in three volumes; one in 1974 and two volumes in 1979. These will be used and will be referred to in the present work. There is also an Excel file that has been compiled, with all numeric data and some other attributes, which is used for calculations; it is linked to the geodatabase with the position of all farm tofts from the GM1700. It will be referred to as Rev1653d.

No maps were produced, neither was any other surveying done for the Rev1653 and the Jb1654[1]. The information was based on inter-

1. Bratt (1958) mentions a series of maps in the scale of 1:30 000 over the island, made in these years. He probably confused a much later photo reproduction of the GM1700 with the map-less Rev1653 and Jb1654. This later photo reproduction was made in the 1930s by the geographer Ivar Moberg.

Opposite side: The 17th century farm at the open-air museum Bungemuseet in the parish of Bunge.

views of the farmers and officials and by using older existing material. In the beginning of Rev1653, there is reference to *Tings*- and *Fjärdings* rolls from previously conducted inquiries, which are not preserved (Fritzell 1974a:9). Text descriptions only cover certain aspects of the farm. Below is an example, concerning the farms Storms in Vamlingbo parish (Rev1653a:36).

> *Storms ähr ett heelt hemman om 8 marckeleij, hafwer åcker till 25 tunnelandh, ängh till 16 mans slätt, staar 2 manss slätt, ringa skough, fiskie i Neenwijcksträäsk och saltsjöön. Bruckas af Lars Sigfridhsson, hwilcken honom half upptogh af ödhe för 1½ åhr sedhan,hwaraf han ännu ingen skatt uthlagdt hafwer. Dhen andre hälfft hafwer warit ödhe i 3 åhrs tijdh. Orsacken hwarföre han är blefwen ödhe är förrige åboen och skattbördsäganden druncknade, hwareffter änckian eij war mehtigh gården att förestå.*
>
> (*Storms is a whole farm of 8 marklej, of which the fields are 25 tunnland, the meadows 16 manslätt, starr (sedge) 2 manslätt, poor forest, fishing in Neenwijcksträäsk and the Baltic Sea. Is owned by Lars Sigfridhsson, who took up half the farm from desertion 1 ½ years ago, and has because of this not yet paid any taxes. The other part has been deserted for 3 years. The reason why it became deserted is that the former freeholder and taxpayer were drowned, after which the widow was not capable of managing the farm.*)

For two years, in 1652-54, Gotland was the duchy of Queen Christina's chosen hereditary prince, the later King Karl X Gustav. After Queen Christina's abdication in 1654, Gotland became part of her alimony land. Christina moved to Rome after her abdication, and this is the reason why the original of the Rev1653 is kept in the Vatican library.

Quite soon, after the new Swedish taxes had been established in 1654, they were questioned as being unfair. However, the first mapping of the Island was not made until Gotland came under control of the Crown after the death of Christina in 1689, then with the objective to get a better basis for the taxes. It was conducted by seven land surveyors between approximately 1692 and 1704. Twelve parishes or parish parts were remapped in the 1730s and 1740s, mainly due to the sloppy work of the land surveyor Friman, whose maps were disapproved (Siltberg 1992:150). I will refer to all of these maps as the maps from around the year 1700 and call them the Gotlandic maps of 1700, shortened GM1700, and timestamp them all with the year 1700. Only if necessary will the exact year of an individual map be given.

The official instruction and order to start the mapping was issued in 1693 by the King of Sweden, but it had already started in 1692, when the first land-surveyor were employed (Ronsten 2011:16). These maps of Gotland are unique in the total coverage of an entire region. All farms on the entire island were mapped, along with the only town on the island, Visby. No land on Gotland was owned by the nobility, so called *frälsejord*, which is land with exemption of land dues. All the land belonged to the Crown, freeholders or town-dwellers.

Beside the map itself, which mainly depicts the parcels of land, there is a text description of each parcel of land. As can be seen in fig. 1.2, the map and the text descriptions are linked together by a system of code markings; it is most often easy to find the right piece of land or text, but not all features are code marked and not all text is linked to the map. There can be some variations in the contents and manner, depending on which land surveyor made the map (Ronsten 1999).

A private researcher, Jakob Ronsten has made transcripts of all the text descriptions, as seen in fig 1.2. In 2011, the transcripts of the text descriptions were made publicly available in one large PDF-file on a CD-rom (Ronsten 2011b), together with his publication *Gotländska gårdar och ägor kring år 1700* (Ronsten 2011b). In the file Kartläggningen.pdf, the description for each real property is listed according to parish. The referencing will be to this PDF-file and the name of the property and parish. The absolute majority of the properties are freeholder's farms, which will simply be referred to as farms.

The GM1700 was never established as a foundation for taxes, except for the most northern parish of Fårö and the State demesne *Slottsladugården* outside of Visby (Williams 1928), which was first mapped in 1693. This is due to many reasons, but probably mainly because the mapping took longer than expected and because of the outbreak of the Great Nordic war, which lasted between 1700 and 1721. In this war, Sweden was engaged in acts of war with most of its neighbouring countries and other countries. The war drained Sweden's resources and ended in vast loss of territory for Sweden, for instance, all the Baltic provinces.

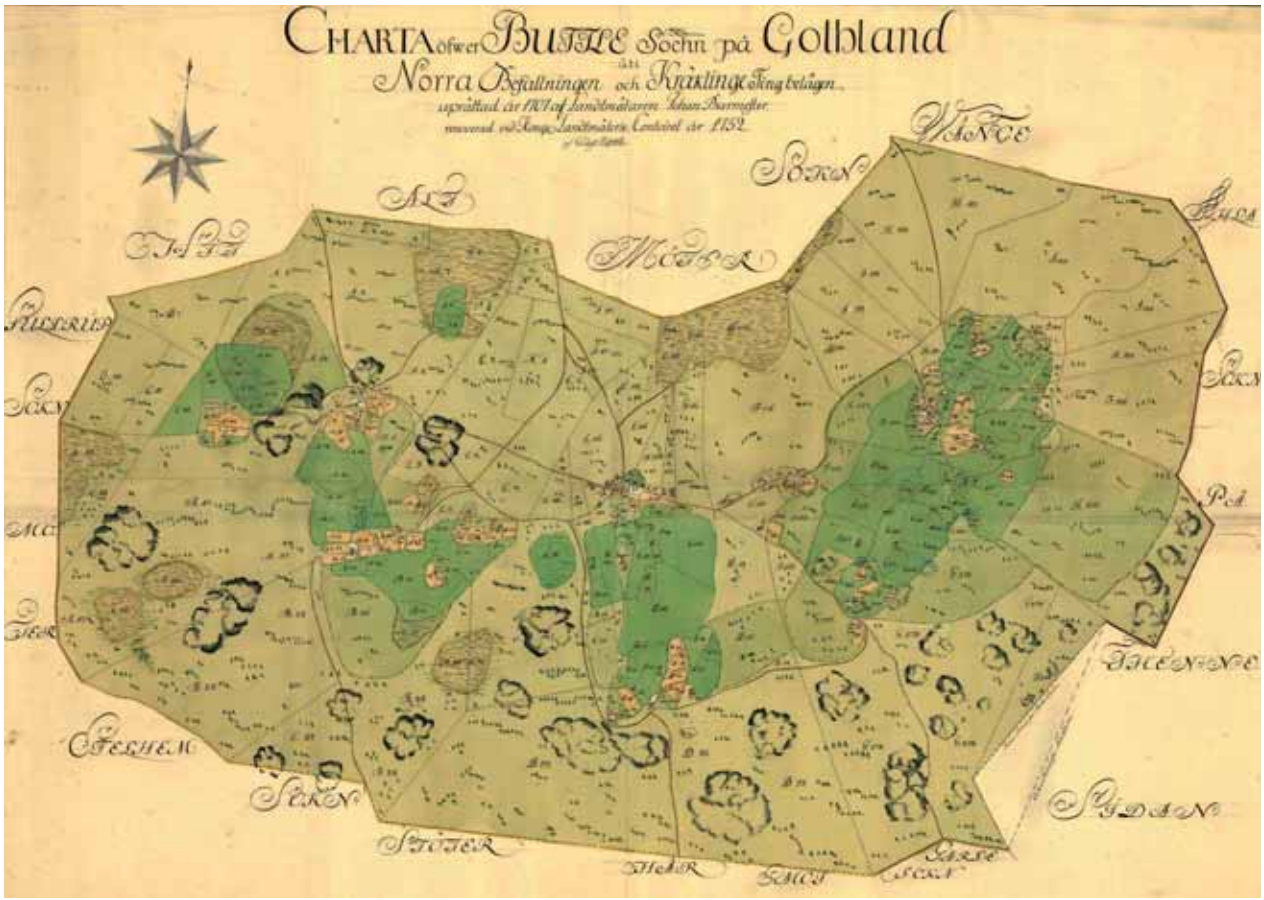


Figure 5.1. One of the GM1700 maps over the parish of Buttle (LSA, H14-1:1). This is the copy of the map from 1752 made by the land surveyor Gustaf Regnell, of the original map (LMA, 09-but-1) made by Johan Burmeister in 1702. The year 1707 is mentioned in the map above, but it is the wrong year. The fields are depicted brownish yellow, the meadows dark green, and pasture is lighter green. The bogs are brownish, with markers, and the rest is woods and wasteland. In addition, demarcations between the different properties are seen as dotted lines and roads are depicted as thicker double dotted lines. The 'clouds' with black borders are symbols for heights. (© Lantmäteriet, published with permission I2012/921)

Most of the mapping was completed in 1704 and the original maps made in the field, as well as the fair copy maps were kept in the Visby archive. The land surveyor Gustaf Regnell at *Kongl. Lantmäterikontoret* (Royal land surveyor office) in Stockholm made a second copy of most of the maps in 1752 and 1753, to be stored in the central archive in Stockholm. However, the code marking system is changed in these maps, so the transcripts of the texts, made by Ronsten, cannot be used with them. These maps are well preserved and easy to read. They are partly used here, since it is very easy to distinguish the land use and to see which farm a certain parcel of land belongs to; in most cases, sufficient information for this work.

The taxation process was resumed in the 1730s and was finalised with the establishment of new taxes in 1747. The tax protocols are dated 1745 for the southern part of the island and 1746 for the northern, but the reference will henceforth be to the year 1747. In the taxation process, the old maps of the GM1700 were used and no new mapping, except for some parishes, as mentioned above, was conducted (Williams 1928:57f).

The tax itself was divided into three different amounts. The field tax, based on the acreage and quality of the farms fields; the meadow tax, based on the yield of the meadows; and a third part, divided into other kinds of resources like pasture, products derived from forests, fishery etc. Ronsten has also transcribed these cadastres; they are available in the file Skattläggningen.pdf on the CD-rom, which comes with his book. This transcript will be referred to as Ronsten 2011c.

Since the main purpose of the maps, was that they were to be the base for taxes, this circumstance is reflected in what was mapped. No map is a true depiction of a piece of the earth, it is always a selection of information and depending on the purpose of the mapping, the information presented in the map differs. For the

GM1700 this means that the predominant features and information is about, for the 17th century, important economic matters for setting the taxes. Since the taxes were mostly based on the farming, the infields are mapped in most detail. In addition, other resources closely connected to a rural economy like woods, fishing, mills etc. are described, but not as precisely as the infields. Roads, hydrology and such features are also mapped, because the large-scale maps were also intended as a base for the production of small-scale maps, in which these features where central.

The maps are made in the scale of 1:8 000 in the manner described in the instructions for the land surveyors of the period. Normally each property is a fiscal unit and a separate entry in the GM1700. This means that abandoned farms also are listed as separate properties, even when the land is used by some other farm, but sometimes several different properties are accounted for as one unit. A common reason is that they have been merged, and the parcels of land of the different properties can no longer be separated.

There are several different types of property listed in the old cadastres, like; *hemman* (farm, homestead), *tomt* (toft), *frijord* (free land), *flytande jord* (floating land), *äng* (meadow), *hospitals jord* (hospital land), *allmänning* (common) and some more types. Exactly what all these types of properties represent and their origin is not clarified, and the issue is closely connected to the problem of deserted farms, which will be discussed in a later chapter. The problem of deserted farms is however very complex and much data exists, which will have to be further analysed; this is enough work for a thesis of its own. The problem of deserted farms will therefore only be discussed at a local level for some of the analysed and presented generic villages.

The databases used in the following calculations concerning the situation during the 17th century are mainly two; the digital version of the map-less Rev1653 and my own compiled geodatabase, based on and cross-validated with Ronsten's transcripts of the GM1700. At least one map of the GM1700 for each parish has been georeferenced in a GIS, and the position of each farm or other types of property is established. In 51 parishes, all the individual parcels of the infields have also been vectorised, these were attributed with land use and the property to which they belonged, this was then stored in a geodatabase.

Farms on Gotland in the first Swedish cadastres

According to Siltberg (2011a), there were 1 520 farms in the year 1653 and the number of properties termed *tomt* are 30, property of 5 other kinds also occur; in total amounting to 1 555. The digital version of the Rev1653 (Rev1653d), used in this work, lists 1520 farms, 33 *tomt* and 2 other types of property. The exact number of farms is hard, if not even impossible, to establish for any given time since there is no clear definition of what should be regarded as a farm. There are also differences between the Rev1653 and Jb1654 in the number of farms, since there are some more farms in the Rev1653. There are also varying numbers of farms presented by different scholars. For example, Richard Steffen mentions 1 550 farms and Ersson 1 540 in the Rev1653 (Siltberg 1986:178f). Besides this, there are some 94 church properties, often one in each parish, of which about half are vicarages. For most of the analyses made in this work, the type of property is not significant, since many of them may originally have been full farms, and the issue will be addressed only if necessary in the individual cases selected for deeper analysis, which are presented in this chapter.

This means that different numbers will be presented in these analyses too, because there is a difference in the availability of data between the different sources needed for the analyses. The differences are minor, however, and not as large as in the analyses of the mid millennium period. The reasons behind the differences are probably several. Some reflect a real change in realities, and some are most likely due to different practices and considerations when the cadastre of 1654 and GM1700 were established. There are examples of the same property being referred to as different types in the two cadastres. An example is the property Broes in Burs parish, which in Rev1653 is listed as a farm (*hemman*) with half a *mantal* (hide) and of three *marklej*. In 1702 it is listed as a *tomt* with no hide (Rev1653a:105; Ronsten 2011b:Broe tomt in Burs). Another example is Klyver in the parish of Stånga, which is a farm with the hide of ¼ in 1653, but is listed as a *tomt* with the same hide in 1701 (Rev1653a:100; Ronsten2011b:Klywer tomt in Stånga). Kaungs in Dalhem is also a farm in 1653 and a *tomt* in 1699 (Rev1653b:39; Ronsten2011b:Kaungs in Dalhem). Different interpretations are made by the different coeval officials and by the modern scholars, but as can be

Table 5.1. The number of farms, tomt and other types of property recorded in the two different datasets used in the analyses.

Source	Farms	*Tomt*	Other	Sum	Church properties	Sum
Excel file of Rev1653 (Rev1653d)	1 520	33	2	1 555	84 (Not included in most analysis)	1 639
The used database of GM 1700	1 519	51	4	1 574	94 (Not included in most analysis)	1 668

seen from the numbers above, these are minor differences, which is most often negligible in an overall analysis.

An additional difference is that thirteen farms are listed in different parishes in the two sources. Another difference worth mentioning is about the field acreages. In a study of the change of field acreages on Gotland between 1653 and 1920, Siltberg notices quite a large difference between the figures of 1653 and the figures from GM1700 for several parishes. Mostly, there is an increase over time and in some cases a drastic one. He holds it for unlikely to be the result of expansion of tilled land, since the latter part of the 17th century is most probably a period of stagnation, since there are many deserted farms during this period (Siltberg 1992:152f). Siltberg thinks the main reason for the difference is that two different ways of calculating the acreages were used. In the GM1700, the total amount of field acreage, as measured in the field, is noted. In the Rev1653, the noted acreage is what is actually tilled every year.

This way of accounting for the acreage is thus dependent on the used system of field rotation. One-field rotation might be practiced, which means all of the fields are tilled and sowed every year, or two-field rotation, which means that half of the acreage is tilled and sowed every year; finally there is also three-field rotation, in which ⅔ of the acreage is tilled and sowed every year. Those parts of the fields that were not sowed lay fallow, and were most often used for pasture.

The system that was practiced varied from farm to farm, but many times, there were regional preferences and different parts of the island have predominant systems, which could explain some of the differences between parishes (Siltberg 1992:152ff).

Besides this, there is most probably, some difference because of the different methods used to establish the acreage in 1653 and in 1700. In 1700, the acreage was based on accurate field mapping and in 1653, it is not really known how the acreage was determined, but most probably not by any accurate methods, since no land surveyors were involved in the process.

Between the production of the first maps at the time around the turn of the century 1700 and the time of remapping the twelve parishes, mentioned above, the land surveyors noted a change in the acreages of fields at some farms. This was due to the clearing of new land for tilling; although this not reflected in the taxes established in 1747. It was much debated at the time, and a decision was made to establish the taxes on the acreages surveyed in the original GM1700, and not take any increase, or decrease, of fields into consideration (Siltberg 1992:146ff).

Since the differences concerning the farms are so small and the field acreages are most often not used in this study, the cadastres, Rev1653, GM1700 and Jb1747, which are relevant here, will be regarded as reflecting the same situation around as the year 1700 and are thus interchangeable, despite these differences. The coming analyses will mostly deal with the overall picture and when it comes to the more detailed studies, there might sometimes be a need for recognizing the differences and if so, it will be accounted for.

Some old Swedish measurements used in the cadastres

A minor deviation is now needed to clarify some of the measurements commonly used in old Swedish cadastres and in the GM1700. The Swedish *tunnland* is many times translated to acre in English, but the two measurements are not of the same size, so the term *tunnland* will be used henceforth. One Swedish *tunnland* is 4 937 square metres and an acre is 4 046 square metres. The measurement *manslätt* is used in the Rev1653, and sometimes in GM1700, as a measurement of the size of meadows, and since to my knowledge no English translation is available, the term will henceforth be used. One *manslätt* equals the acreage of what one man can mow in one day. This means that it is not really a measurement of acreages, since the acreage one man can mow in one day is dependent on the quality of the meadow. Thick grass takes longer to mow than thinner. In the GM1700, the meadow

is measured in the amount of hay or sedge it produces, which similarly means it is not measured as acreage, but according to the return. The measurement for meadows is normally *parm* or *palm* (5.65 cubic metres) and for sedge the term is *lass* (wagon load), which is around 200 kg for a summer load and the double for a winter load. The summer load is used in the GM1700 (Ronsten 2011a:140ff).

Definition of farm size

Besides the location of farms, the sizes of the farms are also important for the analyses. Several measurements have been noted in different sources, and used at different times; these could be used to rank farms. Apart from the different acreages of fields and meadows, there are several official assessment systems used to calculate the size and supporting capacity of a farm. The amount of tax itself can also be considered. In the Jb1646, the Danish system with whole farms and half farms is used parallel with the more fine-grained Gotlandic system of *marklej*. The Gotlandic word *marklej* will henceforth be used, since no English translation exists.

In Jb1654 and Rev1653, the *marklej* was used parallel to the normal Swedish system of *mantal*, similar to the English term hide. The *mantal* used in Rev1653 was at that time not so fine grained. The highest value is of one whole *mantal* and the lowest is ⅛ of a *mantal*, with the following seven values: 1, ¾, ⅔, ½, ⅓, ¼ and ⅛. Farms could not be given a *mantal* over one until 1748 (Siltberg 1986:table 2) and in the *Laga skifte* files from the 19th century, small farms with mantal down to 1/256, or even lower, exist. The Swedish term of *mantal* will be used, since the English hide is not calculated in the same way.

When the *marklej* became established as a measurement system is not fully clarified, but it is mentioned in the Guta Law from the early 13th century as a system used by the Gotlandic farmers to divide the taxes among themselves. It is not a system imposed by any authority, according to Siltberg (2008:111). The system of *marklej* is finer grained with a maximum value of 32 in 1653 and a lowest value of 0.5. The increment is 0.5. The origin and exact construction of the *marklej* assessment system is lost in the mist of history, already in the 17th century. There are three accounts from the years of 1645, 1653 and 1683, of what constituted a *marklej*. There are differences, but they all include a certain amount of fields and meadow. One *marklej* is most likely equal to 5 *tunnland* of field or 5 *manslätt* of meadow or half of each. In 1653, other recourses like bog fodder, fishery and outlying land were also included and in 1683, the *marklej* consists of a certain amount of fields, meadows and forest (Siltberg 1986:189ff, 2008:99).

In 1653, the sum of the *mantal* of all farms on Gotland was 1 247 and the sum of all *marklej* is 13 631, according to my calculations. These figures differ slightly from the ones calculated by officials of the time. At the end of Jb1654, there are summaries stating the sum of all mantal to be 1 246 and the sum of all *marklej* to be 13 719 (Fritzell 1974a:13). The cause of the less than one percent difference between the two summations of the *marklej* is unknown, but there are several versions of Rev1653 and Jb1654; the digital excel-file used here might have some minor differences in comparison to the printed versions from 1974 and 1979 (Siltberg 2011c).Before the following analyses were performed, the excel file (Rev1653d) was scrutinized for any exorbitances and a sample of records in the excel file was checked against the printed version of the Rev1653 and no errors were found. The reason could also be an error in the manual calculations in 1653. In scrutinizing the GM1700, Ronsten has found miscalculations leading to incorrect summaries in some cases, which he has noted in the different excerpts. This could also be the case of the Rev1653.

How well the *marklej* describes the actual size and taxable capacity of a farm in the 17th century is debated. The tax agreement between the king, *Erik av Pommern* (Erik of Pomerania) and the Gotlanders in 1412 assessed the amount they should pay in tax. The taxes were set as an amount that each Thing[2] should pay, and the amount to be paid by each farmer was then decided by the Gotlanders themselves, based on each farm's *marklej*. If there were many deserted farms, the taxes of the other farms were raised since the amount of tax was fixed for the Thing, regardless of how many deserted farms there were (Fritzell 1974a:7f). Fritzell's opinion is that the *marklej* had not changed since the tax agreement of 1412 and thus did not reflect any changes in farm sizes and in supporting capacity up until the mid 1600's (Fritzell 1974a:7). Partly the same

2. In Swedish, it is spelled *ting*. A governing and judicial assembly meeting, existing in Germanic societies, to which all free men had a right to attend. There were normally several levels of Thing, of different administrative scope. On the lowest level, Gotland was divided into 20 Thing, just referred to as Thing. The highest level of Thing was the *Allting* which governed the whole island.

view had earlier been brought forward by Gadd, who maintains that the *marklej* already at the time of the Guta law was a piece of land fixed in size and price. He argues that this can be seen in old deeds, and suggests that the *marklej* of each farm had not changed since then. Gadd compares the pricing of land in the earlier part of 1600s and finds the cost for one *marklej* to vary between half one *daler* (thaler) up to 24 *daler.* From this, he concludes that many farms had changed considerably and thus the *marklej* did not reflect the supporting capacity and taxes for most farms at the time of Rev1653 (Gadd 1945:316).

This view is not shared by Siltberg (cf. 1992, 2008). He presents a number of arguments supporting the view of the *marklej* still being an effective tax assessment unit in the 17th century. One argument is the fact that the *marklej* was partly used when the taxes in 1654 were calculated. The larger of the two taxes, *årliga räntan* (the yearly interest) was solely based on the *marklej;* half of the minor tax, *springeskatten*, was based on *marklej* and the other half on the *mantal*. The second argument is that when comparing the *marklej* in the Danish cadastres of 1644/46, and the Swedish from 1646-49, with the Rev1653 and Jb1654, there are changes for some farms, which according to Siltberg (1992, 2008) indicates that the *marklej* was a tax assessment system still in use up until 1654.

Gadd (1945:315) and Fritzell (1974a:8) point to the many complaints by the Gotlanders of the unfair burden of taxes, noted by the Swedish officials after the takeover in 1645; according to them, this shows that the *marklej* was outdated. As a counter-argument, Siltberg states that the reason for this was not the *marklej* that was unfair, but the *mantal* (Siltberg 1992:158). The main arguments for the opinion that the *marklej* lacked any relevance in the 17th century have been that the *marklej* is not recorded or used in any Danish accounts from before 1645. Here Siltberg points to the fact that the Danish authorities had set the tax as an amount that each Thing had to pay. The farmers of Gotland divided the taxes among themselves, within each Thing; this was of no interest to the Danes, and so it was not recorded. Siltberg's view is that the division of the taxes amongst the farmers was conducted according to communal consent, it was handled entirely by the Gotlandic society. The mention of Thing and *Fjärding* rolls by the Swedish officials in 1653, also favours this interpretation, and the fact that there are some Danish sources mentioning the *marklej* (Siltberg 2008:96f), indicates that Siltberg is right in this matter.

The account above is aimed to present the different concepts and to produce an understanding, before any decision is made of which measurement system to use in ranking the farms. Below is a table showing the correlation between the different measurements that could be used. As described above, the most thorough calculations must be the taxes from 1747. It is based on proper mapping and inventory of each farm's resources, which is confirmed in the table 5.2 The total amount of tax in 1747 has the highest correlation with nearly all other variables. This seems to be the best variable to use when ranking farms. It is also by far the most fine-grained, since it is calculated in *daler* and *öre*. The table also gives good correlation for the *marklej*, and this would probably be the second best parameter to use. This supports Siltberg's statements of the *marklej* being an active component when it was decided what each farm had to pay in tax and that it reflects the taxpaying and supporting capability of a farm in the seventeenth century.

The table also shows that farms with substantial field- and meadow acreage also have other resources. The amount of arable land is most likely also a relevant assessment of the supporting capacity of a farm, but when studying the individual farms there are some exceptions to this rule.

Table 5.2. Correlation between different ways of assessing a farm's supporting capacity

Correlation	Mantal 1700	Total tax 1747	Field tax 1747	Meadow tax 1747	Tax on other things 1747	Field + meadow 1700	Field1700	Meadow1700	Marklej 1653	Field + meadow 1653	Field 1653	Meadow 1653
Mantal 1700	1.00	0.63	0.57	0.51	0.51	0.59	0.57	0.53	0.61	0.65	0.60	0.62
Marklej	0.61	0.69	0.66	0.57	0.57	0.67	0.64	0.60	1.00	0.71	0.62	0.68
Total tax 1747	0.63	1.00	0.94	0.79	0.80	0.85	0.85	0.67	0.69	0.76	0.70	0.67
Field tax 1747	0.57	0.94	1.00	0.63	0.66	0.82	0.86	0.59	0.66	0.68	0.64	0.57
Meadow tax 1747	0.51	0.79	0.63	1.00	0.44	0.75	0.62	0.72	0.57	0.66	0.55	0.61

Cluster analysis of the historic farms

As seen in table 5.3, the pattern is clustered, but not to the same degree as for the stone house foundations. When studying the mean distances between farms around the year 1700, there is a difference between the northern and the southern part of the island. The average mean distance is more than 140 metres shorter on the southern part. As will be shown later, the percentage of farms in generic villages are also higher on the southern part and generic villages are more common there.

Table 5.3. Cluster analyses of Gotland around the year 1700

Table 5.3a. The whole island
Given the z-score of -32.25, there is less than 1% likelihood that this clustered pattern could be the result of random chance.

Observed Mean Distance:	402 m
Expected Mean Distance:	683 m
Nearest Neighbour Ratio:	0.59
z-score:	-32.25
p-value:	0.00
Study Area: 3 147 km2 (=The area of Gotland)	

Table 5.3b. Southern part
Given the z-score of -22.38, there is less than 1% likelihood that this clustered pattern could be the result of random chance.

Observed Mean Distance:	339 m
Expected Mean Distance:	629 m
Nearest Neighbour Ratio:	0.54
z-score:	-22.38
p-value:	0.00
Study area: 1 017 Km^2	

Table 5.3c. The northern part
Given the z-score of -21.30, there is less than 1% likelihood that this clustered pattern could be the result of random chance.

Observed Mean Distance:	480 m
Expected Mean Distance:	756 m
Nearest Neighbour Ratio:	0.63
z-score:	-21.30
p-value:	0.00
Study area: 2 130 km2	

Spatial distribution of farms of different sizes

In this analysis, all farms and other types of property, that are not listed as independent tax objects in the tax list of 1747 are excluded. Also all vicarages and church properties are excluded, but twenty-four of the *tomt* that were taxed independently were kept in the analyses. The reason for this is that *tomt* can indicate a former farm, as mentioned above. When plotted in histograms, there is not much difference in the curves, regardless if they are plotted based on the arable land of 1700, the taxes of 1747, or the *marklej* of 1653. Of course, it cannot be seen if each individual farm ends up in the same position in the three diagrams.

Arable land is the sum of the fields, expressed in *tunnland*, and meadow, expressed in *parm*. This can be seen as mixing apples and oranges, since it is two different units; *tunnland* is an acreage unit and *parm* is a volume unit, but they can also be regarded as measurements of quantity, the same way as they are used in the definition of *marklej*. The *marklej* was defined as 5 *tunnland* of fields or 5 *manslätt* of meadow or half of each. The early modern society thus equated one *tunnland* with one *manslätt*. According to observations made by Ronsten, there is a correlation between *manslätt* and *parm* (Ronsten 2011:307). The new unit that is created by mixing *tunnland* and *parm*, termed arable land is thus similar to a simple form of *marklej*.

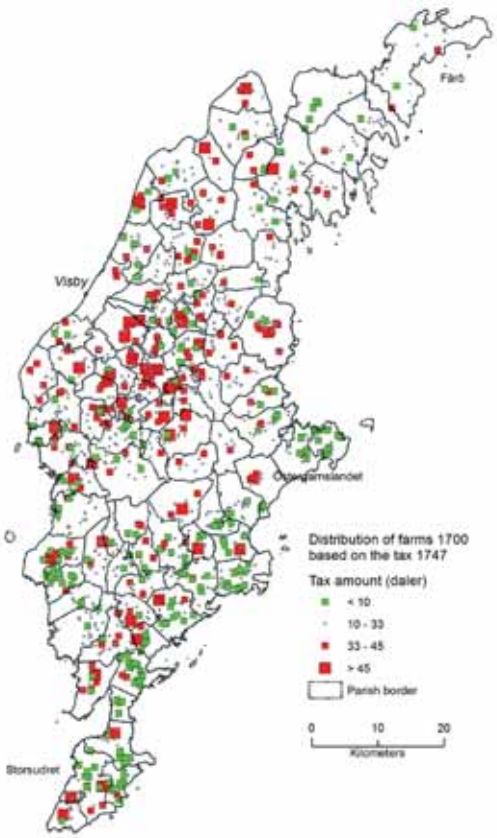
As can be seen in the diagrams and maps below, the differences seen in the correlation figures are also seen in the diagrams and maps. The maps are designed to show where the small (green) and the large (red) farms are situated. The most frequent middle group of 'average' farms are only marked with very small symbols.

The differences between the maps based on the amount of tax and arable land are not drastic. There is, however, one source critical aspect to take account of here, which has not been discussed earlier. There is reason to believe that the acreages of the fields are not 100% comparable between the land surveyors, because some of them tend to register fields as *linda* more often than others (Ronsten 2011a:76ff), but the differences should not be overstated. A *linda* is a field

not always used, or a field with poor capacity, which had lower tax.

The overall picture of the maps, with a concentration of larger farms in the areas southeast of Visby is the same in all three maps. This is where the best soils are located, and is still today the central area of agriculture. In addition, the area down in the south-west is also similar. In the maps based on the amount of tax, there are also quite a few larger farms on the northern part of the island, which are not marked on the map over arable land. A possible explanation could be that some farms paid more tax due to incomes from lime stone industries, which had its centre on the northern part of the island during this period (Siltberg 1992:159). This is probably also the reason why the *marklej* map also lacks large farm in the north, since nothing is mentioned of limestone in the definition of the *marklej*. It is worth noticing that the *marklej* map shows a much more concentrated picture of the larger farms; further showing that all farms on Fårö are small and there are hardly any large farms on *Storsudret*. In addition, no large farms are marked in *Östergarnslandet* on any of the maps. To analyse and try to explain these differences is too demanding and beyond the scope of this work. The maps show that to some degree it matters, which assessment system is chosen to rank the farms, but the tax of 1747, must be considered the best, as explained above.

There are some outliers, considerably larger than the rest, paying taxes over 60 *daler*. Most of them are known to be anomalies in some sense. The largest farm, Jakobs in the parish of Eksta, is actually two farms, Jakobs and Ajvide. In the land surveyor's description from 1703, he notes that the parcels of land of the two farms have been mixed since far back and nobody knows any more how to distinguish Jakobs from Ajvide. In the tax record from 1747, they are also merged into one farm with a *mantal* of 2, paying 81.4 *daler* in tax. The second largest farm is Kyrkbinge in Gothem, with a tax of 80.9 *daler*. According to the Rb1653, a lot of land is bought and incorporated into the farm. Stora Mafrids in Västergarn, with a tax rate of 78 *daler*, has most probably incorporated some deserted farms in its land (Carlsson 2011:158). The farm Gandarve in Vänge parish paid 69 *daler* in tax, but according to the land surveyor's description in 1701, the land of at least one deserted farm was incorporated into the land. Träskväller in Tingstäde, paid 64 *daler* in tax, but according to Rev1653, the farm had



Tax 1747	
Freq	1 536
Mean	21.7
Median	20
Mode	20
Stdv	11.8
Skew	0.9
Max	81
Min	2

Classification	Breakpoint	Frequency
Under 2 stdv	-1.8	N/A
Under 1 stdv	10,0	248
Within 1 stdv	10 to 33.5	1 005
Over 1 stdv	33.5	231
Over 2 stdv	45.2	52
Sum		1 536

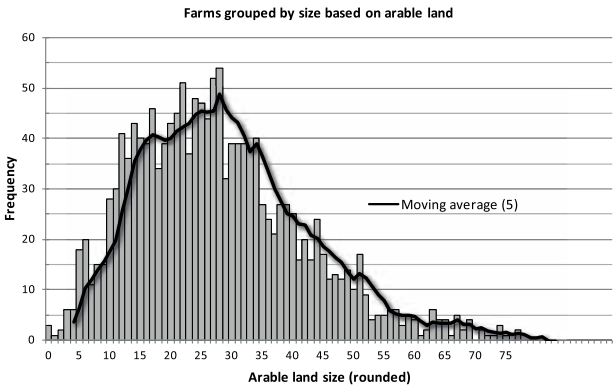
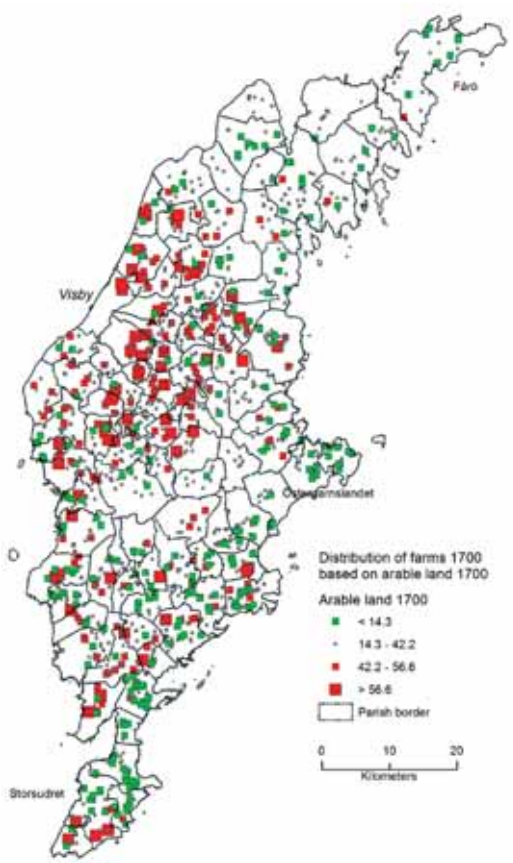


Figure 5.2a. Statistics and spatial distribution of all taxpaying property on Gotland around the year 1700, based on the taxes of 1747



Arable land	
Freq	1 536
Mean	27.8
Median	26.0
Mode	17.8
Stdv	14.4
Skew	0.9
Max	92.1
Min	

Classification	Breakpoint	Frequency
Under 2 stdv	-1.0	N/A
Under 1 stdv	13.4	229
Within 1 stdv	13.4 – 42.3	1 011
Over 1 stdv	42.2	233
Over 2 stdv	56.6	63
sum		1 536

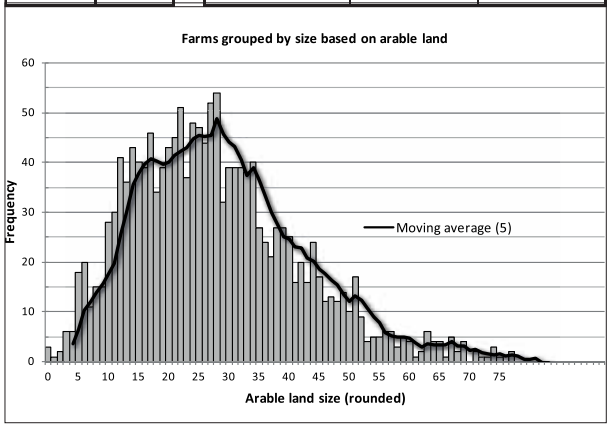
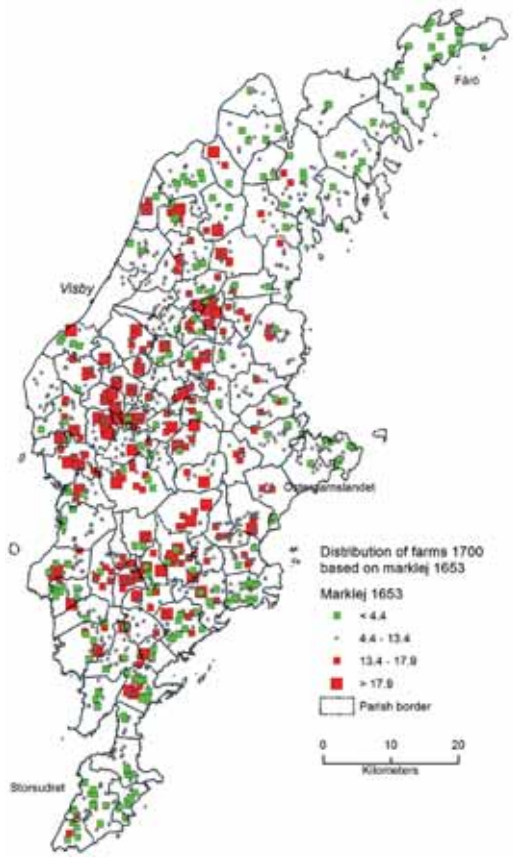


Figure 5.2b. Statistic and spatial distribution of taxpaying property on Gotland around the year 1700, based on arable land around the year 1700.



Marklej	
Count	1 521
Mean	8.9
Median	8
Mode	6.0
Stdv	4.5
Skew	0.8
Max	32
Min	1

Classification	Breakpoint	Frequency
Under 2 stdv	0	N/A
Under 1 stdv	4.4	232
Within 1 stdv	4.4 to 13.4	988
Over 1 stdv	13.4	230
Over 2 stdv	17.9	71
Sum		1 521

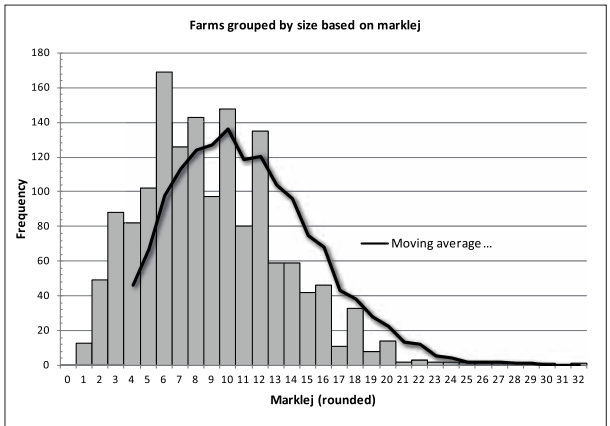


Figure 5.2c. Statistic and spatial distribution of all taxpaying real property on Gotland around the year 1700, based on the *marklej* of 1653

bought land. This indicates that the largest farms were not originally so large, but became so by incorporating other farms, buying land and taking over deserted farms, etc.

The formation of vicarages

Including vicarages in an analysis of generic villages is a bit problematic, since it is not clear how and when vicarages were formed. On Gotland, there are examples of former ordinary farms turned in to vicarages, like the vicarage on Fårö. According to the description in the GM1700, this used to be a farm by the name of Svens (Ronsten 2011b:Pastoratetz ägor on Fårö), which could indicate that the vicarage on Fårö was created during a later period.

Elisabeth Gräslund Berg has studied the geometrical cadastres of the 17th and 18th centuries in some counties on the Swedish mainland, analysing the location and general character of the vicarages. There are regional differences in whether the vicarages were situated in villages or were solitary farms. In the county of Östergötland, the vicarages were mainly situated in villages in the western part of the county and as solitary farms in the eastern part. There were also great variations between vicarages on the plains and those in the forested parts and in areas encompassing both plain and forest.

The character and location of the vicarages were much more homogeneous in the county of Södermanland, where they were often situated between the main church and any annex church, which means that the distance to the church often exceeded one kilometre, and over 80% of the vicarages were solitary farms. In the county of Västmanland, the vicarages were most often situated at a distance less than one kilometre from the church. The above examples show that there were great regional and local variations, which most often follow the general characteristics regarding settlement structure and the geographic conditions of the region. Generally, there is, however, a tendency that the vicarages are mainly solitary farms (Gräslund Berg 2004:88ff).
On Gotland, none of the 44 vicarages existing in 1700 were situated at a distance further than 200 metres from the church, according to calculations based on the GM1700.

Based on several studies, it is clear in many different ways that vicarages on the mainland were formed as independent agricultural properties. The most common pattern seems to be that many farmers in the parish contributed with small pieces of land to the vicarage. Existing farms were also made into vicarages. Another example is that new farms were formed from larger estates, of which one was donated to the church. Finally, some were formed by reclamation of land (Gräslund Berg 2004:92). In her own study, she found two general patterns of the formation of vicarages; either a vicarage was formed of a whole existing farm or of smaller scattered pieces of land (Gräslund Berg 2004:174). This is in line with the suggestions made by Siltberg, for the formation of vicarages on Gotland (Siltberg 1990:127f; 2011b:128f).

The other question, regarding vicarages is when they were formed as independent, self-contained property. In the Guta law, nothing is mentioned about the vicarage concerning land or houses, only that the vicarage is a sanctuary for criminals (GL chap. 8 and 13). According to Christian Lovén, all regional laws on the mainland have regulations regarding the vicarage (Lovén 2010:45). It is, for example, stipulated in the Uppland law that the priest should have a certain amount of land and seven houses (Holmbäck & Wessén 1933:Upplandslagen p.14).

Gräslund Berg studies some vicarages on the mainland and she concludes that most vicarages were formed quite late in time; in the late 13th and first half of the 14th centuries and in some cases even later. However, she does not rule out that some kind of vicarages may have existed before this, but possibly in another form, without any cultivation under the vicar's management. Before the formation of vicarages as independent farms cultivated by the vicar himself, or at least under his immediate management, he just had the right to the yield of certain parcels of land and maybe a house to live in. There are also indications that the establishment of vicarages as independent farms, in many cases occurred much later than the churches themselves and the parishes were founded (Gräslund Berg 2004:176f).

Gräslund Berg sees the formation of the historical vicarages as the successful result of the church striving for more independence from the worldly powers, which began at the end of the 13th and beginning of the 14th centuries. This is parallel to the changes in the society as a whole, where new social structures and economical systems were created. The formation of vicarages as independent properties can thus be seen as

a process connected to the creation of the feudal society (Gräslund Berg 2004:176f).

If she is right in the assumption that the formation of larger and more independent vicarages is a result of a feudal process and the growing power of the church, the results from the mainland might not be directly applicable on Gotland. This is because many of these processes, which led to a feudal society, seem to be lacking on the island and the bishop and central ecclesiastical authorities seem to have had a weaker position than on the mainland, which will be discussed in chapter 7.

Therefore, until a more detailed study of the vicarages on Gotland is conducted, which can be compared with the results of the studies on the mainland, I have chosen to take a cautious approach in interpreting land belonging to the church and vicarages in my study. However, the scenario of the vicarages formed by many small parcels of land seems very likely in many cases, since the parcels of land of many vicarages are considerably scattered throughout the parish.

Generic villages on Gotland

As partly accounted for above, Ersson has studied the phenomenon of double farms and some types of farm clusters in a number of articles (Ersson 1977, 1991 and 1997). Mainly based on names and distance, and to some degree the mixing of the parcels of land, he has identified around 260 farm groups. In his work, he lists 89 pairs of farms with the same name-stem, and in some cases, with added prefixes, indicating a common genesis (Ersson 1991:22) and 170 pairs/groups of densely situated farms with different names (Ersson 1997:278ff). Most are pairs, but some larger groups are included. He points to two different reasons behind the close locations; either a farm is divided into two parts or two solitary farms have moved together (Ersson 1997:277ff). Ersson seems to have used different criteria for the different lists. When it comes to the double farms, they are identified by names, regardless of distance; concerning other groups, however, the distance is mainly used to create the different groups. He has also taken the distribution of fields into account, but only after the groups have been identified by other means, as it seems.

In the present work, the analyses will mainly be based on how the parcels of land are mixed between the farms, since this is believed to be the strongest indicator of affinity and common origin. When Ersson studied the mixing of parcels of land, he mainly used the fields. It is probably more fruitful to look at the meadows and fields, since it is more likely that the division of the meadows has not changed as much as the fields. Moberg noticed the high degree of mixed parcels of land in larger areas of meadow (Moberg 1938:54) and regarding the mixing of the field parcels he thinks it must be of old origin (Moberg 1938:74ff). If a farm toft is relocated or divided, which is probably quite a common occurrence, it is more likely that there has been a redistribution of the fields rather than of the meadows. Fields are more labour intensive and require much more transportation than the meadows, so there is a greater need to have them near the farms toft. The meadows will therefore be included in the analyses.

One other source, not yet used in any analysis of this kind, is the fact that farms are mentioned as parts of villages in different sources such as maps, protocols, local tradition and historical maps and other sources. In the GM1700 maps, the land surveyors also often noted, but far from always, if the farms cooperated in a *byalag* (cooperate in a village community) or if they were *enstaka* (solitary) farms, which has been discussed earlier.

In the following section, a number of analysed parishes will be presented with examples of generic villages.

About the presented maps

Since the visual interpretation of maps is central to the analyses, I have given much room for them in the following sections, and let them fill the pages. The interpreted villages are colour coded in such a way that each farm in the village has the same colour, but of different shades. The letters or numbers also identify each farms land parcel. Only the the infields are depicted in the maps. The fields are hatched and the meadows not.

The parish of Fide

In the parish of Fide, it is quite easy to distinguish three generic villages by observing how the infields of the farms are mixed. Parcels of land in red indicate the eastern generic village and parcels of land in blue belong to the western one. To the south, in yellow, is a division of a larger farm.

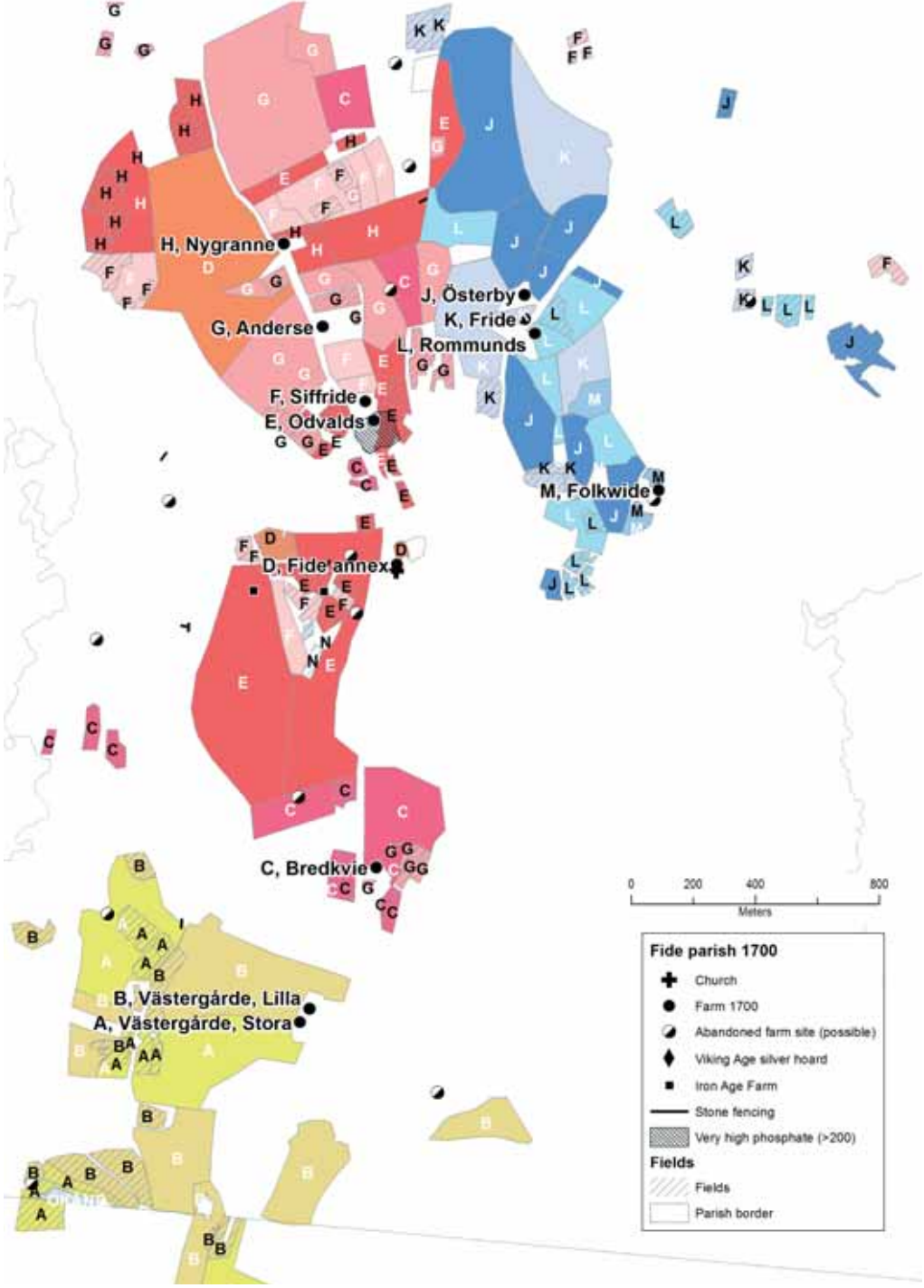


Figure 5.3. Three generic villages in the northern part of Fide, and one in the south. A fair copy of the GM1700 map LSA, H24-1:1

Lithberg mentions that in the 20th century, these three areas were still referred to as villages. In the south, was Sudabyn (the southern village); in the northeast, Annbyn; and in the north-west was Fidbyn, which refers to the parish name (Lithberg 1915:42). According to Ersson, (1974:38) the division of Västergårde in two separate fiscal farms is probably late, which is a reasonable assumption. Ersson suggests this was done in the late Middle Ages (Ersson 1974:38). This could be one of the farms described as 'Stoore boolagh' with an extended family in several households during the 17th century, according to the ideas of Lithberg (1932:24ff).

Such a situation as is seen in the map can hardly be the result of buying, inheriting, marriages and other similar events, which is an explanation often used for the disintegration of the land, found in most Gotlandic farms (cf. Carlsson 1979:157, 2008:67; Lindquist 1991:180). If these were the main reasons, there would not be so well defined 'village territories', in which the farms lay so organised and adjacent. There would probably have been much more mixture of land between farms in different areas, not only between neighbouring farms. The situation looks very much like that found in mainland villages. The mixing of parcels of land over the whole village territory is most probably to ensure that each farm was given land in different locations so each farm had part of different soil qualities. Within these two village territories,

there are a few parcels of land, owned by farms in other areas (white areas), which are probably the result of such events, assumed by Lindquist and Carlsson.

In 1703, one of the generic villages consisted of the farms Österby, Fride, Rommunds and Folkvide. Folkvide was probably established at a late stage and was in 1703 a small farm with no farm buildings. Österby (The eastern village/farm) is the largest of these farms (15.9 *daler* in tax). The other generic village consists of the farms Odvalds, Siffride, Anderse and Nygranne. The farms Siffride and Odvalds have adjacent tofts with remains of a medieval stone house. Oddvalds is the largest farm in the parish (17.9 *daler*) and Siffride is one of the smallest (7.8 *daler*). There are also very high phosphate values in Arrhenius map over the area, so there is strong reason to believe this is the old core of the former generic village. It seems like the church land (Fide annex, D) mostly comes from this generic village.

It is likely that there have been three generic villages in Fide. How many households/farms there were from the beginning is hard to say, but two of the generic villages are split into four farms, before the situation was 'frozen' and no new fiscal units were introduced. Between 1653 and 1703, some of the farms split up into more parts, but since neither new names nor new fiscal units were introduced, they are just referred to as 'parts', as discussed in chapter 2. This can also be seen on the mainland, where a farm in a village is split between several farmers, but the farm is still regarded as one fiscal unit.

Ersson has also studied this area. His conclusions are that Odvalds and Fride are the oldest farms. The name Österby is most likely derived from its location east of the farm Fride, and based on the name Fride should be the oldest farm. He does not rule out that Österby got its name in relation to the western 'cluster' of farms, and if this is the case, the name Österby must be the oldest (Ersson 1974:37f). In such a case, the village name Österby, must be older than the name Annbyn, mentioned by Lithberg. According to Ersson, the other farms are the result of a colonisation process; the central parts were the oldest, and during the course of the Middle Ages, more farms were established further and further away from the centre (Ersson 1974:37f).

This view of the matter would lead to a massive population growth in very short time, since nearly all farms were established in the mid or late Middle Ages. There was a colonisation during the Middle Ages, but to my mind, not of the magnitude and speed, over such a short time as Ersson portrays. It must have been a slower and drawn out process, starting in the early Viking Age. He does not study the land division and does not recognise the fact that there are different 'village' territories and that the farms within each territory have a common origin in generic village communities. The origin of all other farms in each generic village is not likely to have been a single household farm, like Ersson seems to assume, and neither would the colonisation have moved further and further from an original farm in the centre. In such a case, it is more likely that each farm would have a more defined farm territory, these would not have been mixed as can be seen in the map above, where all farms had parcels of land spread all over the territory of the generic village.

In each of the northern generic villages, there is one farm, which can be identified, with a high degree of certainty, as later than the other farms, and can represent an extension of the village. These are Nygranne, which Ersson also thinks is a quite late establishment (Ersson 1974:29, 38) and Folkvide. They are both small and were situated in the periphery of each village territory.

There are also a number of probable deserted farms in the vicinity. It is unclear how they are related to the generic villages. At least one is probably a settlement established during the early Iron Age and was abandoned in historical times, most probably during the medieval agrarian crises. This is Rörs tomt, situated slightly to the north-northeast, just outside the map in fig 5.3, on the border to the parish of Grötlingbo. It is identified by a meadow that has this name in the Grötlingbo GM1700 map. Some Iron Age stone house foundations are situated in the area. The setting and characteristics looks very similar to Fjäle in the parish of Ala (cf. Carlsson 1982, 1984) and several other areas with similar characteristics. An interesting thing is the name in relation to its location. A *rör* means cairn or a boundary mark and the deserted farm is situated on the border between the parishes of Fide and Grötlingbo. According to FMIS, there are no other ancient remains in the area, besides the two Iron Age stone house foundations and a clearance cairn.

Some of the other deserted farms might have been established during the expansion period of the Viking Age/Middle Ages and they may have been abandoned at the same time as

Rörs tomt. Two of the possible deserted farms lay within the territories of the generic villages (Wisarve and Rotarve), but they both have the problematic *–arve* suffix, which will be discussed shortly. There is an uncertainty as to whether they can be classed as deserted farms, but a farm named Rotarve exists in Lye parish, so at least Rotarve is a probable deserted farm. If these names represent farms that were later deserted, they most probably had their roots in any of the generic villages.

The *-arve* ending in a farm name is most often explained by the circumstance that the farm was inherited and got its name from the person leaving the inheritance. Melefors considers that this type of situation, where two farms share a common first name of a person as a stem, and one of the names ending with the suffix of*–arve*, indicates that they once formed one original unit and the division can be dated to the Middle Ages, or even before (Melefors 2010:50f). Blomkvist refers to the toponymist Herbert Gustavson, who connects farm names of the ending *–arve*, with large, multi-household farms (Blomkvist 2010:11). This is originally an idea brought forward by Hellquist regarding the name form in other parts of the country, also in Finland, but he did not include Gotland in his study. Hellquist suggests that the name means a property complex owned and cultivated by someone's heirs, and thus is used in plural form. This explanation to the name suffix is further supported by the Gotland material, according to Gustavson (1938:48). However, later toponymists, such as Ståhl, Hellberg and Melefors, have questioned these explanations; they advocate an interpretation that the suffix is in singular form, and thus refers to only one heir. Around the year 1700 there were around 238 farm names ending in *–arve*, which is ca 15% of all farm names (Melefors 2010:50f).

A quick analysis shows that 56 of the 188 generic villages identified in this work contain a farm with the suffix of *–arve*, which is 30% of all generic villages. Of the 511 farms included in the 188 generic villages, 63 are named *–arve*, which is 13%, which actually is slightly lower than would be expected, since 15% of all farm names are *-arve* names, but is in the margin of error. This lower percentage can of course be caused by the difficulty in identifying all generic villages, but it seems like *–arve* names are not more common in generic villages.

In a recent study of names of parcels of land ending with *–arve*, Melefors has suggested that most probably the majority did not refer to inheritance, but rather they are a transformation of the original ending of *–are*, under influence of the *–arve* names. There are parcel of land with names ending with *–arve*, indicating deserted farms, but they most often have a person's name as the first element (Melefors 2010:50ff). If I have understood Melefors correctly, this means that the original name in the questionable example above could have been Wisare, but under the influence of the farm names ending with *–arve*, has transformed to Wisarve.

The parish of Buttle

The settlement structure in Buttle changed completely after the Iron Age; there was a shift from the existence of several villages in the mid millennium to no traceable villages in the GM1700 map. Around 30 Iron Age farms have been identified, situated in villages, of which examples are seen in fig 3.1.18c,d,g. In 1700, there were eight farms – church land excluded – divided into 14 parts of farms. Most farms were divided in two parts and none of the farms had more than two parts. Eriksson (2010a) has identified four deserted farms, which are all probable (ibid:ode207, 208, 209 and ode671). In the west is an area of fields and meadows, which is distributed among many farms (Eriksson 2010a:ode208). In the GM1700 map, several parcels of land with the name Ungelhem (also spelled Ungelems, Wungelems, Ungelams) occur in the area, this is most probably a farm name, even if no other farm on Gotland is known with that name. At least two mid millennium farms are identified in the area. Finds of a picture stone and medieval ceramics, a well and silver and bronze objects (Eriksson 2010a:ode208) supports the interpretation that the area was settled continuously up until at least the Middle Ages.

Prior to 1653, the farm Änge was two farms. In Rev1653 a Lilla ängetompt (Little meadow toft) of three *marklej* is mentioned under the farm Änge (Eriksson 2010a:ode671). It is said (Rev1653b:27): '*hafwer aldrigh warit i mannaminne bebygdh*' (*has not been built within living memory*). For how long time it was divided into two parts is unknown, but the name prefix *lilla*, indicates that it was a later division. A field by the name Thunatomt (Thuna toft) identifies a deserted farm close to the Church (Eriksson 2010a:ode207). Surrounding forest parcels are also described as located *'...by Thunatompt...'* (Ronsten 2011b:Buttlegåde in Buttle). There is

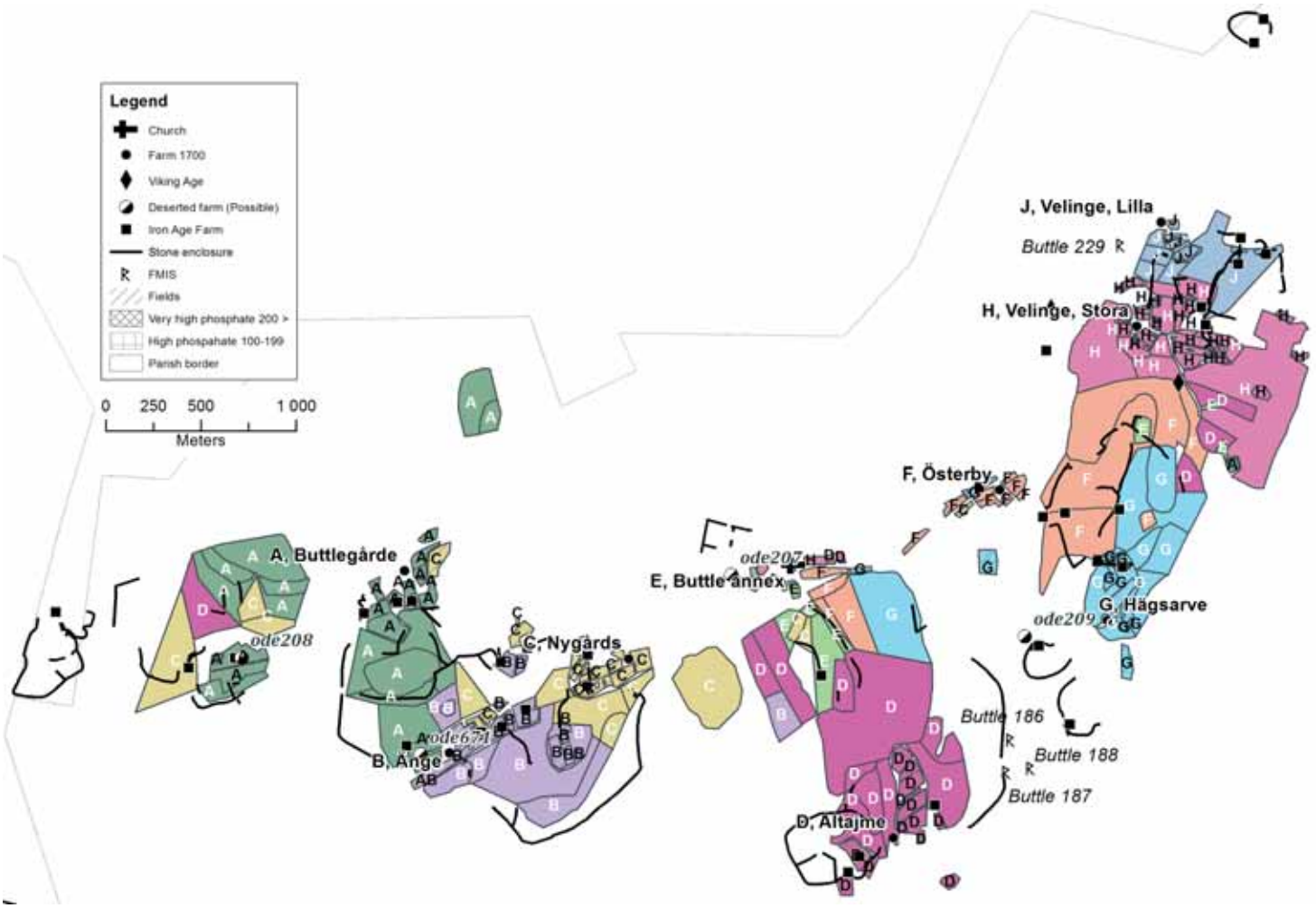


Figure 5.4. Buttle parish in 1700. A fair copy of the GM1700 map LSA, H14-1:1.

another deserted farm by the name Tunagårds tomt in the parish of Alva.

The deserted farm at ode209, named Skallarve, could maybe be one of these cases discussed by Melefors (2010), and the original name of the parcel of land could have been Skallare, but under the influence of the farm names ending with *–arve*, has transformed to Skallarve. In this particular case, there are other things pointing to a deserted farm. The fact that there are remains of a mid millennium farm close by (RAÄ Buttle 21), and fossilised fields, which most probably date to the Middle Ages (RAÄ Buttle 192), provide indications that might connect the name with a deserted farm.

Not far away, the remains of some undated historical house foundations and fossilised fields occur at RAÄ Buttle 186-188, which are interpreted as the remains of a deserted farm in FMIS, but with a question mark. The remains might be more recent, but an inspection of the map of the *Storskifte* (LSA, H14-2:1) and the map of the *Laga skifte* (LSA, H14-2:2) do not reveal any traces of buildings or fields in the area, so they might very well be medieval. A road also passes by, in the GM1700 map (LSA, H14-1:1). Some house foundations close to RAÄ Buttle 229 are probably more recent, since there is a group of houses depicted on the same spot in the map of the *Laga skifte* from 1882 (LSA, H14-2:2). Besides this, two silver hoards have been found on land belonging to Stora Vellinge, of which one is among the largest ever found, with a weight of eight kilos, consisting of 2 673 silver coins and an arm ring of silver. The hoard is dated to early 10th century. The other hoard is smaller with a weight of 3.7 kilos and dated to some decades later.

The fact that there are several deserted farms in the more peripheral areas of Buttle, compared to the situation in 1700, points to a more gradual decline and decrease of the number of farms in the parish. There was a drop from some 20-30 farms in the mid millennium to around 14 farms/ parts of farms in 1700. Most likely, there are two dominating periods of decline; the later part of the migration period and the medieval agrarian crises in the middle of the 14th century, which will be discussed at the end of the book.

The parish of Alskog

Around the year 1700, there were twenty farms, plus the vicarage, in the parish of Alskog. There are 64 preserved Iron Age house foundations from the mid millennium, forming some 32 farms. Many of these are located in areas that were peripheral in historical times. This means that the settlement areas in the parish partly shifted from the denser moraine soils to the more drained sandy soils between the older Iron Age and historical times. Most of the historical farms are concentrated to the vicinity of a low sandy ridge running through the parish from southwest to the northeast.

In the GM1700 map, four more or less clear groups of farms are distinguishable, which have different degrees of mixing of parcels of land. North-west of the church, the vicarage and the farms of Bote, Snausarve, Snauvalds, Sigsarve, Stenstugu and Mallgårds form one group. The farms are grouped around one larger infield area, very similar to how they normally appear in the mid millennium. The area was probably continually settled from the Iron Age, since there are remains of stone enclosure walls and at least one Iron Age stone house foundation, which can be seen in the historical maps (LMA, 09-ALS-2). There are several finds in the area indicating both settlements and graves, spanning from the Stone Age up until the Viking Age (RAÄ Alskog 98, 98, 114, 118, 221, et alia). One Viking Age silver hoard is found between the farms Botes and Snauvalds and stray finds of artefacts have been made in two nearby places (Östergren 1989:12-13, 78f). Fossilised fields (RAÄ Alskog 96) are also registered in the area.

In the central infield area, three locations of possible deserted farms have been identified. Eriksson interprets one of the locations as having two farms, *Lilla* (Little) and *Stora* (Great) Haltarve, based on the names of two meadows in the year 1700. One is called Stora Haltarve meadow and the other Lilla Haltarve meadow (Eriksson 2010a:ode388). Since the meadow Stora Haltarve is larger than the Lilla Haltarve meadow, it is perhaps more likely that there is only one deserted farm, and the name prefixes *lilla* and

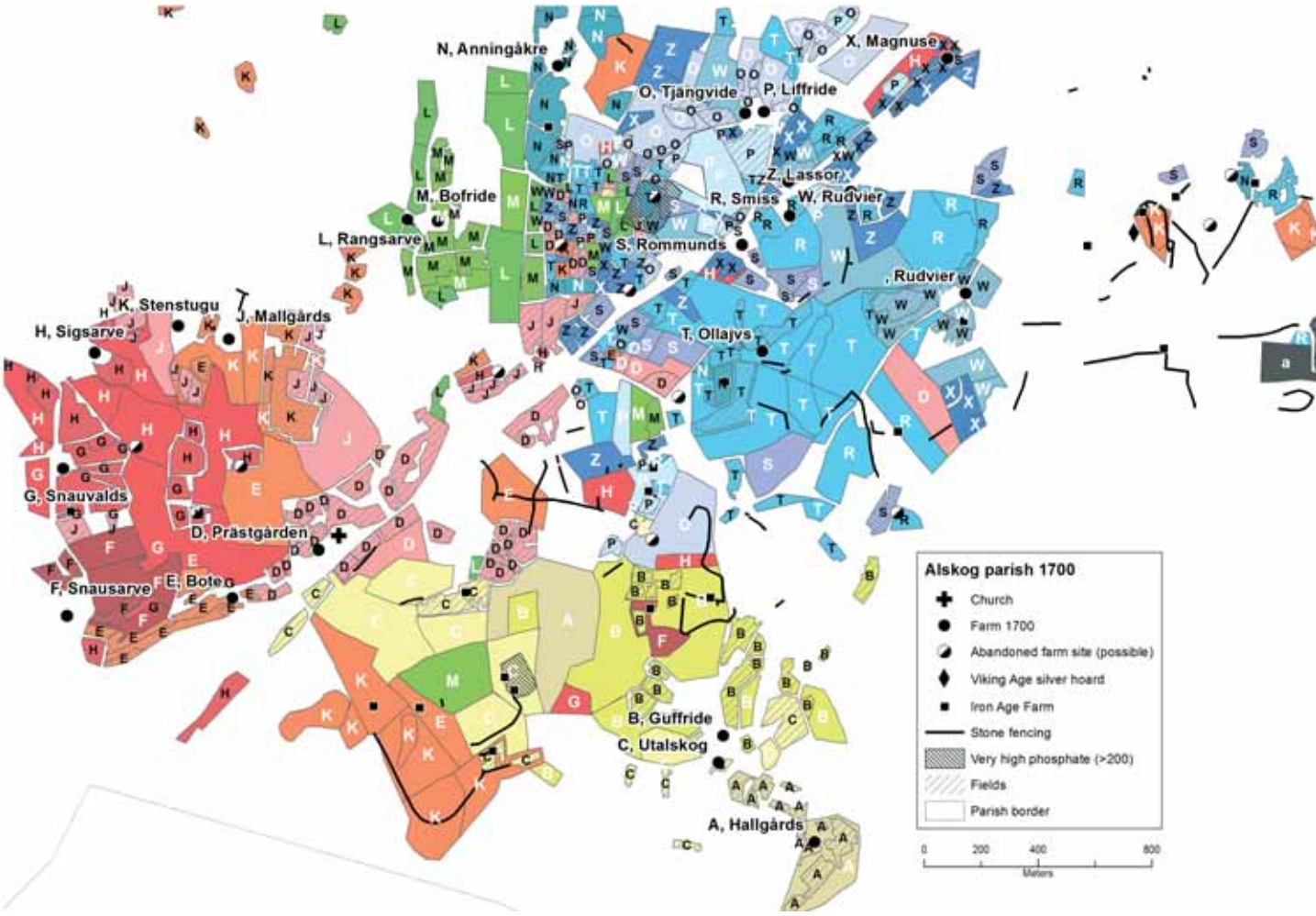


Figure 5.5. Alskog parish around the year 1700. A fair copy of the GM1700 map LSA, H3-1:2.

stora simply refer to the sizes of the meadows, and not to two farms. Whether or not all of these locations represent really abandoned farms, or if they were the previous locations of the existing farms, is an open question, which Eriksson also reflects upon (Eriksson 2010a:ode6).

Several farms, with a common genesis are seen in the area. The first is the two farms Snauvalds (tax 26.8 *daler*) and Snausarve (tax 6.1 *daler*), whose *–arve* names indicate a common origin, as discussed above. The farms are situated 500 metres apart and there is not much mixing of the parcels of land between the two farms; the land of each farm is held together in quite a well-defined infield area. Ersson thinks that Snausarve is a late detachment from Snauvalds (Ersson 1991:19). Maybe also the farms Sigsarve (tax 32.3 *daler*), should be included here, since Sigsarve and Snauvalds to some degree have mixed parcels of land. If so, a likely scenario could be that Sigsarve and Snausarve were parts of a larger unit, like a village.

The next group in the area that can be considered a pair is Mallgårds (tax 16.4 *daler*) and Stenstugu (32.8 *daler*), which are situated 180 metres apart, and have mixed parcels of land. Stenstugu's parcels of land are scattered over large parts of the parish. The bulk of its meadows are situated more than one kilometre from the farm, in an area with many Iron Age stone house foundations and stone enclosures. The farm Botes (tax 7.5 *daler*) is very small, but some of its parcels of land are scattered among the land of other farms, although it is hard to say much about it. Its parcels of land mainly intersect with Snausarve's and Snauvalds' land and should perhaps be seen in this context, but it is very uncertain. In addition, a deserted farm is noted on the land of Sigsarve. As said above, it is uncertain if all of these alleged deserted farms really could be defined as abandoned farms or are just previous locations of existing farms. The centrally placed fields indicate at least one abandoned farm, possibly two, which have been a

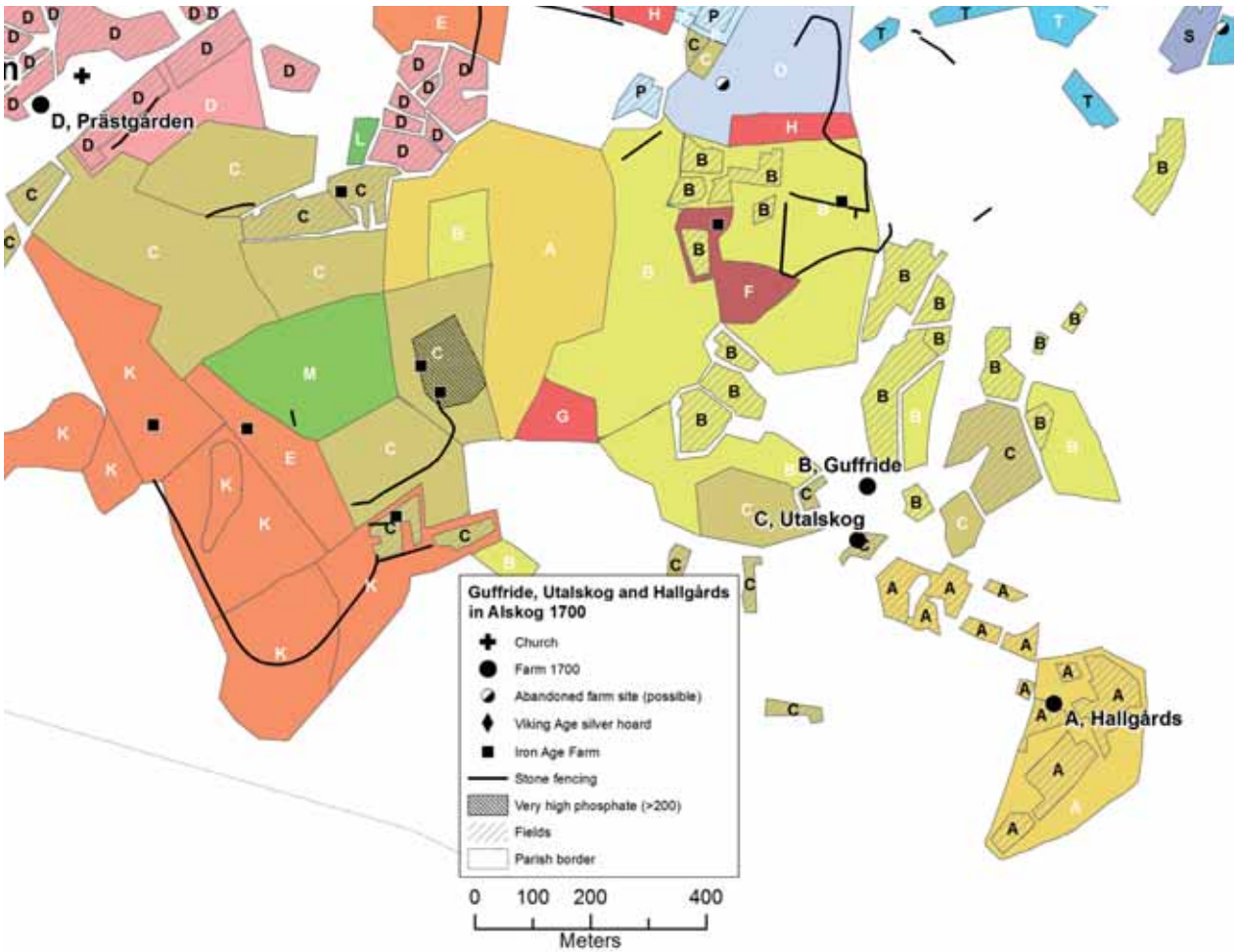


Figure 5.6. The farms Guffride, Utalskog and Hallgårds forming one generic village. A fair copy of parts of the GM1700 map LSA, H3-1:2.

part of either of the generic villages. The central infield area is about 100 ha and it is not impossible that the whole area can be interpreted as one generic village, with a common origin.

Another group consists of the three farms of Guffride (tax 20.9), Utalskogs (22.8 *daler*) and Hallgårds (11.4 *daler*), which are situated slightly apart from the rest of the farms in the southern part of the parish (fig 5.6). In this group, Hallgårds is situated around 430 metres from the other two farms, which form a separate group. The fields of Hallgårds surround the farm and this could be interpreted as a single farm. Nonetheless, since the largest parts of the meadows are far from the farm, mixed with the meadows of Guffride and Utalskog, the farm is more likely to have the same origin as the other two farms, and was moved to this location later. All the fields of the farm are situated on sandy soil. Ersson discusses Guffride and Utalskog as double farms, but leaves Hallgårds out (Ersson 1997:278).

There is a large group of farms consisting of the nine farms; Smiss (tax 14.5 *daler*), Lassor (11.8 *daler*), Rommunds (16.1 *daler*), Rudvier (14.1 *daler*), Liffride (18.5 *daler*), Magnuse (6 *daler*), Olajvs (30.9 *daler*) and Tjängvide (13.7 *daler*). These most probably constituted one large generic village, since the parcels of land of all farms seen on the map are scattered and mixed in a central infield area. The land of each farm is not held together, but scattered over a common area, except maybe Ollajvs, which could be a separate entity. On the other hand, it is surrounded by Rommunds' parcels of land. Furthermore, large stretches of land to north and north-west of the area belonged to Ollajvs, which was the fourth largest farm in the parish. The farm Magnuse is a very small farm (6 *daler* in tax) also lying in the outskirts of the infield area, similar to the farm Folkvide in Fide parish. In this case, this probably also indicates a later establishment. In later historical times, the last established farms are

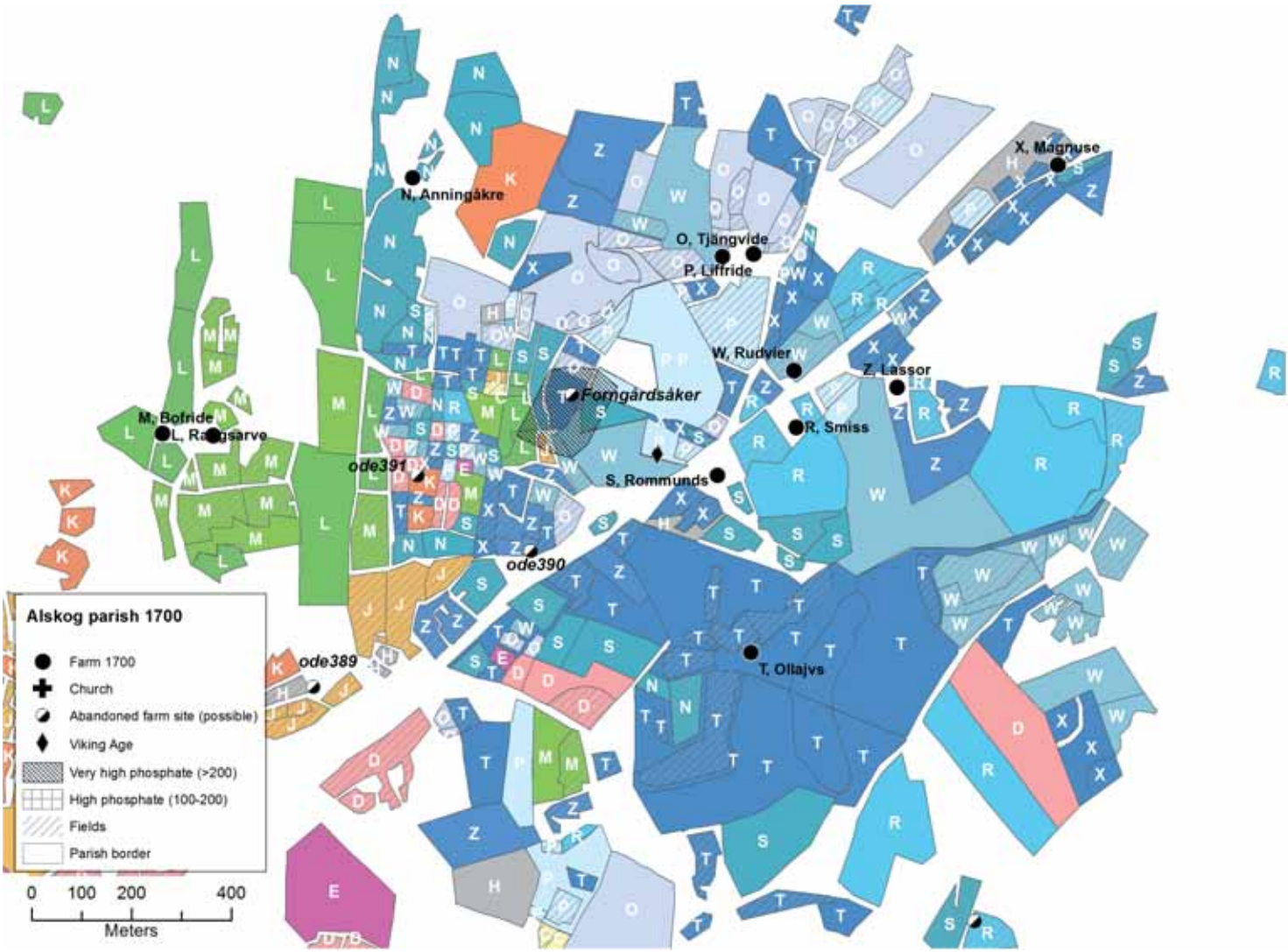


Figure 5.7. The farms Smiss, Lassor, Rommunds, Rudvier, Liffride, Magnuse, Olajvs and Tjängvide forming one large generic village. A fair copy of parts of the GM1700 map LSA, H3-1:2.

often placed on the outskirts of the already established farms (Lindquist 1991:197).

In between the farms Rangsarve and Rommunds, is an interesting area with many small field parcels, in which many of the farms in the parish own land, although most of it is owned by the surrounding farms. Among the other farms, the vicarage owns most parcels. In addition, Mallgårds and Stenstugu own two small parcels each and the very small farm Botes owns one small parcel. The area has probably been commonly cultivated since no fencing is visible within the area on

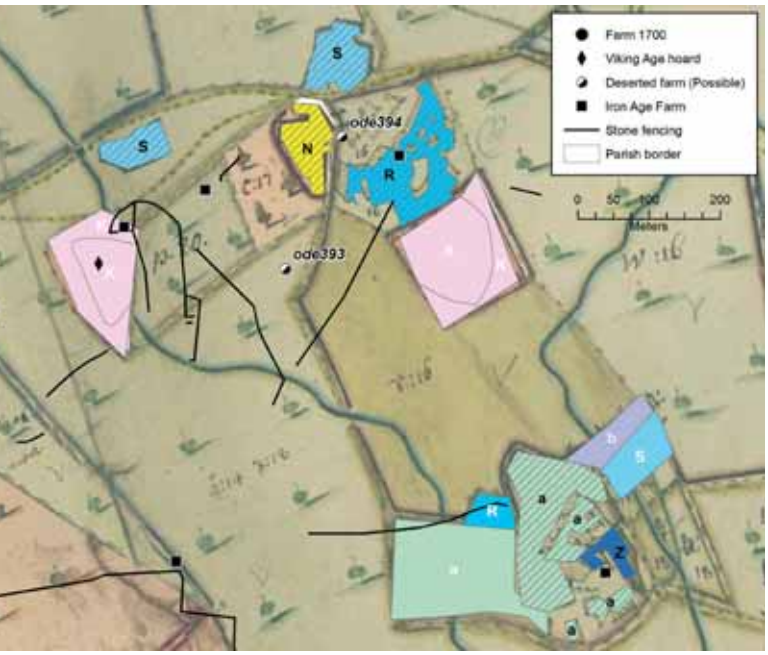


Figure 5.8. Deserted farms on the border between the parishes of Alskog and Ala. A fair copy of parts of the GM1700 map LSA, H3-1:2 superimposed on the GM1700 map LMA, 09-ALS-2. (© Lantmäteriet, published with permission I2012/921)

the historical map (LSA, H3-1:2). Right beside the infield area is an area with very high phosphates and a parcel of land named Forngårdsåker (ancient farm field) (RAÄ Alskog 167). According to Eriksson, there is also a possible deserted farm, by the name of Burs (Eriksson 2010a:ode391). A situation with such a high degree of mixed small parcels of land is not common and is to my knowledge only known at a few other locations. One exists in Havdhem, also situated in a large generic village, which will be discussed further on. For a situation like this, the prevalent interpretation is that it was the old farm territory of an abandoned farm, whose land was taken over by the neighbouring farms. An alternative interpretation could be that the field area had always been cultivated in an open field system, where each farm in the village had their own parcels in a commonly fenced area, as in many mainland villages.

In the GM1700 over the parish of Alskog, at least two other areas are identified, where several abandoned farms have been located and the land was still cultivated in the year 1700. In the eastern part is an area where there might have been two or three, now abandoned, farms. Two are identified by Malin Eriksson: A meadow named Gröngårda (Eriksson 2010a:ode393) and a field named Boppare (ibid:ode394). Eriksson interprets this as an *–arve* name, Bopparve, which in this case in very probable since three now existing farms on Gotland bear this name. South of the two locations identified by Eriksson is a third area with fields and meadows, which probably contain the remains of a deserted farm. My interpretation of the area is that there have been two farms, now deserted; one by the northern infield area and one by the southern. These two small farms, most probably constituted a generic village.

The other area with abandoned farms is Visne ängar, a well-known area, partly discussed in the Iron Age chapter, possibly with up to seven mid millennium farms. Visne ängar is situated in the remote part of the parish about 2.5 km north of the nearest farm (see fig 3.1.18a). In 1700, it was an area with meadows owned by some of the farms in the central part of the parish. Beside the Iron Age stone house foundations, there is a still visible water-well, along with some diffuse stone house foundations (RAÄ Alskog 76:1). These could either be demolished Iron Age house foundations or house remains of a later date. If so, the settlement might have had a continuation after the abandonment of the mid millennium settlements and may thus have been deserted later.

The presence of two picture stones and other finds, dated to the Vendel period and Viking Age points to this (Wennersten 1973:117). It might be worth noting that the main owners of the meadows in Visne ängar were the farms Rangsarve, Bofride and Annigåkre. The parcels of land of the two farms Rangsarve and Bofride form a well-defined generic village. Anningåkre was situated slightly apart from the others, but had a quite well defined farm territory of its own. All these three farms might have their roots in Visne ängar, and at some point in time, the settlements moved down to the present area.

The area around Havor in the parishes of Havdhem, Hablingbo and Alva

One interesting area is the northern part of the border between the parishes of Havdhem and Alva, but the southern part of Hablingbo is also involved to some extent. There are four farms lying close to each other, and the parish border between Havdhem and Alva passes right through, leaving two farms on each side. The farms are Rangsarve (tax 44.7 *daler*) and Haralds (12.9 *daler*) in Alva parish, and Havor (38.9 *daler*) and Rommunds (26.3 *daler*) in Havdhem parish. The farms are closely situated with only a distance of 70-100 metres between each farm. The land surveyor in 1703 also clearly states that they are *'...i byalag'* (they cooperate in a village community) with each other. Even if they are located in separate parishes, they are part of the same *fjärding*[3] of Habo. The farms Stora and Lilla Havor, in Hablingbo parish also belong to the same *fjärding*. Even if Stora and Lilla Havor are situated around 1.3 km away, they might have some connection and common origin, with the other farms. The land of the Havor farms in Hablingbo borders on Rommunds and Havors in Havdhem, although the land is not mixed, but is clearly separated. However, the Havor farms in Hablingbo are therefore left out of the discussion for now, since the situation is too complex and unusual, but I hope to come back to this in some future work.

There is a local tradition, noted by the vicar in 1676 that the farms of Havor, Rommunds and Leisungs changed parish, as the congregation in Havdhem was poor and could not maintain their church (Österholm 1972:16). This makes sense since these three farms are nearer to Alva church than Havdhem. It is almost twice the distance to the church in Havdhem than to Alva church. Farms in the same village belonging to different parishes is however probably not an uncommon occurrence.

During the middle of the 17th century, 30 villages in Skåne were divided between two parishes. According to Dahl, this is not strange, since the parish originally was not a territorial division, but an economical organisation based on a specific number of tithe payers (Dahl 1942:58).

The parcels of land of the four farms are mixed and are scattered among many separate locations over a large area. In the map shown in fig 5.9 a fifth farm, Leisungs, situated 600 metres to the south is also included in this generic village since it is surrounded by land belonging to Havor and Rommunds, but also by land of the two farms in Alva. The whole setting indicates that there have been more farms in the vicinity. Furthermore, one deserted farm identified by Eriksson (2010a:ode498) is the find place of one gold arm ring, eight finger rings and one Roman dinar (RAÄ Havdhem 123), which points to an origin in at least the mid millennium, since most gold finds on Gotland date from the end of the Roman Iron Age and the Migration Period. It

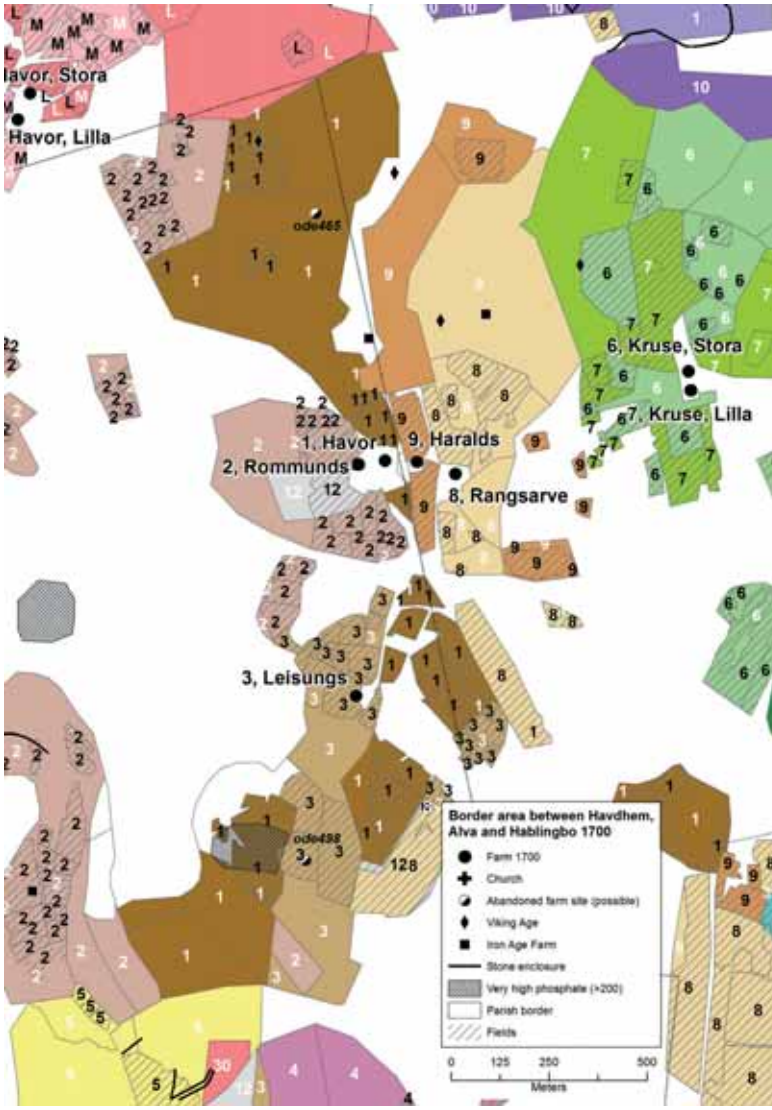


Figure 5.9. The area on the northern part of the border between Havdhem and Alva. Fair copies of parts of the GM1700 maps LSA, H42

3. *Fjärding* is an administrative unit. It is a fourth part (quarter) of a hundred district. On Gotland a hundred is equal to a Thing. Some Things on Gotland are divided into two *hälft* (halves) instead. A *fjärding* is almost the same size as a parish. Most farms are situated in both the same *fjärding* and parish, but sometimes not. There are more parishes than there are *fjärding*. The origin and nature of the *fjärding* is much discussed, as is the question, which is the oldest division; the parish or the *fjärding*.

might thus be the place for a vanished Iron Age stone house foundation and mid millennium farm. There are some islands of wasteland in the fields on the GM1700 map (LSA, H42-9:1, and others) indicating vanished stone enclosures and Iron Age stone house foundations. In two locations, the phosphate value is very high (Arrhenius 1938d). The first is by RAÄ Havdhem 123 and the second is in an area located 700 metres to the north-west where there were neither fields nor meadows in 1700.

A second possible, but quite uncertain deserted farm (Eriksson 2010a:ode465) can be found near the border to the parish of Hablingbo. The name Husarwe appears as the name of a meadow in the GM1700 (Ronsten 2011b:Uddvide in Havdhem), which is an existing farm name on the island. At this location traces from a now vanished mid millennium settlement were also found (RAÄ Havdhem 39). Nearby, in the parish of Alva, is the find place of a Viking Age silver hoard (RAÄ Alva 48) and some Vendel period artefacts (RAÄ Alva 146). A second hoard (RAÄ Alva 54) was found about 370 metres north of the farm Haralds. A large area to the west of RAÄ Alva 54, was surveyed with metal detector in 2010, showing traces of settlements dating from the mid millennium up until the Viking Age (ArkeoDok 2011 No. 35, ArkeoDok 2011 No. 47). There are more deserted farms known in Havdhem and Alva not far from this area.

The area with the four described farms is difficult to interpret, since the parcels of land are so mixed between nearly all farms, but probably the four farms have a common origin. The fact that the land of the four farms are so scattered, is most probably due to a high number of deserted farms, which have been a part of the generic village or whose land was taken over by the four farms, but how these deserted farms originally relate to the four farms is hard to say. The fact that the farms Stora and Lilla Havor in Hablingbo and Havor in Havdhem are only separated by 1.3 km indicates that the farms have a common history. Havor is not a person's name (Melefors 2013a) and might be an old village name, since Ragnsarve, Haralds and Rommunds are names of persons, in accordance with Enekvist's thoughts (Enekvist 1992:44ff), mentioned in the second chapter.

The parish of Alva

The three farms Östris (tax 31.4 *daler*), Butjärve (11.9 *daler*) and Gandarve (20.1 *daler*) in the parish of Alva form a generic village (fig. 5.10). In the GM1700 map (LSA, H4-19:1, et alia), Gandarve is situated around 900 metres from the two other farms, which form a pair with less than 70 metres between the tofts. Gandarve could be the result of a late move of the toft and is situated slightly apart from the others as Dan Carlsson suggests. He thinks that Gandarve has moved its farm toft from the location of the site at RAÄ Alva 152, where traces of settlement have been found, to its present location after the Viking Age, most probably in the 16th or 17th centuries (ArkeoDok 2010 No. 28:8). An alternative, more tentative interpretation could be that it was the location of a more concentrated generic village during the Viking Age. The silver hoard s found at RAÄ Alva 90, most probably does not represent a settlement site, since no finds indicating Viking Age settlement were recorded in a post surveying with metal detector in the 1990s, according to FMIS. At Alva 99, a silver hoard was found in the 1952, but no other finds are registered in FMIS. The relationship between Överöstris (33.5 *daler*) and the farm Östris is unclear, apart from the common name.

The picture is somewhat blurred by the deserted farm ode497 (Eriksson 2010a), which is indicated by some parcels of land called Kasarve. They are owned by the farm Östris and lie separated from the village territory, together with a parcel of land without buildings termed *tomt* with the farm name Thungårds. It is unclear whether or not it is a genuine deserted farm or another case of a parcel of land's name transforming from *–are* to *–arve*, as discussed earlier in connection with the parish of Fide. Nevertheless, the parcels of land are probably added to Östris later, maybe in connection with the desertion of Thungårds tomt, since the parcels of land are spatially disconnected from the rest. Moreover, the deserted farm at ode492 (Eriksson 2010a), which is indicated by a meadow called Sigdarve, is uncertain on the same grounds as in the case with Kasarve, but if it was a deserted farm, it was probably related to the generic village of Östris, Butjärve and Gandarve.

Since Överöstris parcels of land are clearly separated from the rest of the farms and not mixed at all, it is not included in the generic village, but it can be discussed since the parcels of land of all three farms are in a well-defined and delimited area, and the common name.

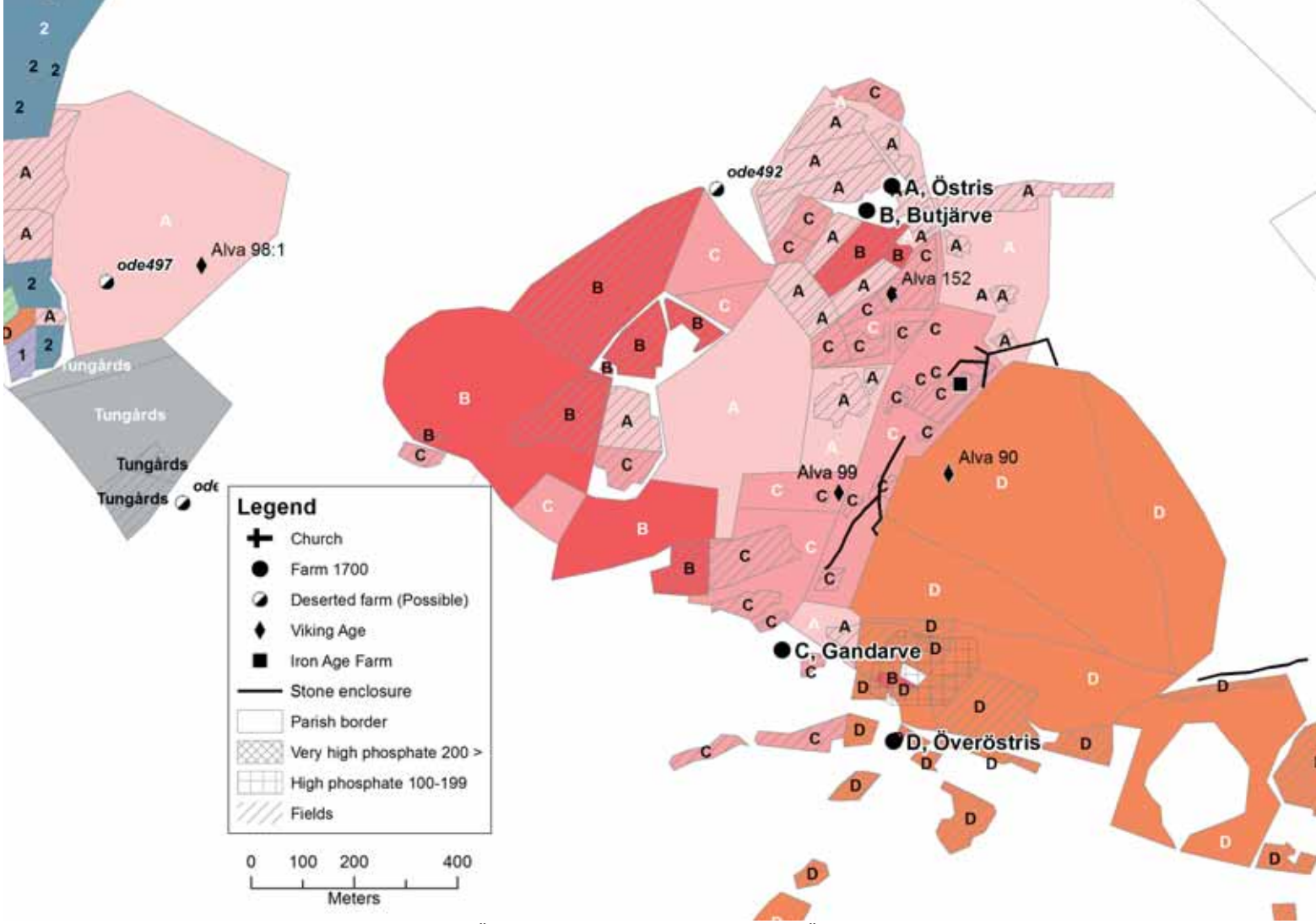


Figure 5.10. A generic village consisting of Östris, Butjärve and Gandarve. Perhaps Överöstris should also be included, but it has such a clearly defined farm/village territory so it is left out. Fair copies of parts of the GM1700 maps LSA, H4-19:1 and H4-11:1.

The parish of Havdhem

The named village Burgeby in Havdhem was mapped by Fineman in 1739 (LSA, H42-23:1 and H42-7:1). The headings of both maps clearly state that it is a map covering the village of Burgebyn: '*Charta öfwer then så kallade Burge byn...*' and '*Charta öfwer Burgebyns utägor...*' (*Map over the so-called Burge village...* and *Map over the outlaying land of the Burge village...*). The heading also lists all farms included, which are the farms of Rangvalds (25.8 *daler*), Burge (33.2 *daler*), Sigers (25.6 *daler*), Bols (27.9 *daler*), Kälder (20.8 *daler*), Kulla (19.8 *daler*), Kvinngårde (42.3 *daler*) and Anningåkre (31.8 *daler*). The two last farms are situated more than one kilometre from the others (fig 5.11).

South of the farm Anningåkre is an area similar to the area in Alskog with many small parcels of land owned by most of the farms in the village of Burgeby. The map also shows an abandoned farm site and two areas with very high phosphates in the vicinity. There might have been two Anningåkre-farms at some point in history. In the *Husarbetsboken* (1557/60), two Anningåkre are mentioned and in the list of deserted farms from 1585 a small farm of three *marklej* called Lille Anningåkre (Little Anningåkre) is mentioned and cultivated under the farm Kvinngårde, but is not mentioned in any later sources (Eriksson 2010a:ode134; Österholm 1972:194).

Besides this, there is at least one more possible deserted farm, Rådarfwe near Kvinngårde, but with the problematic *–arve* name. The name appears in the GM1700 map (Eriksson 2010a:ode466) and is located in an area with very high phosphates (Arrhenius 1938d), near the site of the Viking Age silver hoard at RAÄ Havdhem 153. The Burgeby village also has some forest land and wasteland in common with another named village in Havdhem, called Ukebyn, which will be discussed shortly (LSA, H42-7:1).

There are no known Iron Age stone house foundations or stone enclosures; most likely, there have been, but the area is heavily cultivated today, so all traces above ground have probably been destroyed through ploughing. There are also finds of fire-cracked stones, which might indicate Bronze Age/Early Iron Age settlement

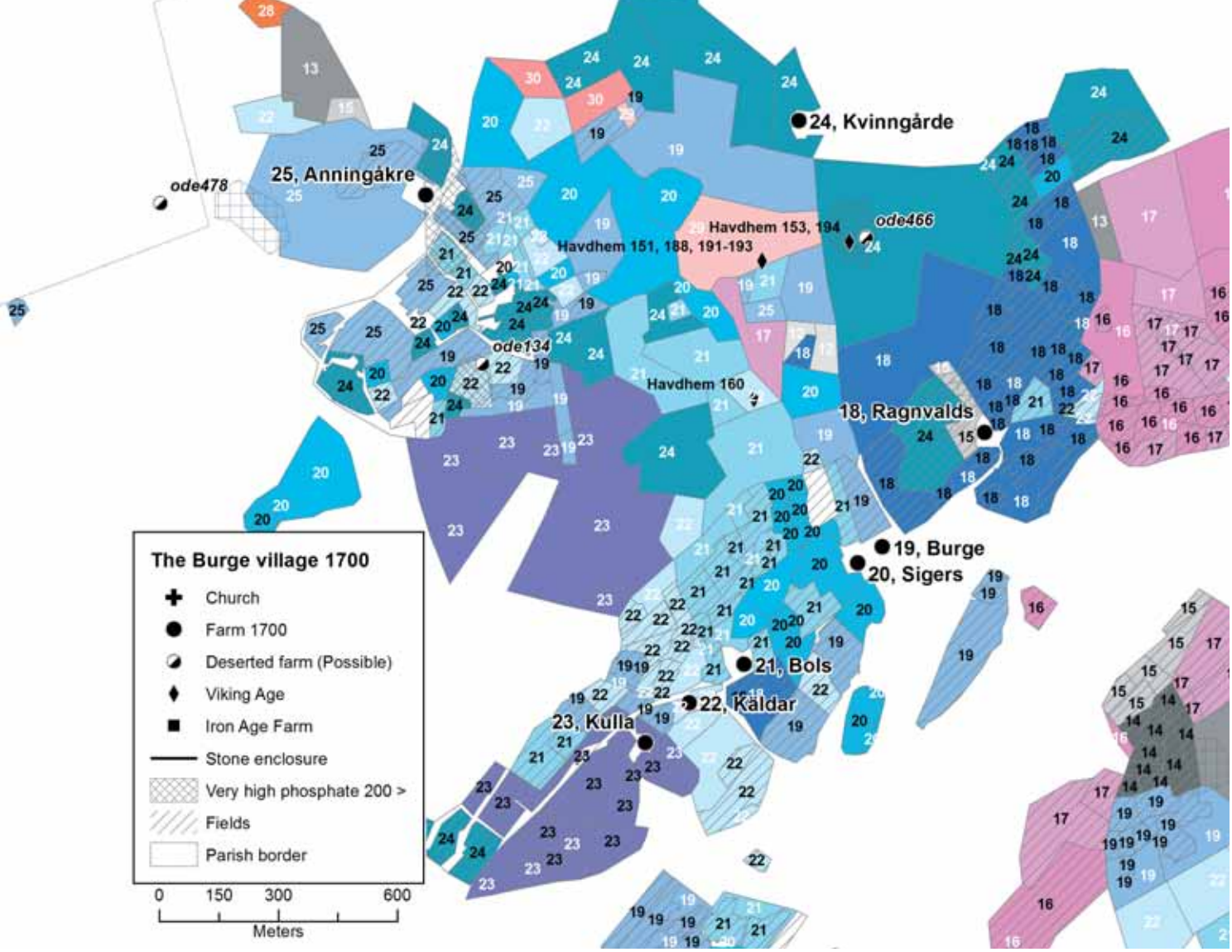


Figure 5.11. Burgebyn. The fields and meadows belonging to Burgebyn in 1739. The parcels of land belonging to the farms of the Burgeby are different shades of blue. Fair copies of parts of the GM1700 maps, LSA H42-7:1 and H42-23:1.

(RAÄ Havdhem 145). In the year 1700, all farms but two were situated in a row along a small sand esker on which a road also runs. Apart from the aforementioned area of fields, most of the fields are situated relatively close to each farm.

This is not the case for the meadows, which are concentrated to a large area in the middle of the village territory, in which each farm have many small parcels of land, all mixed together. In the middle of this area, seen in fig. 5.11, a small Viking Age silver hoard was found as well as the remains of a coeval workshop, indicating a Viking Age settlement of some kind (RAÄ Havdhem 151, 153, 160, 188 and 191-194). The fact that most of the farms meadows are concentrated to an area with traces of earlier settlement indicates a common origin and a more concentrated settlement during the Viking Age. At some later stage, some of tche farms have moved their tofts from the area with the silver hoards to the sand esker. This kind of movement to sandier soils, as was also the case in Alskog is not uncommon, and will be discussed in the next chapter. How many farms/households the generic village consisted of during the Viking Age is hard to say, but it might have been large, considering that the silver hoards are quite spread out.

Another named village in Havdhem is Ukebyn, which have already partly been discussed in chapter 1. It consists of the farms Snauvalds, Uddevide, Nickarve and Stora- and Lilla Libbenarve. The three first farms are situated close together to the west and the two last as a group, some one kilometre to the east-north-east. Both Libbenarve farms burnt down in 1705 and the farm tofts were relocated to a site around 400 metres the north-west of the old. In the map, they are marked at their location prior to the devastating fire. At this site, objects dated to the Middle Ages have been found (RAÄ Havdhem 156, 163), indicating that the farms were located at the toft for some time, before they moved. In the western group of farms, Uddvide is the largest, paying 19.8 *daler* in tax 1747, which is about twice the size of Snauvalds (9.1 *daler*) and Nickarve (11.4 *daler*). Stora Libbenarve is the largest

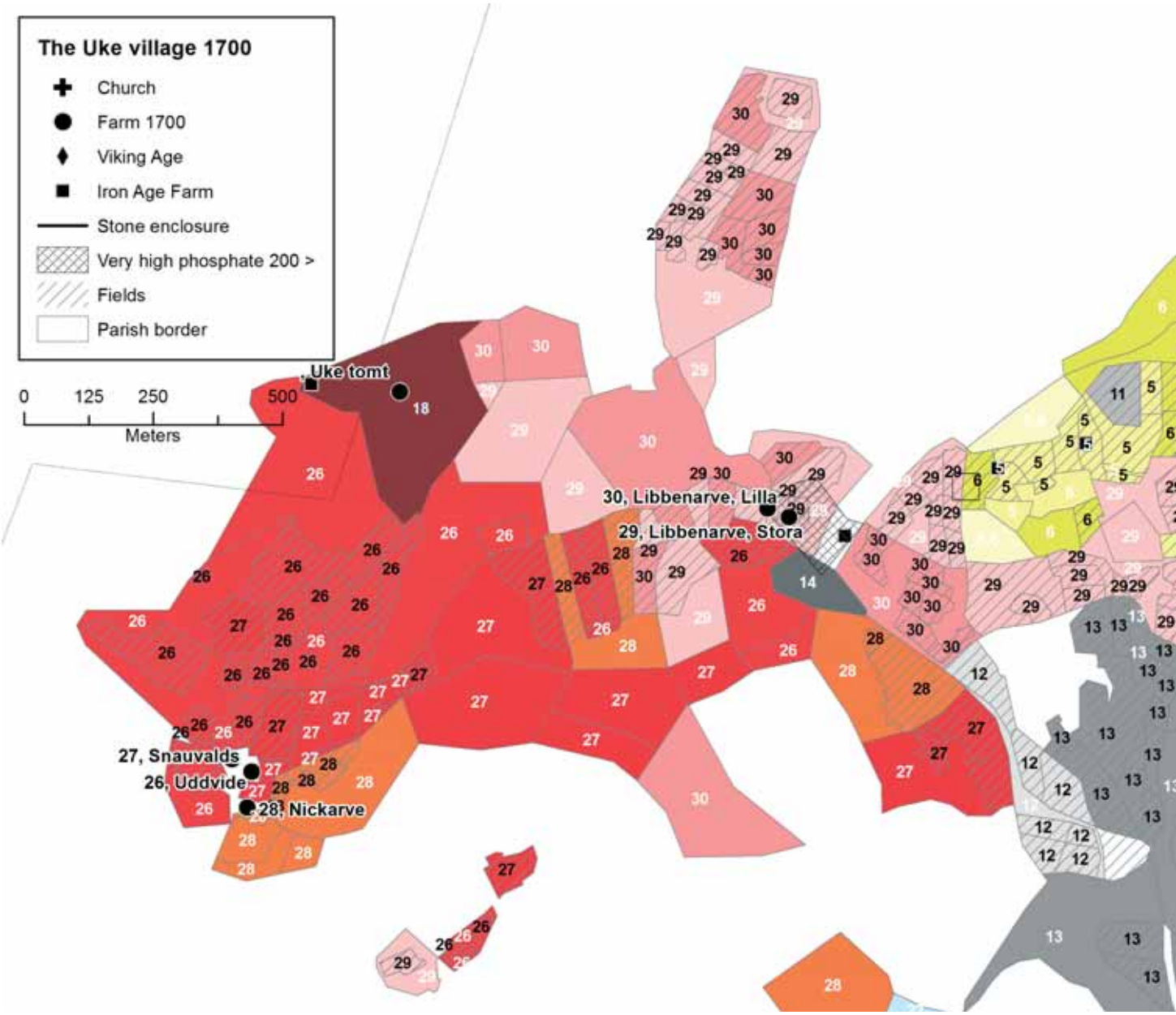


Figure 5.12. Uke village 1700 in the parish of Havdhem. A fair copy of the GM1700 map LSA, H42-32:1.

(20.8 *daler*) of the two Libbenarve farms and is nearly twice the size of Lilla Libbenarve, which pays 12.2 *daler* in tax.

The generic village has its name from the long since deserted farm of Uke, which probably was situated on the border between the parishes of Havdhem and Hablingbo. The farm is probably not found in any older records, neither in the *Husarbetsbok* from 1557/60 nor in the list of deserted farms from 1585. Nevertheless, it has given name to the generic village, which suggests the village name to be old, as dicussed in chapter 1. In the map of the year 1700, several scattered pieces of land, both in Havdhem and Hablingbo parishes, bear the name of Uke. It is listed as a *tomt* under the farm Burge in Hablingbo, but some parcels of land are used by Kvinngårde, Libbenarve, Uddvide and Snauvalds in Havdhem. The actual farm toft was most probably located in a meadow, called *Ukeängen* (the Uke meadow) according to Österholm, who found a water-well and several house foundations there in the 1970s (Österholm 1972:195f).

There are also legends concerning the village of Uke. It is said that 'Ukarn' (the man from Uke) or 'Ukherren' (the master of Uke) was a rich farmer, who was the sole owner of all of Uke village. The legend is about events occurring during a plague, when everybody in the village/farm died.

Historical legends are always problematic if they are used as a factual source, since it hard to tell what is true and what is just fiction or creations to fit the form of a legend. They are many times based on actual events, but the details are altered (Alver 1980:3ff). In this case, it is not unlikely that the part of the story about Uke being a large farm and the that inhabitants of the farm perished in a plague, which might be the Black Death, could be true, since legends about

the Black Death are very common, probably the most common of all categories of legends (Alver 1980:16). The part about 'Ukarn' being the sole owner of the entire village, might suggest that the generic village was one unit and that it was a large multi household farm, in the manner depicted by Blomkvist (2010), and to some degree also as Lithberg (1932).

When looking at how the parcels of land are distributed, most of it is situated near the respective farms and is not scattered, except for Stora and Lilla Libbenarve. Most probably, these two farms became independent farm units quite late in time, which the prefixes of Stora and Lilla suggest. Based on how the fencing is depicted in the map, many fields must have been worked in common, by both farms.

There is however one very interesting area, seen in the map in fig. 5.12. In between the two farm groups, near the Libbenarve farms is a common field area, for all five farms in the generic village. There are no fences visible in the map within the field, separating each farm's parcels, so all work in the fields must have been coordinated by all farms. The distribution of parcels has a regularity, which almost looks systematic. The distribution of parcels of land of the Libbenarve farms indicates that the regulation of the fields occurred before the division of the farm. The Libbenarve farms are situated at the edge of a large area with very high phosphates and there are several foundations of Iron Age stone houses close by. Within the sites of the Libbenarve farms, there might be the location of an older, more concentrated generic village, the sites of the farms Uddvide, Snauvald and Nickarve could be relocations of some of the farms, and be a later colonisation. It is worth noticing that the old infield area, where all farms have parcels, is situated on moraine soils, but most of the fields near Nickarve and the other two farms are mostly situated on sandy soils

Farms moving from a common village site to a more remote area are known, on Gotland and elsewhere. Examples where it is clearly stated are found in the villages of Yttersättra (GEORGE:U1:181) and in Kyrkebyn in (GEORGE:U1:186) in Skedvi parish in the landscape of Dalarna. It is also stated in some of the Regional Laws, that moving out from the common village toft was permitted for reasons of convenience (cf. DL chap. XIX §3). On Gotland, there are also some clearly stated examples, like Bosarve in the parish of När (Ronsten 2011b:Bosarve in När).

The parishes of Fole and Hejnum

A similar, but even more complicated situation than in the Havor village in Havdhem/Alva (see above), can be seen on the borders between the parishes of Fole, Hejnum and Källunge (fig. 5.13). Here, the farms Stora and Lilla Östryftes and Boters have scattered and mixed parcels in quite a regular fashion. According to the land surveyor's description, they are in *byalag* (cooperate in a village community), and it is thus a village (Ronsten 2011b:Fole and Hejnum parish). The Östryftes farms belong to Fole parish and Boters to Hejnum, but they all belong to Boge *fjärding*. The nearest farm in Hejnum is 2 km away and all the parcels of land are spatially connected to farms in Fole; so why Boters belongs to Hejnum parish is not obvious, especially since a bog separates Boters from the rest of Hejnum.

All of the small parcels seen in the 1700 map are today large fields and all possible ancient remains have been destroyed by the plough. There are notes on removed graves from the 1950s (RAÄ Hejnum 180) and a stray find of a Viking Age brooch (RAÄ Fole 169). Judging from some remaining stone enclosure walls, there might have been Iron Age stone house foundations in the area. There is one remaining foundation, slightly more than a kilometre to the west. There are many prehistoric graves and stone settings (RAÄ Hejnum 168-169; Fole 29, 36 and more) further to the north, in an area today not cultivated, which might be connected to settlements in the area.

All in all, eight generic villages were identified in the parishes of Fole and Hejnum; five with two farms and three with three farms. All are noted as *byalag* (cooperate in a village community) by the land surveyors (Ronsten 2011b:Hejnum and Fole parishes).

The parish of Gothem

Gothem is quite a large parish on the eastern side of Gotland, with several large generic villages. Botvalde (21.7 *daler*), Tummungs (34 *daler*), Hinser (34.3 *daler*) and Fredvalds (23.6 *daler*) have mixed parcels of land and are interpreted as one generic village, but with some question marks. If Fredvalds really should be included is uncertain, since its parcels are not so scattered and mixed with the others to the same degree. The deserted farm Tummarve (Eriksson 2010a:ode125) is situated on the land of the farm Hinser, which lies at a distance of 600-700

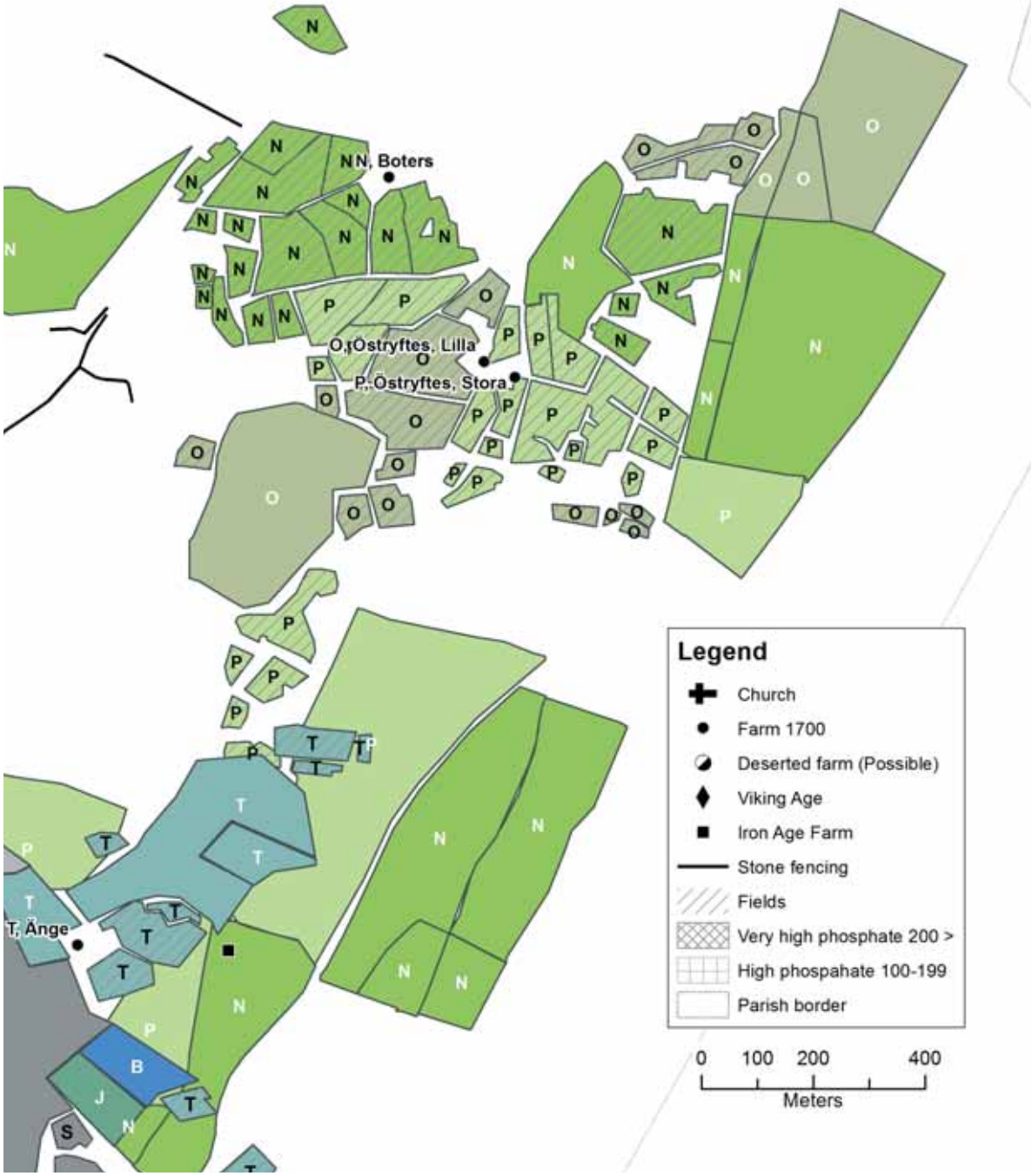


Figure 5.13. The farms Stora and Lilla Österyftes and Boters, which are in byalag (cooperate in a village community) and have mixed parcels of land. Boters belongs to Hejnum parish and the Östryftes farms belong to Fole. This means that all the parcels marked with N are situated in Hejnum parish, and the rest are in Fole. A fair copy of parts of the GM1700 map LSA, H45-1:1.

metres from the others. Both Medebys and Fredvalds are situated in between the two. The location is identified through three parcels of land that go by the name Tumarve, of which one field is called Tumarve tomt (Tumarve toft). Tummarve is linguistically derived from Tummungs (Ersson 1997:274), indicating that Tummarve is connected to Tummungs. In 1574 a farmer named Olaf Tumarve did four *ökedagar* (labour in lieu of taxes using draught animals) at the State demesne (Ersson 1985:187), so the farm must be deserted after this time. The fact that the farmer Olof Tumarve does all days of labour with draught animals indicates that his farm was not small, but probably rather large.

It is hard to tell how this situation has come about, with the two related farms lying so far apart, and the land of two other farms in between, but it clearly indicates a connection between all of them. It is also possible that the farm Medebys should be seen in the same context, since Medebys means, 'the farm in the middle' (Olsson 1996:41). The circumstance that farm names, indicating a position vis-à-vis something else, mainly refer to the farm's position in a group of farms and not its relation to the church or the whole parish, is shown by Lindquist (1981:58), and is discussed in a previous chapter. Medebys would be in the middle of the group Tummungs, Medebys and Tumarve; maybe all of these farms

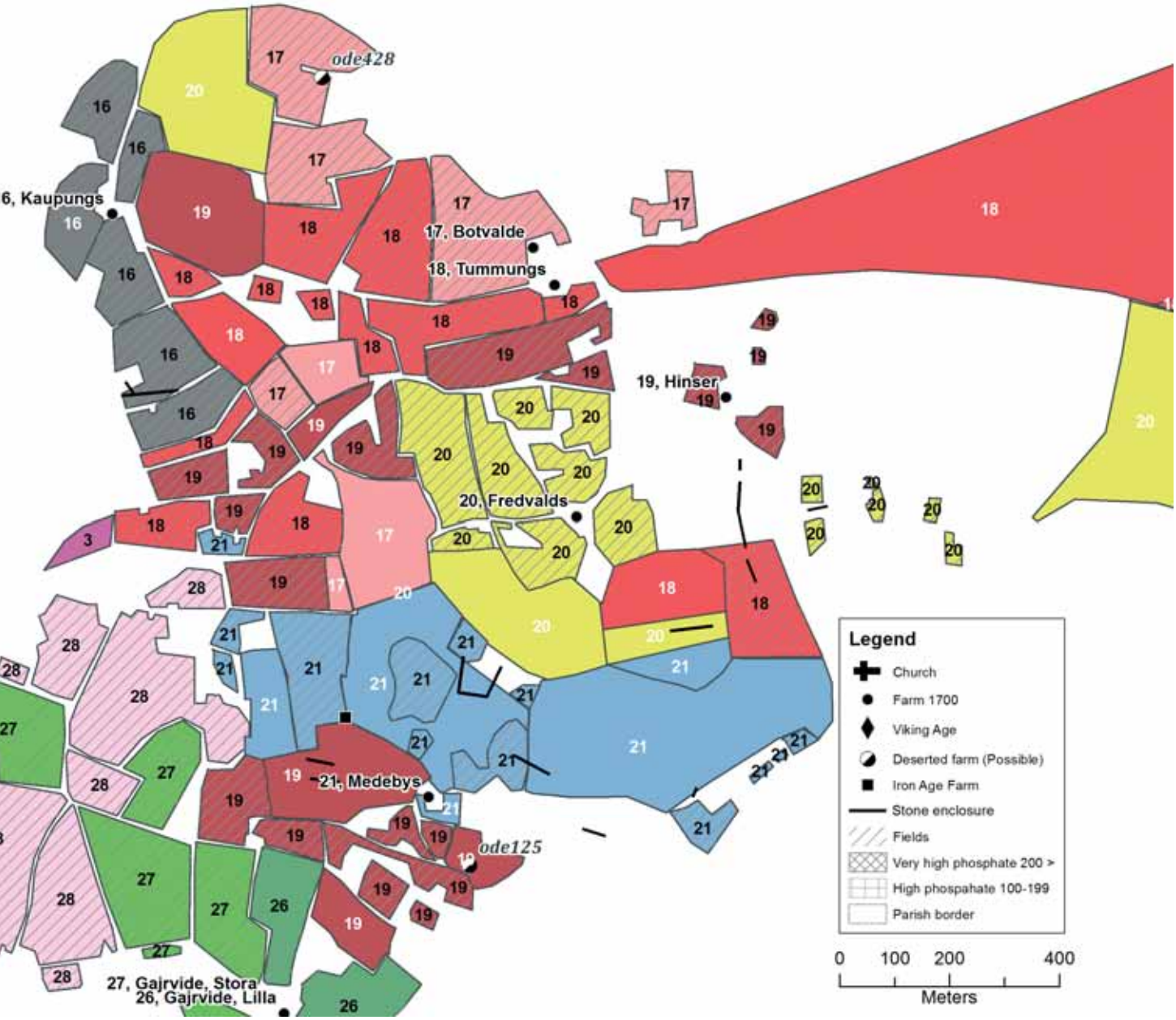


Figure 5.14. The Tummungs village in the Parish of Gothem. A fair copy of parts of the GM1700 map LMA, 09-GHE-2.

mentioned above have a common origin. According to Melefors (1983:80), Tummungs and the surrounding farms were referred to as Tummungs-byn (the Tummungs village), even in more recent times.

Another interesting area in Gothem are the farms Suderbys (tax 35.6 *daler*), Jusarve (36.1 *daler*), Bäntebingels (25.3 *daler*), Nybingels (24.7 *daler*), Västerbjärs (30.1 *daler*) and Fjärdinge (32.5 *daler*), which seem to be connected, constituting a generic village. It has similarities with the larger generic village in the parish of Alskog, discussed above. In Gothem, the parcels of land of these farms are severely mixed and are scattered over a large area. The farm tofts are also quite dispersed. The distance between Fjärdinge, the most northern farm, and Suderbys (the southern farm), the most southern farm, is 1.5 km. The farm in the west is named Västerbjärs (*väster* means west). This must be yet another case where the directional names are relative to the other farms, as Lindquist has suggested (Lindquist 1981:58). In the middle, the other farms are situated and there are several areas with high or very high phosphates and some deserted farms.

Even if their tofts are some 600 metres apart the farms Bäntbingels and Nybingels (*Ny* means new) have related names and must have a common origin. In addition, they jointly own several parcels of land. The division into two independent units must be quite late. In *Ivar Axelsson Totts Räkenskapsbok* from the 1480s, a farmer from Bingle in the parish of Gothem is mentioned, but in the *Husarbetsbok* from 1557/60 two farms are noted, Bäntbingles and Nybingles (Lithberg 1932:29). The name Binge, most probably means some smaller rise of the ground (Olsson 1996:66). The oldest reference to the name Bingle is from a gravestone dated to

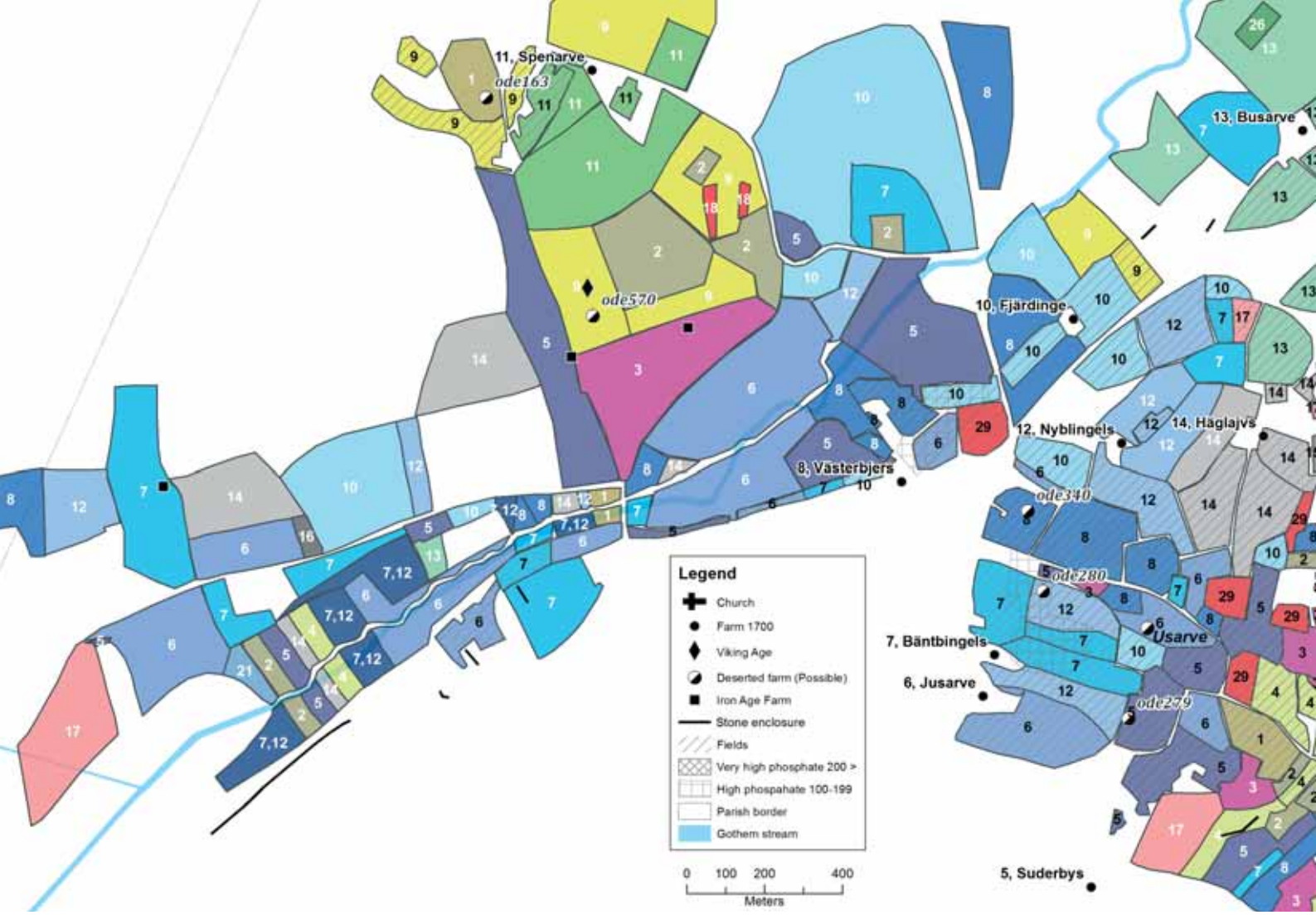


Figure 5.15. The generic village around the Bingle farms, in the parish of Gothem. A fair copy of parts of the GM1700 map LMA, 09-GHE-2.

1326, where a *Petrus...Dictus Bingil de Gautem* is buried and remembered by his brother *Olavr Bingil*, who is also mentioned on the stone (Melefors 1983:203). This indicates that there are several brothers on the farm/generic village. It is unknown under what type of organisation they lived there, but to my mind, it is a strong indicator for the occurrence of extended families in these generic villages, in accordance with the view of Blomkvist (2010) and to some degree also Lithberg (1932). Later in the book, this will be discussed in more detail. Further, there is a Kyrkbinge in Gothem, but is should probably not be included, since it is quite far away and its land is quite well concentrated, without much mixing with other farm's parcels.

According to Eriksson, there are several deserted farms and/or abandoned farm tofts in the centre of the generic village. There is the name Kattarve (Eriksson 210a:ode280), which is given to two small fields. It might once have been a farm name, but could also be a *–are* name, which has been transformed to an *–arve* name, as discussed earlier, and would thus not represent an abandoned farm. There are, however, two other farms with names beginning with Katt- on the Island; Kattlunds in the parish of Grötlingbo and Katthamra in Östergarn, so both possibilities are open. Eriksson believes a field called Usarve, owned by the farm Jusarve to be the site of a deserted farm. Usarve is most probably just a variation of Jusarve, and is thus probably not a deserted farm or abandoned toft. The third probable deserted farm is indicated by a field, owned by Nybingels, with the name of Bols (Eriksson 2010a:280), which is a known farm name. At ode279, there is a field with the name Husåker (house field). Eriksson (2010a:ode279) speculates if it is the previous farm site of Suderbys, since most of Suderbys' fields are located in this area. She is most probably right in this. At ode340, there is also a possible abandoned farm toft, which is a field called tomtåker (toft field). It is owned by the farm Västerbjärs and is possibly the old location of the farm toft. It would still be the westerly farm in the village. If the above observations were correct, the generic village would have been much more concentrated in the past and the farms not so spread out.

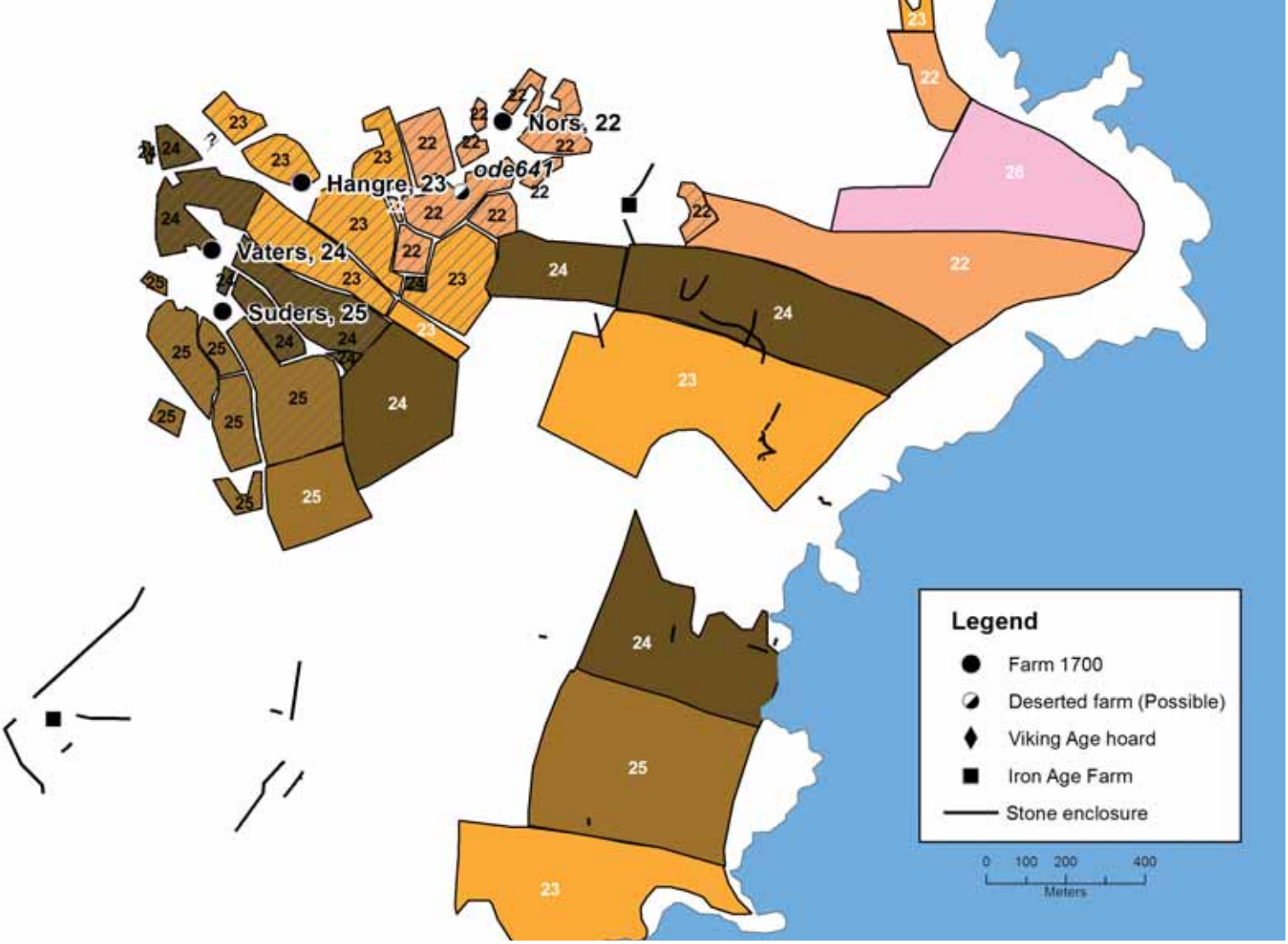


Figure 5.16. Hangre village in the parish of Gothem. A fair copy of parts of the GM1700 map LMA, 09-GHE-2.

The area by the coast with the farms Hangre (tax 38.5 *daler*), Vaters (23.2 *daler*), Suders (28.8 *daler*) and Nors (21.3 *daler*) is very interesting. These farms were also known under a village name in more recent times; Hangre-byn (the Hangre village) (Melefors 1983:80). Two of the farms, Suders (South) and Nors (North) have names after their position in the group of farms. All of them but Vaters are mentioned in *Sören Norrbys Räkenskapsbok* 1523 (Sören Norrbys book of accounts). According to Säve, there was a medieval stone house at Hangre and it was a large farm, with important farmers. In 1441 it was the home of the *landsdomare* (County Judge) (Qviström 1995:54). There is a legend about the famous Hangre-Jaku, who was the county judge on Gotland in the 15th century, letting his son build the Nors farm and later Suders was built by another son, or by some later descendant. Vaters was the latest of the farms in Hangre village to be built (Daun 2004:20).

According to Eriksson, there is a possible deserted farm identified by a field by the name Tomtåker (toft field) (Eriksson 2010a:ode641). In addition, Ersson lists a deserted farm Dals, cultivated under Vaters, which is mentioned in the ödegårdslistan from 1585 and also listed in *Husarbetsboken* 1557/60 (Ersson 1985:187). It might have been situated at Tomtåker, in which case there would only be one deserted farm.

All in all, four generic villages were identified in Gothem; One with two farms, two with four farms, and a large village with six farms. Of 29 farms in Gothem around 1700, less than half are identified as solitary farms.

The Parish of Anga

The parish of Anga is an area dominated by moraine soils, only small patches of sandy soils exist. In large parts of the parish, the moraine soils must be thin, if the modern and old geological maps are compared, as discussed earlier. The settlement and agricultural areas in the year 1700 mainly covered the same areas as in the Iron Age. In the year 1700 there were twelve farms divided into eighteen parts. The parish is

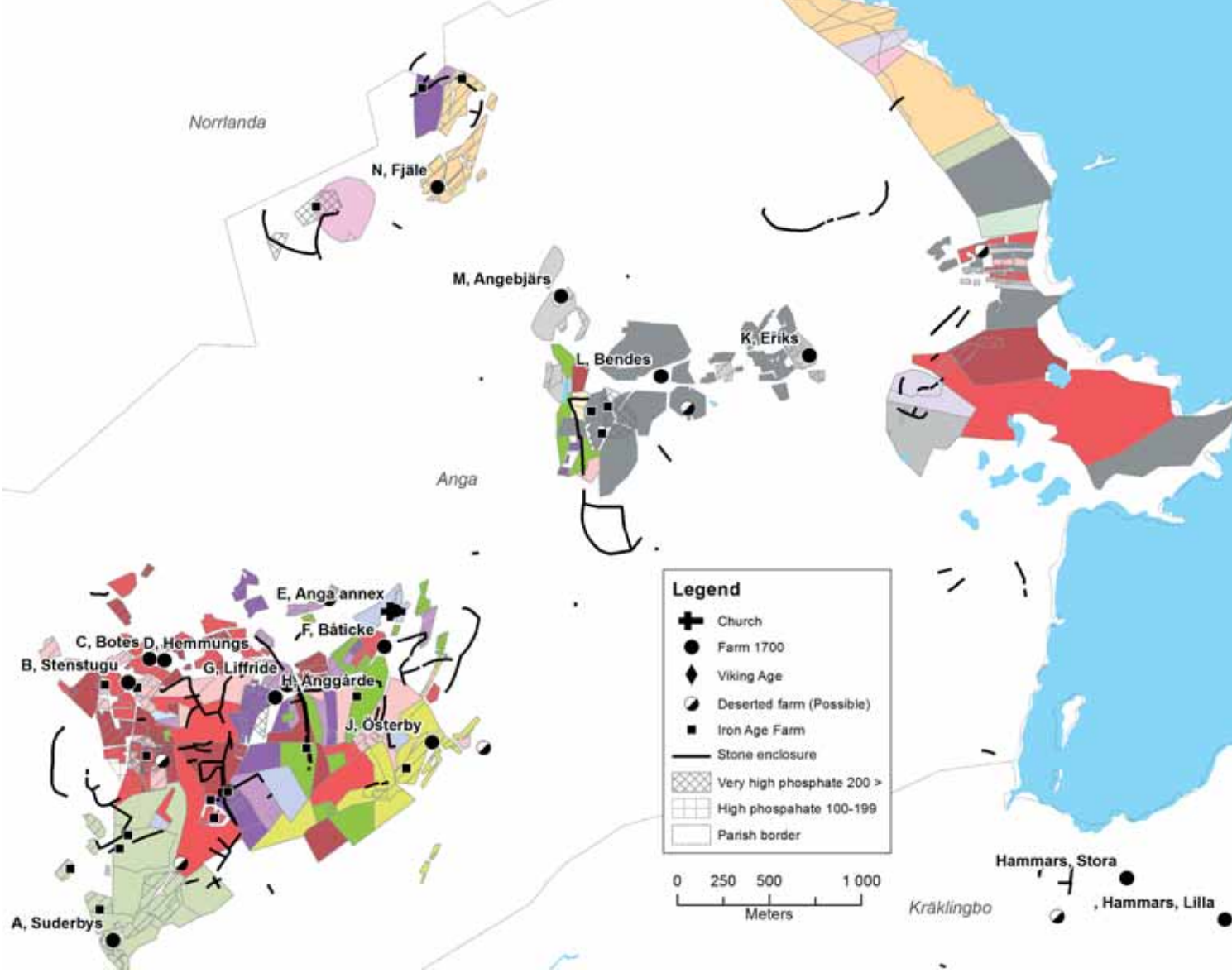


Figure 5.17. The farms and cultivated areas in the parish of Anga, around the year 1700. A fair copy of parts of the GM1700 map LSA, H5-1:2.

divided into three areas of settlement, which all seem to have had a continuity of settlement from at least the mid millennium. Anga is known as an area with many Iron Age stone house foundations and is often used as a study area (cf. Carlsson 1979, Ersson 1974, Blomkvist 2010). Ersson (1974:81ff) makes a detailed study in which he portrays a time sequence of the farms' establishment and desertion, but he uses phosphate mapping and farm names as the method to date the events, which makes it unreliable and uncertain, so I will leave it out of the discussion.

Three farms are sparsely located about 1.5 km to the northeast of the church. In the surroundings, there are many undated traces of agricultural activity, for example RAÄ Ala 226, 117, 199, and 238. A grinding stone, (RAÄ Anga 205), has also been found, indicating settlement prior to the mid millennium farms. The distance between the farms in 1700 is between 700 to 800 metres. Some hundred metres to the south of the middle farm, which is Bendes (tax 40.6 *daler*), a small Iron Age village was located, with three small one-house farms situated with infields still partly surrounded by stone enclosure walls and just beside is an area with very high phosphates. There is also a possible deserted farm on the land of Bendes (Eriksson 2010a:ode579). It is a field with the presumed farm name Oxarve. There is yet another possible deserted farm down by the coast (Eriksson 2010a:ode225). It is identified in the GM1700, as an area with fields owned by many farms; in FMIS (RAÄ Anga 83) the presence of building remains is noted.

The farms Bendes and Eriks must have a common origin. Eriks (3.3 *daler*) was a small and short-lived farm, existing between the beginning of the 17th century and 1886 (Ersson 1974:81). Angebjärs (5.9 *daler*) owned two fields way over by the farm Eriks, but it is uncertain if it should be included in the group or not.

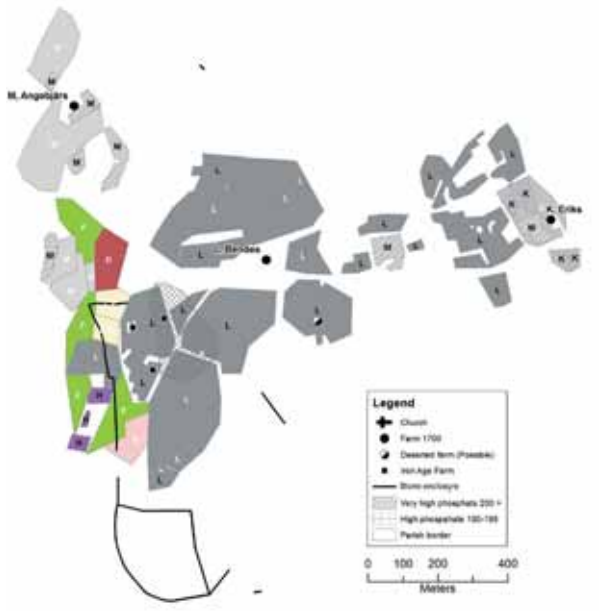


Figure 5.18. The three farms of Angebjärs, Bendes and Eriks. A fair copy of parts of the GM1700 map LSA, H5-1:2.

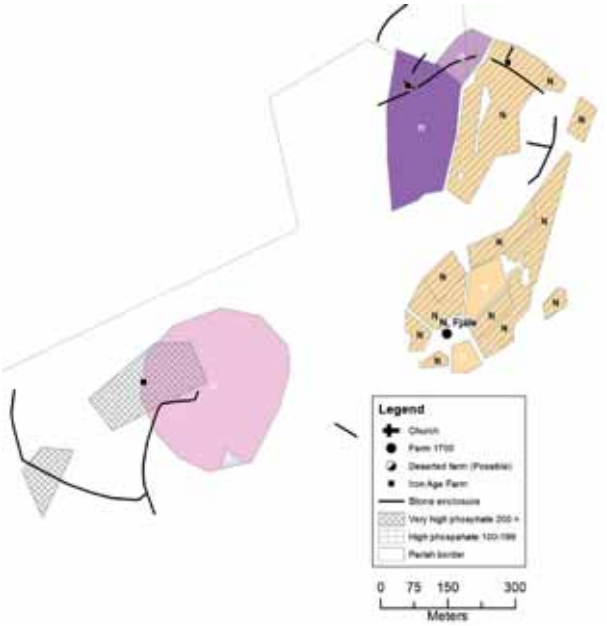


Figure 5.19. The area around the farm Fjäle in the parish of Anga. A fair copy of parts of the GM1700 map LSA, H5-1:2.

A further kilometre to the northwest, a small solitary farm named Fjäle is situated. The setting is similar to the more famous Fjäle in the parish of Ala, excavated by Dan Carlsson and discussed in several articles (cf. Carlsson 1979, 1982, 1983b, 1986). The difference is that this farm has most probably been in continuous use and was never abandoned like Fjäle in Ala. Within its territory, there are two mid millennium farms and 600 metres to the west is an additional one, with partly preserved stone enclosures and two areas with high phosphates. This latter area was used as meadow in 1700 and was owned by the farm Munkebos in the neighbouring parish of Norrlanda. In this part of Anga, there are many undated remains, which are associated with agriculture (cf. RAÄ Anga 229, 234), as well as graves (cf. RAÄ Anga 213, 219, 147).

In the central area of Anga, there are 21 stone house foundations forming around 13 mid millennium farms are known, and many remaining stone enclosures. In 1700, there were eight farms divided into 13 parts. This part of Anga is the most interesting area in the parish for this study. It has probably been cultivated for a very long time, since there are several stray finds from more or less all periods, starting from the Neolithic (Carlsson 1979:116,144). Besides the aforementioned 13 mid millennium farms and stone enclosures, there are finds of grinding stones (cf. RAÄ Anga 188, 160) and the whole area is surrounded by graves and stone settings (cf. RAÄ Anga 184, 70, 41).

According to Ericsson (2010a), there are four possibly deserted farms, but it is doubtful whether two or three of these really are sites of deserted farms. The field name Husåker (house field) (Eriksson 2010a:ode168) might just indicate remains of a previous location of an existing farm or some other building. Another is a meadow named Stabbe eng (Eriksson 2010a:ode33), which probably just refer to the existence of Iron Age stone house foundations. The deserted farm to the east (Eriksson 2010a:ode601), was a farm most probably deserted between 1350 and 1500, according to Eriksson. In the GM1700, it was a field by the name of Tomtåker (toft field) and cultivated by the farm Stenstugu (Ersson 1974:85). Using parcels of land names including the word *tomt* (toft) as an indicator of an abandoned farm is a bit problematic, in my opinion. It might just indicate a previous location of a still existing farm or some other kind of deserted settlement. This will be dealt with in greater detail in the discussion concerning deserted farms at the end of the book. One possibly deserted farm is identified through parcels of land with the name of Hägdarve (Eriksson 2010a:ode217). This could be an old farm name, since the personal name, Häg- or Hägd- is common in farm names, four farms named Hägdarve exist on Gotland. In the area, there is a spot with very high phosphate values (Arrhenius 1938d), which makes it the plausible site of a deserted farm.

To the west, seen in fig.5.20, is a large area of meadows divided into many parcels, owned

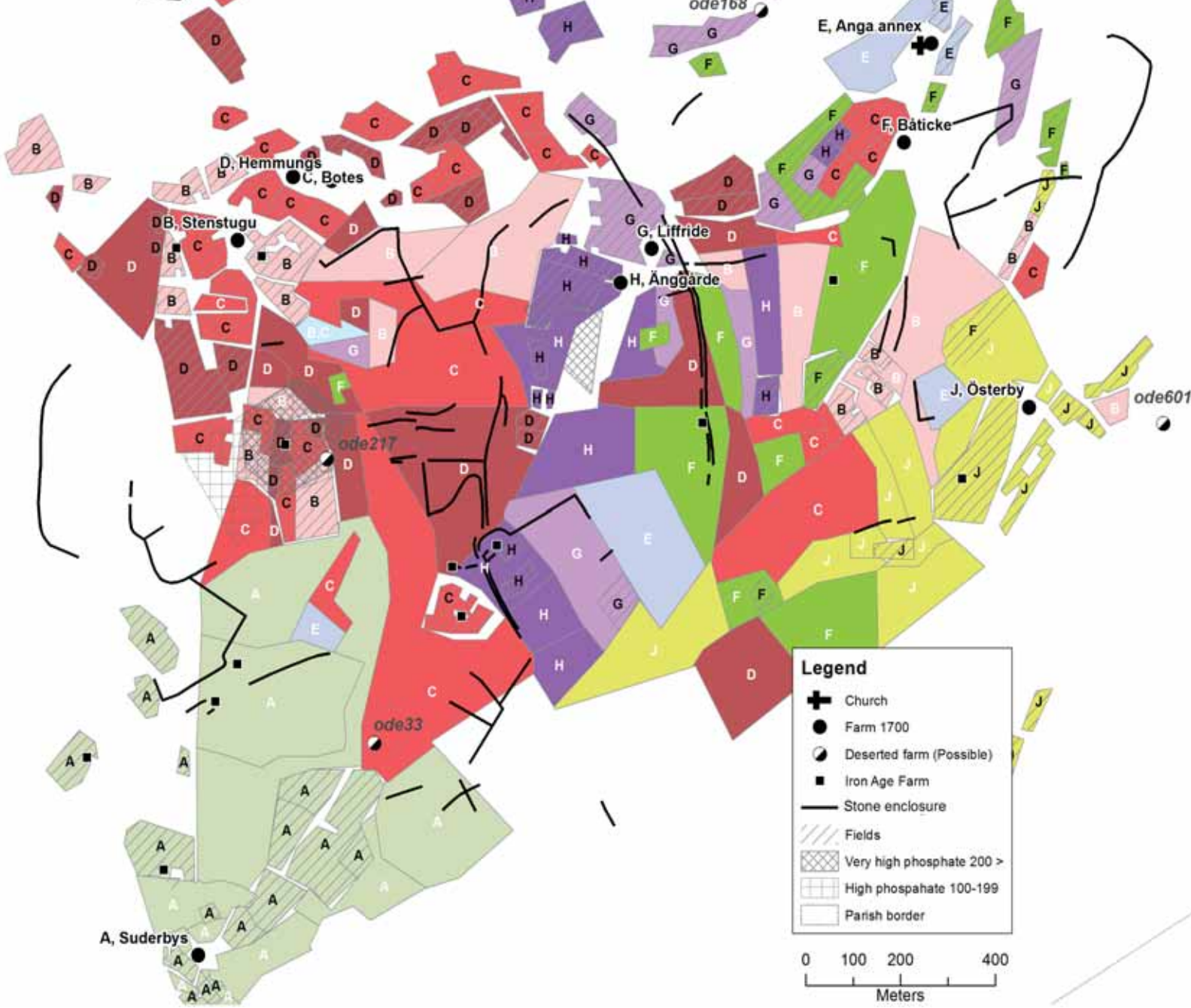


Figure 5.20. The central area in Anga parish. A fair copy of parts of the GM1700 map LSA, H5-1:2.

by many different farms in the parish. There are three copies of the original GM1700 draught map over Anga parish from 1698. One is from the same year as the mapping, one is most probably from 1740s and one is from 1753. In the first copy from 1698 (LMA, 09-ANG-3), which is made by the land surveyor who made the field measurements, Mattihas Schilder, the fencing system is best depicted. It shows that there is a mixture of separately fenced meadow parcels and jointly fenced parcels in the area. According to Moberg, this mixing of different farms' parcels of land in larger meadows is quite a common occurrence, as discussed earlier. However, jointly owned parcels are not so common, but they do exist (Moberg 1938:54).

Two farms, Österby (tax 8.9 *daler*) and Suderby (20.1 *daler*) are situated on the edge of the infield area and their parcels of land are much more concentrated around each farm. It is quite clear that their names relate to their position compared with the central area. Iron Age stone house foundations are located within 200 metres of both farms. The parcels of land of one farm, Suderbys, were kept together as one unit, they were not mixed with the other farms, except for two fields in the middle. The church owned one and the farm Botes owned the other. This was most probably the result of transactions like marriage, inheritance, sale etc. Underneath the present farmhouse at Österby, the remains of a medieval stone house were found (Ersson 1974:85).

On the map, it can be seen that the parcels of land of the rest of the farms are scattered and mixed. In the eastern part, there are three farms, Botes (tax 35.2 *daler*), Stenstugu (18.3 *daler*) and Hemmungs (30.3 *daler*), whose parcels of land are extremely mixed, almost in a regular fashion, similar to what can be found in villages on the mainland. These three farms clearly constitute a generic village, and the division of land between them is probably made to ensure each farm different qualities of soil. The mixing does not indicate a gradual splitting of one farm, but rather that there have been three units for quite some time. Most probably, they have been considered a village at one point in time.

Änggårde (tax 13.8 *daler*) and Liffride (12.4 *daler*) also have mixed parcels of land, in a similar way and must have a common origin. The last farm, Båtike (tax 14.9 *daler*) is situated near the church, about 600 metres from the nearest farm, and is hard to interpret. Unfortunately, the land surveyor of Anga in 1698, Matthias Schilder, did not note if the farms cooperated in a village community (*byalag*) or were solitary farms (*enstaka*).

The large meadow area to the west could be the remains of a more extensive type of organisation, at a higher level then a village, which might go back to the Iron Age. It indicates a collective system, maybe worked as an open-field system or just as a common, where all the farms had property rights. During the mid millennium period, the whole area probably constituted a neighbourhood community (*bygd*), consisting of several generic villages and possibly some solitary farms. The distances between some of the groups of farms are too great, to consider it as one large village, as Fallgren suggests (Fallgren 2006:83). However, as stated before, the difference between a neighbourhood community (*bygd*) and a village is difficult to establish, and the possibility of vanished mid millennium farms in the area, means that Fallgren's idea that this area once was a large village cannot be ruled out.

One unique written source from the late 13th century exists for the parish of Anga, which is the well-known inscription on the church wall, listing the first names of 14 persons contributing to the construction of the church. After each name, the person's contribution is listed, which is valued in draught animals. In one case, two persons have made a joint contribution. There are no farm or village names in the list, but it is generally assumed that each name represents a farmer on his own farm, except for the two persons sharing one contribution, which is interpreted as a farm divided into two parts (cf. Ersson 1974:81; Carlsson 1979:145; Lindquist 1987:10). This is a reasonable interpretation, but it does not imply that the farmers necessarily ran solitary farms. The way the parcels of land were distributed and mixed among the different farms in the GM1700, suggests otherwise. The farms Stenstugu, Botes and Hemmungs and also Änggårde and Liffride, most likely constituted two generic villages, with several farmers. It is unknown how these related to each other, but maybe the situation was similar to what could be found at Bingle in the parish of Gothem, accounted for above.

The parish of Bunge

The soils in Bunge are dominated by sandy soils, but there are patches of moraine soils. The agricultural landscape of the 1700s is nearly completely dominated by the sandy soils. There are only five Iron Age stone house foundations known in Bunge, representing two farms. One was situated to the north-west, about 2 km from the nearest 1700 farm, and one at the eastern edge of the area farmed in the historical times. Most parts of Bunge fall outside the prediction model from chapter 2, which corresponds well to the actual situation, but there might have been some mid millennium farms in the south-western part of the parish, in a small area predicted by the model, which will be discussed a bit further down. Most of the areas with moraine soils in Bunge are near the coast and have probably never been cultivated; there are hardly any ancient remains situated there and the area is still today not cultivated. Judging from the descriptions of the parcels of land of the GM1700 for the farms, most of them have poor soils, which yield poor harvests (Ronsten 2011b:Bunge parish).

Large parts to the north in the parish consist of barren land, and have since historical times been utilised for limestone quarries and kilns.

The farms in the 1700s are all situated in the southern part of the parish. There is an interesting area in the south-east, with the farms Broungs (tax 25.6 *daler*), Utbunge (17.1 *daler*), Audungs (20.6 *daler*) and Mattise (11.1 *daler*). Their parcels of land are very mixed. The farm tofts are dispersed with a distance of 600 to

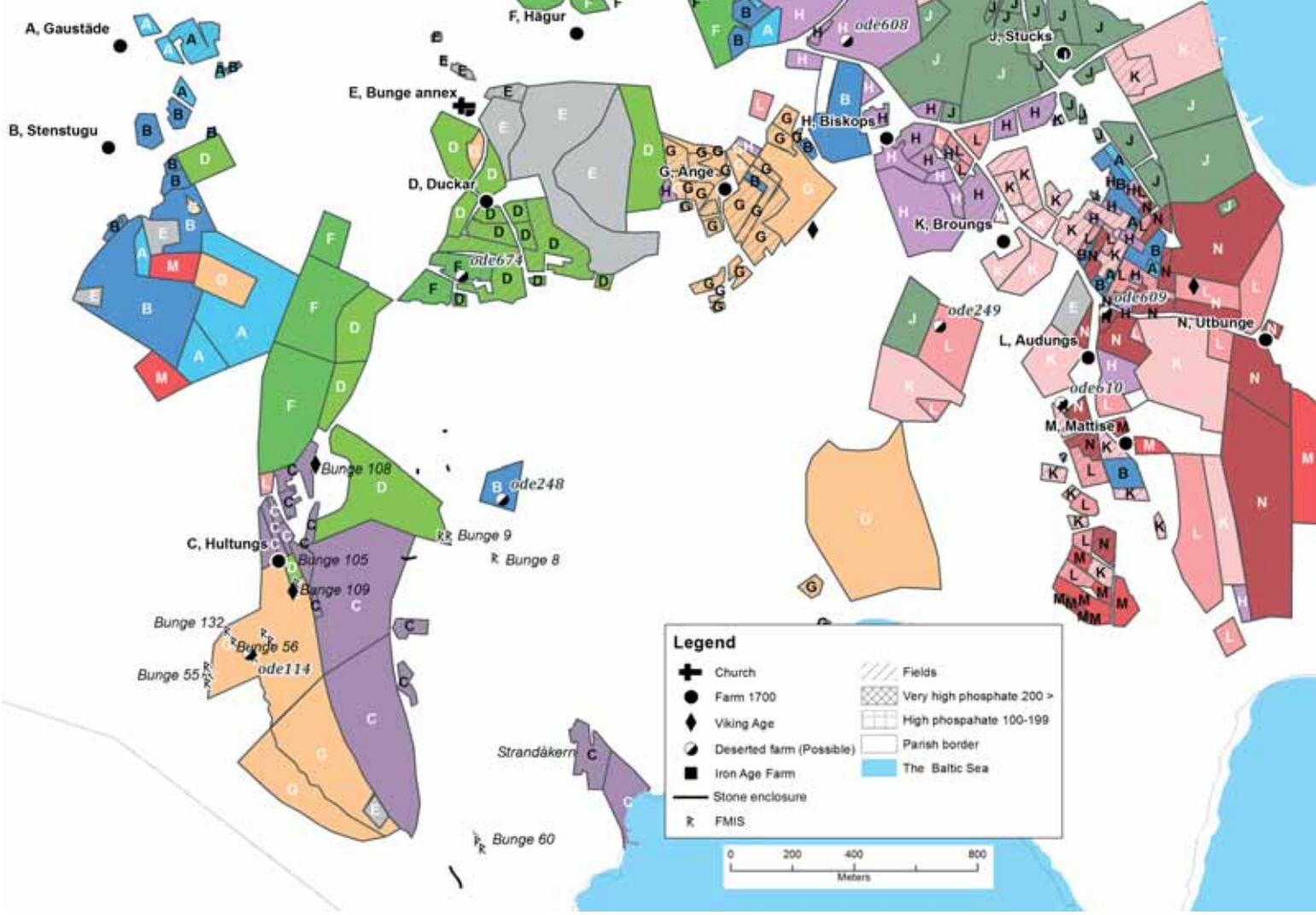


Figure 5.21. The central area in Bunge parish. A fair copy of parts of the GM1700 map LSA, H12-1:2.

900 metres between them, but there is reason to believe that this has not always been the case. There are several possible deserted farms in the area, according to Eriksson (2010a). One is located in an area with meadows, owned by many farms, slightly apart from the other infields. Two of the meadows are named Lindarve (Eriksson 2010a:ode249), which is a possible farm name, but of the problematic kind, since it is an *-arve* name, without a personal name prefix. In this case, it most likely represents an abandoned farm, where the land is taken over by other farms. Three of the other potential deserted farms are identified by parcels of land named *tom*t (toft) and they are centrally situated in the infield area. One of these (Eriksson 2010a:ode608) is too far away to be of interest in this discussion. At least one of the two remaining (Eriksson 2010a:ode609 and ode610) is most probably not a deserted farm, but rather a previous farm tofts for one of the still existing farms.

The farm Utbunge is placed around 900 metres away from the other farms, far from its own fields, so there are reasons to believe it has moved. It is situated at the farther edge of its meadows, which is a bit odd. Utbunge has fields by both ode610 and ode609, but the most probable location of Utbunge's old farm site is ode610, since this field is owned by Utbunge. Beside ode609, there is a field with many small and mixed parcels, owned mostly by the other farms in the vicinity, but also by Stenstugu and Gaustäde, which are seven kilometres away.

This makes it probable that there once was a generic village, forming one unit sometime in the past. The distances between the farm tofts have been between 160 to 400 metres.

Stenstugu (tax 22.5 *daler*) and Gaustäde (7.6 *daler*) also form a pair, with their tofts situated 340 metres apart. Their parcels of land are scattered all over the parish and nearly always appear together in pairs. Since Stenstugu is larger, it owns parcels of land in some locations, where Gaustäde does not, but it is obvious that they have a common origin.

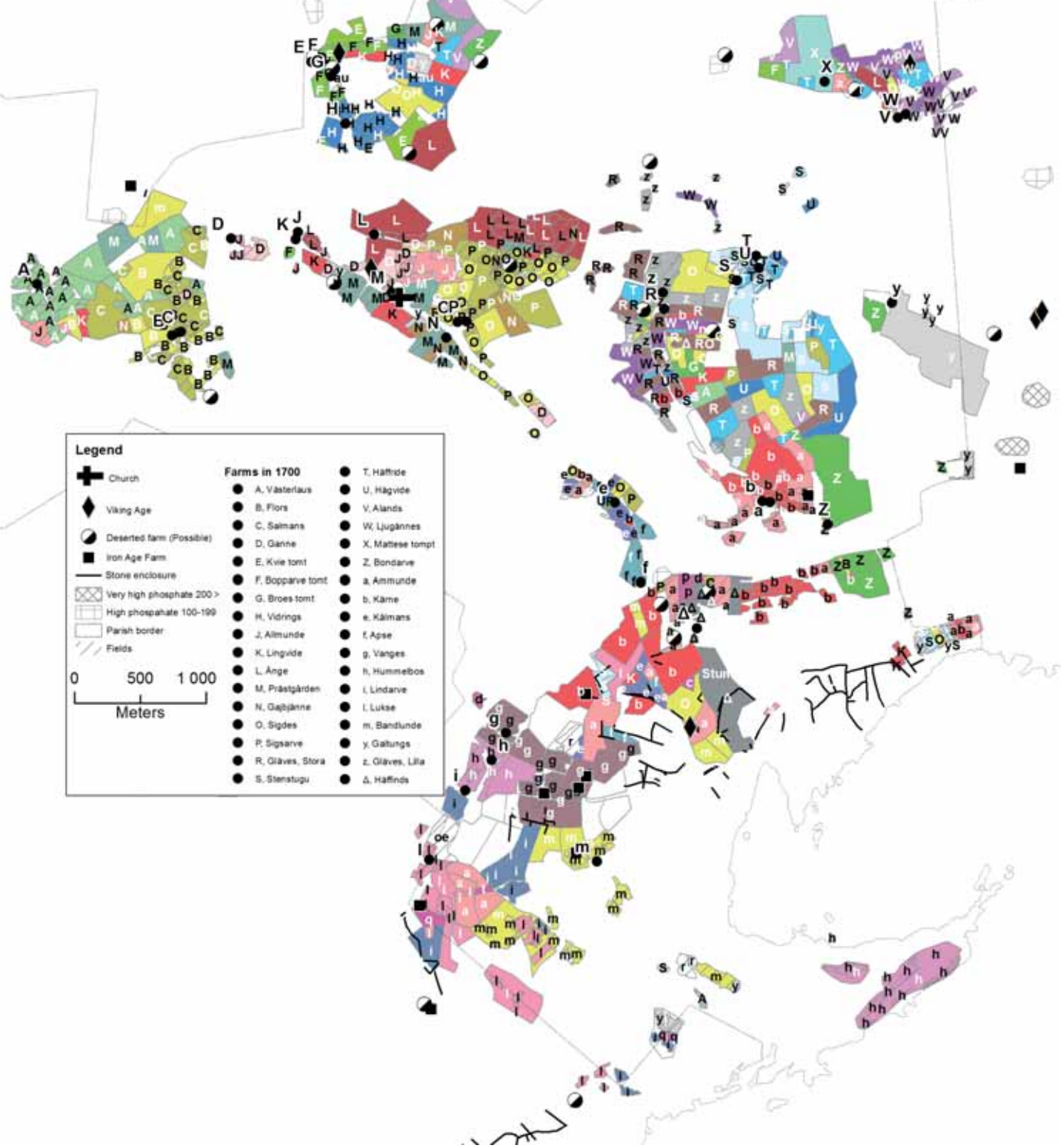


Figure 5.22. The parish of Burs around 1700. The map shows a very complex picture, with a high degree of mixed parcels of land between the farms. A fair copy of parts of the GM1700 map LSA, H13-1:1.

The parish of Burs

The parish of Burs is extremely complicated with many deserted farms, which has led to many areas where several farms' parcels of land are severely mixed and scattered. Only two groups of farms will be discussed here, which are situated in the area around the church. The farms Ånge (tax 22 *daler*), Allmunde (7.8 *daler*), Lingvide (9.9 *daler*) and Ganne (8.8 *daler*) is the one group and Sigdes (36.1 *daler*), Sigsarve (19.5 *daler*) and Gajbjänne (6.2 *daler*) is the other. In the area, there are some sites of possibly deserted farms or abandoned tofts of existing farms identified by Eriksson (2010a). One Viking Age silver hoard (RAÄ Burs 205) and one hoard from the Middle Ages (RAÄ Burs 212) are also found here. As can be seen in the map (fig 5.23), the three last farms are a quite clear group, with mixed parcels of land in a fairly well defined village territory.

The former group of four farms and their tofts are quite scattered and the parcels of land

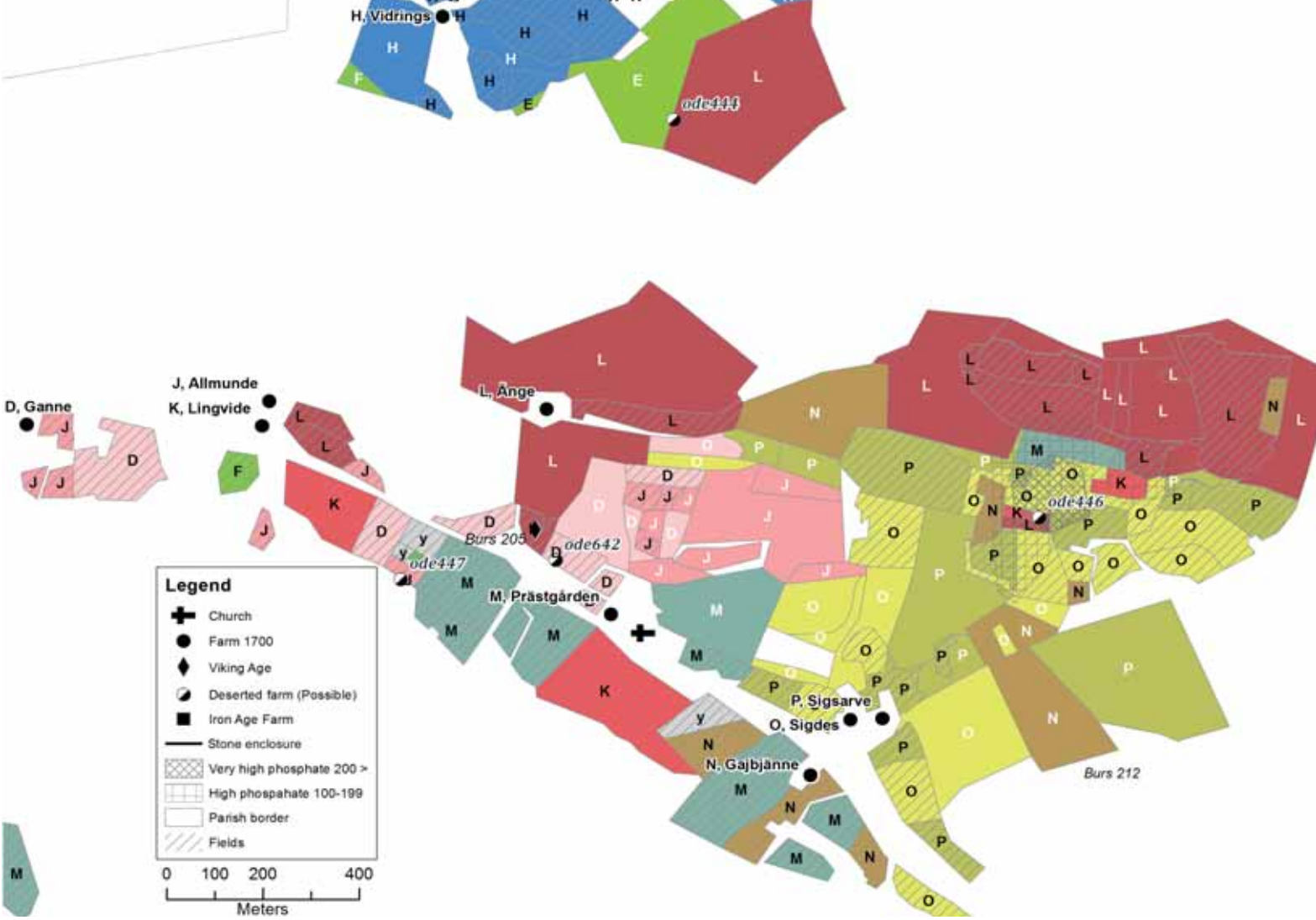


Figure 5.23. The area around the church in the parish of Burs. A fair copy of parts of the GM1700 map LSA, H13-1:1.

do not form a well-defined village territory. The farms Ganne and Änge are far from the other two, which are a pair in the middle. Änge and Ganne are 1 km apart. The parcels of land of Ganne are mostly mixed with Allmunde, which is situated right beside Lingvide. All these three farms are small and must have the same origin, probably connected to Änge. Most of Gannes fields are situated by the deserted farm site ode642 (Eriksson 2010a). It is a field under Ganne and Allmunde named Tomtåker (toft field). This is probably not a deserted farm, but a previous toft for these farms at some stage, maybe an old village centre. Right beside it, a Viking Age silver hoard was found in 1865 (RAÄ Burs 205), which was probably deposited at a coeval settlement site. An investigation of the site with metal detector in the year 2000 resulted in the discovery of remains from a workshop for metal crafting, which indicates a settlement site, but no more coins were found (RAÄ Burs 205).

The farm Änge is also a bit strangely situated in relation to the bulk of its fields. They are situated in a large area of fields divided into many parcels, owned by most of the farms in the area. In the middle of this area are high values of phosphates (Arrhenius1938d) and a deserted farm site, identified by a part of the field area with the name Burs åker (Burs field). Burs is the name of the parish, but it is also a known farm name on Gotland, occurring in two other parishes. It was probably a part of a generic village, also consisting of the farms Sigdsarve, Sigdes and Gajbjänne. This is likely to be the place for an abandoned farm, or a village toft, that gave name to the parish, and can be a situation in a similar way as Ukebyn in the parish of Havdhem, referred to earlier. It is not so clear how these two groups of farms relate to each other, but they may have had a common origin.

The parish of Dalhem

The parish of Dalhem is quite straightforward and can maybe even in some sense be used as a key, since information is available about which farms cooperate in *byalag* (cooperate in a village community) with each other. All of the identified generic villages are also said to cooperate in *byalag*, according to the land surveyor in 1700, Carl Landtbom (Ronsten 2011b:Dalhem parish). The only exception is the pair *Prästgården* (the vicarage), which paid 34 *daler* in tax, and Hallvide (42.2 *daler*), but judging from the map, they have a common history. There are some examples where vicarages are part of a generic village, but as discussed earlier, it is unclear and not analysed, how the vicarages were formed on Gotland.

In the part of the parish, shown in fig. 5.24, four generic villages are identified. The farms Nygårds (tax 20.4 *daler*), Harstäde (9.2 *daler*), Hallfose (22.1 *daler*) and Munkebos (9.5 *daler*) form one generic village. These four farms are divided into two groups, situated 300 metres apart. In each group, is the distance between the farms is 100 metres and one of the farms is larger than the other is. Nygårds is larger than Harstäde and Hallfose is larger than Munkebos. Most probably, these four farms in the generic village were divided into more households/farms over time.

A third group is Gandarve (tax 35.3 *daler*), Dungårde (36.6 *daler*) and Hässelby (16.5 *daler*). To some degree, the parcels of land of the farm Siltegårds (32.1 *daler*), one kilometre to the south, are also mixed with the others; this farm should probably also be included in the generic village. It is also possible that this mixing of land is the result of inheritance, marriage etc, but most likely not, because in the central area and close to Siltegårds toft, there are parcels of land belonging to the other farms; so the mixing works both ways, so to say. The last group is Sud-

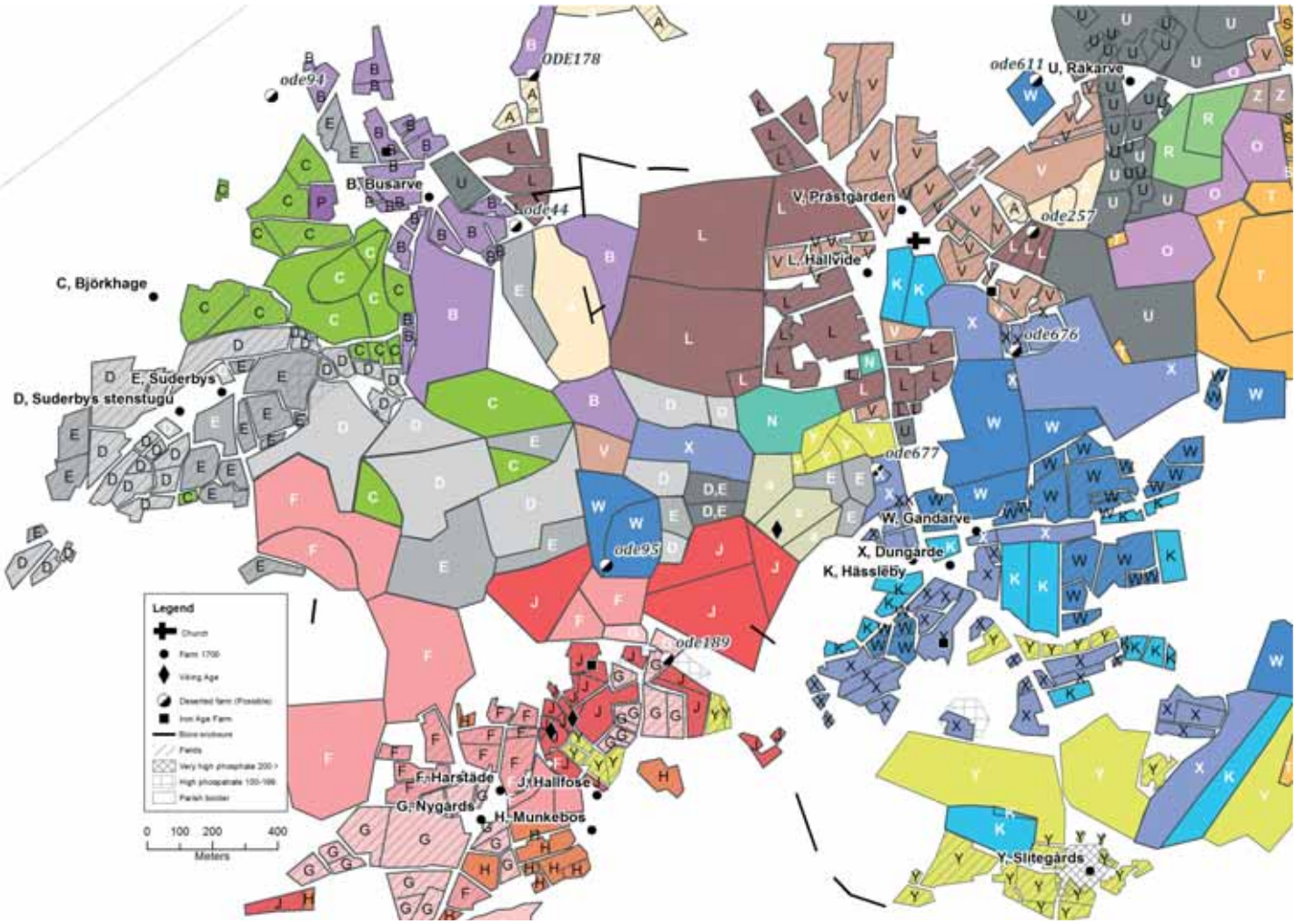


Figure 5.24. Part of the parish of Dahlem in 1700, showing the fields and meadows of the different farms. A fair copy of parts of the GM1700 map LSA, H16-1:1.

erbys (20.4 *daler*) and Suderbys stenstugu (31.7 *daler*), which have a quite even mixing of parcels.

Worth noticing in the map above, is the big area of meadows in the middle where all the surrounding farms have parcels of land. This indicates that it might have been utilised in a collective manner at some point, but most parts of the meadows were individually fenced in 1700 and not cultivated jointly. In the middle of this large area of meadows there is a deserted farm (Eriksson 2010a:ode95), which must be regarded as very probable. It is identified by a meadow named Buge. It is a known farm, which according to *Ivar Axelsson Totts räkenskapsbok* from 1485-87, was owned by a judge. In the year 1700, it was a *Frijord*, (free soil) used under the farm Gandarve (Eriksson 2010a:ode95). Based on phosphate mapping, Ersson suggest that this most probably is the location for a farm (Ersson 1974:69f). It is worth noting that the parcels of land are much smaller, and more divided among many farms in the area to the east of the deserted farm symbol, seen in the map, which might suggest that there have been fields there earlier, which were taken over by other farms, and turned into meadows, since they are quite remote.

Since there are very few preserved Iron Age stone house foundations and stone enclosures in Dalhem, it is hard to tell how the situation seen in 1700 relates to the Iron Age landscape. For nine of the around 26 farms in Dalhem, it is not evident if they were included in some form of generic village constellation in 1700 or not, but that does not rule out the possibility that they once were. For the remaining 17 it is clearly stated by the land surveyors in 1700 that they cooperate in byalag (cooperate in a village community) with other farms, which tallies well with what is seen in the map.

The parish of Eskelhem

The situation in the parish of Eskelhem is quite complex, but there are some identifiable generic villages, but the situation is unclear and very hard to interpret in many areas. The interesting part and reason why it is discussed here, is that there a considerable area with meadows in the parish, divided between almost every farm in the parish; in this area there are also several Iron Age stone house foundations. The parcels of land of the different farms are greatly mixed, which strengthens the assumption that the large areas of meadow with mixed ownership date back to an older form of landscape organisation, probably many times on a higher level of organisation than what can be referred to as a village.

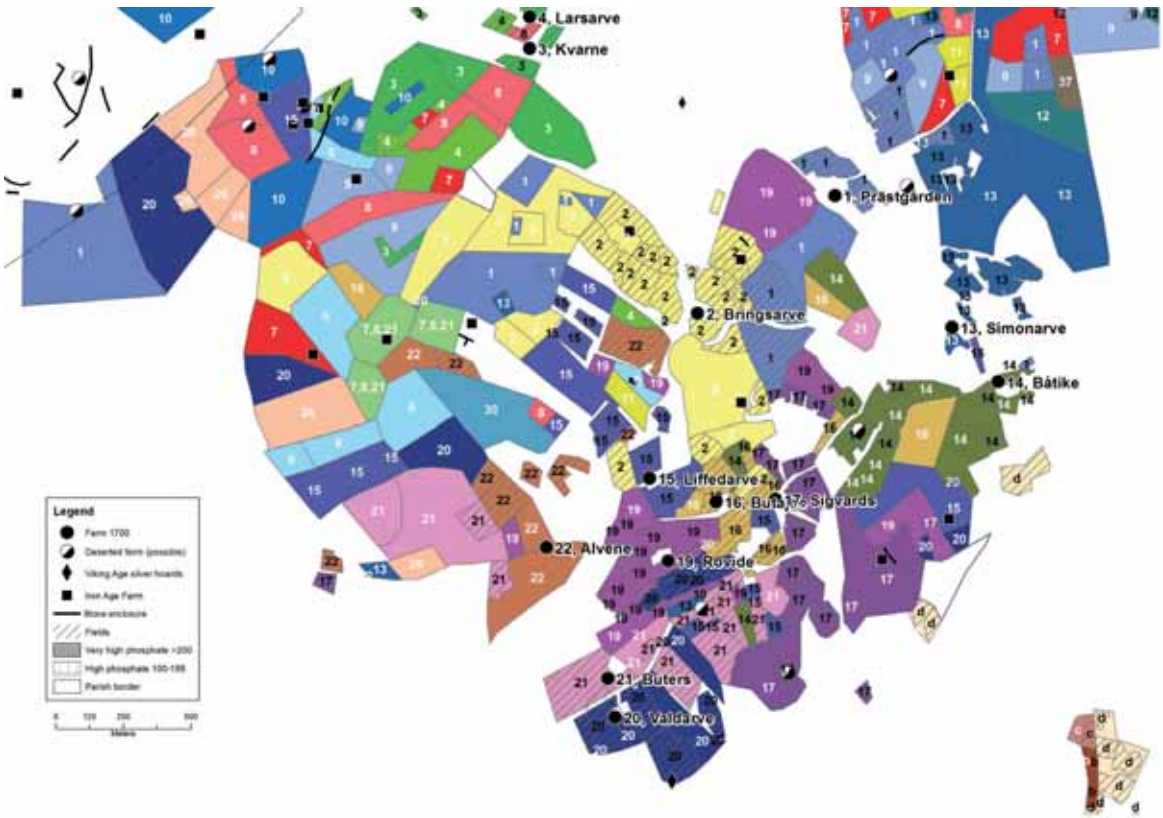


Figure 5.25. The central part of the parish of Eskelhem, showing an extensive area of meadow land. Fair copies of parts of the GM1700 maps LSA, H21-12:1; H21-17:1; H21-20:1; H21-22:1.

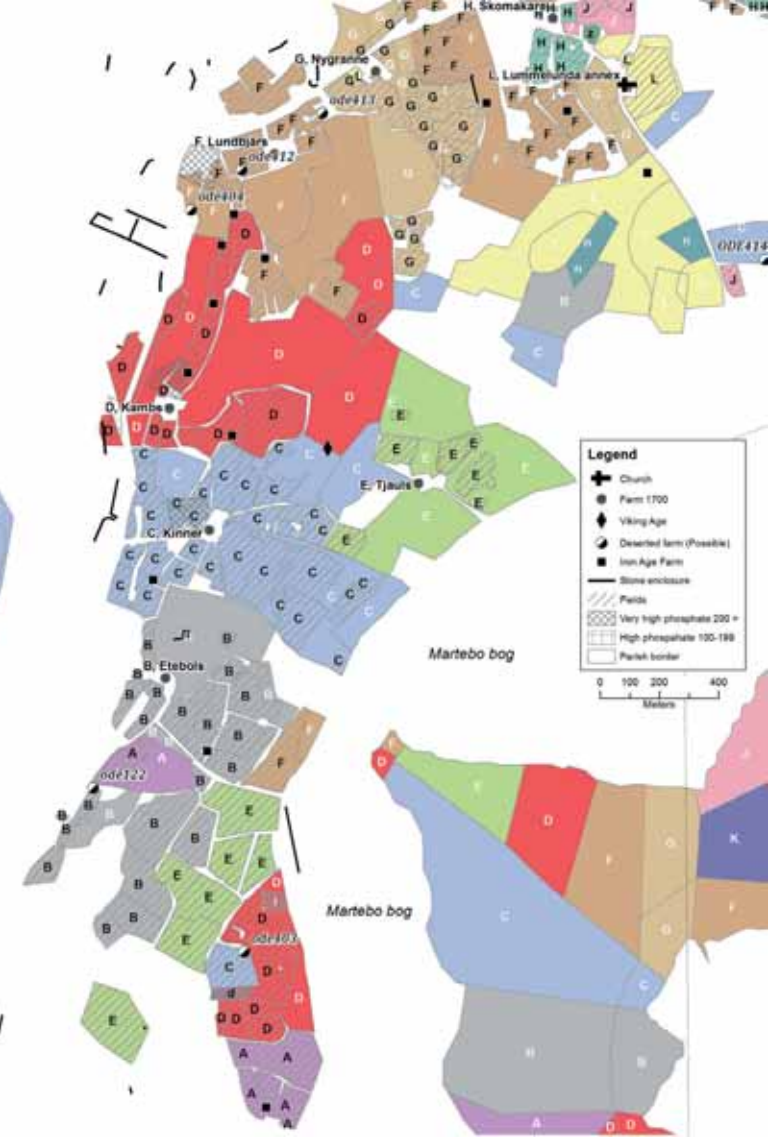


Figure 5.26. Mainly solitary farms in the Parish of Lummelunda. A fair copy of the GM1700 map LSA H59-1:1.

The parish of Lummelunda

Lummelunda is a parish where most farms are not divided and several large farms exist, but not many generic villages are identified. The farms Etebols (tax 37 *daler*), Kinner (64 *daler*), Kambs (50 *daler*) and Tjauls (32 *daler*) are examples of solitary farms, which makes them all quite large. In 1653, they all only have one farm-part, but in 1700 they are all divided into two parts. These farms might very well have been multi-households and '*Stoore bolagh*' (large business), farms during the 17th century, in the way described by Lithberg (1932). Up in the north are Lundbjärs (42 *daler*) and Nygranne (20 *daler*), which probably have a common origin. Nygranne translates to 'new neighbour' in English. Both farms are mentioned in *Sören Norrbys Räkenskapsbok* 1523.

In the south, there is some mixing of parcels of land between different farms, because of two deserted farms. One is Gasa tomt (Eriksson 2010a:ode122), which still in 1700 is a separately taxed property (tax 2 *daler*), but owned by the farm Etebols. The other is more uncertain, but it is most probably a deserted farm. It located in an area with the name Fossa (Eriksson 2010a:ode403), which could be a variation of Forsa, which is a known farm name on Gotland.

Nearly all farms in the parish have well-defined farm territories around their tofts, but the meadows on the island in Martebo bog are divided and mixed between most of the farms in the parish, like in so many other parishes indicating cooperation on a higher level of organisation than villages.

The parish of Näs

One very interesting parish is Näs. There are not many traces of prehistoric settlement or graves, and those few that exist are almost entirely located in the northern part of the parish. Southwest of the church, a few stray finds and two cairns are registered, of which one is removed. Almost 70% of the ancient remains in the parish (175 out of 257) are *svärdslipningssten* (stones with traces of sharpening). This type of remains is much debated and many different suggestions of both dates and function have been presented, but they remain an undated mystery.

Two silver hoards have been found (RAÄ Näs 65 and Näs 66), indicating Viking Age settlements in the area. Near the church, around 400 metres from RAÄ Näs 65, there are some stone enclosure walls (RAÄ Näs 96 & 97), which could be from the Iron Age. They are situated in one of the few areas in the parish with the characteristics of mid millennium settlement as defined in the prediction model in chapter 3.2. The lack of any other prehistoric finds in the area and the fact that the enclosures most probably have been used in more recent times (RAÄ Näs 97), however, makes it a bit uncertain.

Näs has two named generic villages, Bällbyn and Uddbyggarbyn. The name of the latter can freely be translated to 'the village of peninsula builders'. This name might be explained by the fact that the farms in the village have many fields and meadows out on the tip of the small peninsula, which gives name to the parish. Näs means small peninsula. Both villages are mentioned and were mapped by the land surveyor Johan Fineman in 1735 and 1738 (LSA, H66-14:1 and H66-16:1). The village Uddbyggarbyn consists of the farms Olsvenne (tax 32.8 *daler*), Båtels (20.4 *daler*), Skåls (34.7 *daler*), Sigvards

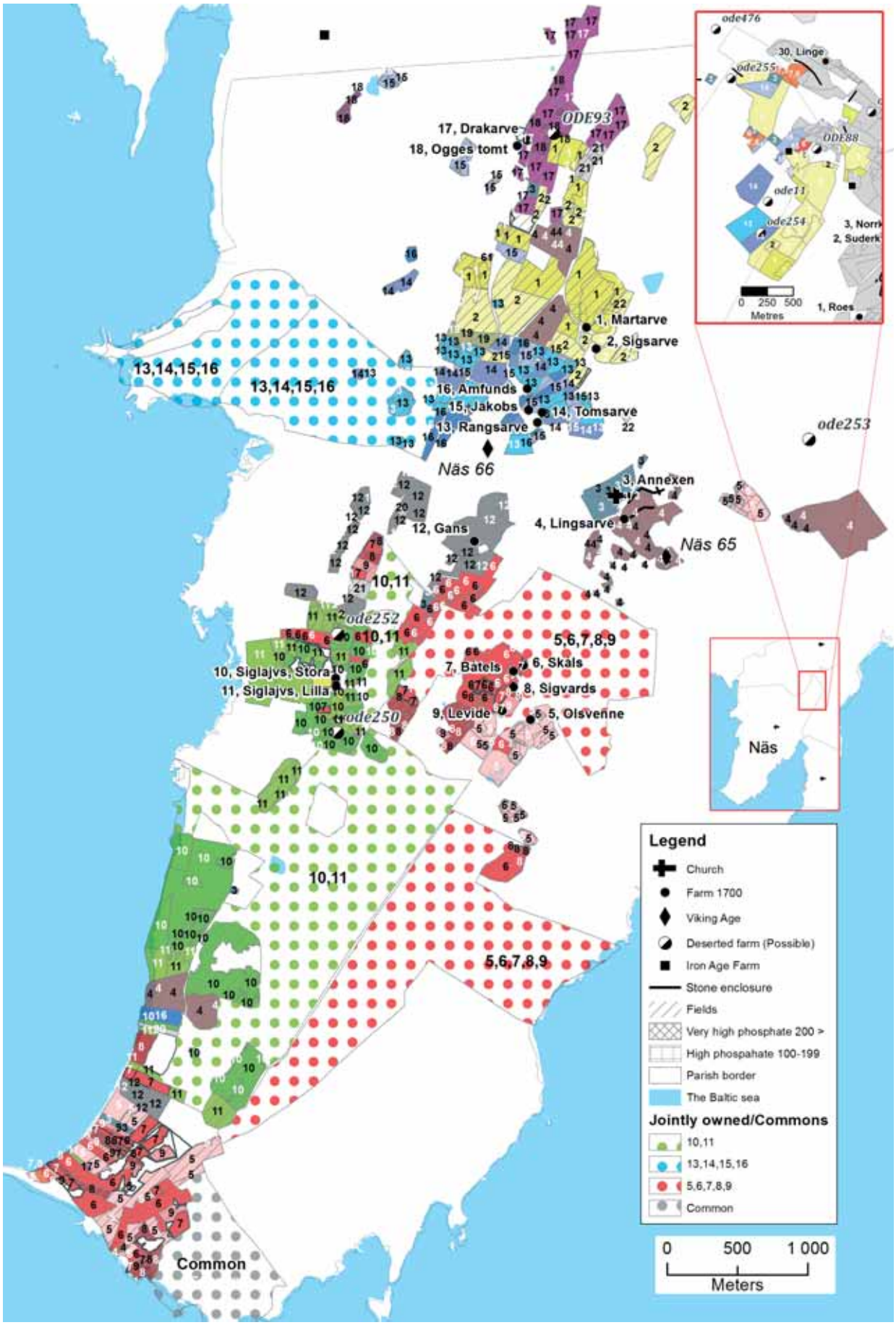


Figure 5.27. Näs parish. The area, showed in the small map up to the right, is situated around 2.6 km up to the north-east in the parish. Fair copies of the GM1700 maps LSA, H66-5:1; H66-6:1; H66-11:1; H66-11:2; H66-12:1; H66-12:2; H66-14:1; H66-15:1; H66-16:1 H66-19:1.

(14.8 *daler*) and Levide (6.1 *daler*). Levide was deserted in 1700 and there were no building on the site, it was owned by the farmer at Lilla Siglajvs. In 1653, only one farmer was listed as owner at each farm, but in 1735, there were twelve farmers in the village.

The mixing of parcels of land is not particularly severe close to the farm tofts, but on the peninsula, it looks almost regular. When calculating the share of land of each farm on the peninsula as percentage of the tax, it correlates to 97%. The amount of land each farm was entitled to on the peninsula is quite clearly governed by the size of farm. This means that activities on the peninsula were regulated by the farmers of the generic village, according to certain rules, based on their part in the generic village, almost like a mainland *byamål* (village share). The generic village also shared large areas of outlying land and pastureland and conducted fishing, seal hunting etc. together.

Table 5.4. Correlation between possession of land on Näsudden and paid tax in 1747 for the farms in Uddbyggarebyn

Farm	Tax in daler	% of total tax	Acreage (ha)	share
Olsvenne	33.77	30,78%	23.2	32.78%
Skåls	34.7	31,63%	19.7	27.90%
Båtels	20.42	18,61%	11.9	16.95%
Sigvards	14.76	13,45%	9.9	14.03%
Levide	6.06	5,52%	5.8	8.33%
Sum	109.71	100,00%	70.8	100,00%

The generic village Bällbyn, consisting of the farms Stora Siglajvs (tax 37.2 *daler*) and Lilla Siglajvs (24.1 *daler*), also owned large areas of both fields and meadows on the peninsula. In 1653, one farmer was listed on each farm, but in 1735, each farm was divided into four parts, which means eight farmers. There is no correlation between shares and tax, but this can probably be explained by the presence of several deserted farms, which have altered the balance (Eriksson 2010a:ode250 and ode252). Judging by the fields among their parcels of land by the coast, there might be a deserted farm even there. Eriksson (2010a) has identified the name of Holmbo in the area and there is a slight raise in phosphate values. Some of the other farms in the parish also have some small parcels at the location, which supports this interpretation.

A third generic village consisting of the four farms Rangsarve (tax 23.6 *daler*), Jakobs (21.1 *daler*), Tomsarve (13.9 *daler*) and Amfunds (9.2 *daler*) is situated slightly to the north. It has no known name, but is a very clear generic village and it has large areas of jointly owned outlying land.

Also Sigsarve (tax 49.9 *daler*) and Martarve (36.5 *daler*) lying just to the north, constitute a generic village. There is an interesting remark in FMIS about Martarves historic farm site, which is abandoned today, so the site is registered in FMIS (RAÄ Näs 98). The FMIS-surveyor has noted that there are so many house remains on the site that these most probably constituted the remains of many farms (RAÄ Näs 98).

The farm Drakarve (37.6 *daler*) and the *tomt* without farm buildings, Ogges tomt (12.1 *daler*) even further to the north, by the border to the parish of Havdhem, also constitutes a generic village. Regarding Ogges tomt, the land surveyor Fineman in the 18th century, remarked that it most probably was divided from Drakarve (Ronsten 2011b:Näs parish), which probably is true. The mixing of parcels is a bit more complex in this area near the parish border, with Ogges tomt and some other parcels of land, owned by farmers in Havdhem.

Up in the north-eastern corner of the parish (the inset in fig 5.27) is a remote area, about 3 km from the nearest farm in Näs, mostly consisting of meadows divided in parcels owned by nearly all farms in the parish. There are mainly moraine soils in this area and at least two mid millennium farms have been identified, but there were probably several more, judging from the remains of stone enclosures. The situation is a bit like Visne ängar in the parish of Alskog. It might be that there was a shift in settlement areas between the Iron Age and the early modern times, to a better location nearer the coast and on sandy soils. It is most probable that there have been farms up here up until the at least the Middle Ages, since some probable deserted farms are identified up here (Eriksson 2010a:ode254, ode88, ode230, ode255). Another striking thing is that this area is situated far from any farms in Näs, but close to many farms in the parish of Grötlingbo. In my opinion, this indicates that the parish of Näs is not an old neighbourhood community (*bygd*), but was probably colonised at a later stage and was established in the later part of the Iron Age.

Other types of farm groups

Besides these existing generic villages, other types of closely situated farms or *tomt* can be seen on the maps, which cannot be regarded as villages, since they are not based on agriculture, but other industries. They are more like population centres around some special, non-agrarian activity. In the cadastres, however, they are listed as farms or *tomt*, since agricultural land is included in the property.

In the area of the present day community of Burgsvik, in the parish of Öja, there are seven relatively small farms situated in a row along the main road. According to Steffen, they are called Västerbyn (the western village) and are the result of stonemasonry from the early 17th century, when Danish stonemasons acquired land in the area. This makes it a unique feature on Gotland, an artisan's community in historical times (Steffen 1945:443). It is unknown whether the history of this community goes back to medieval times, when production and export of sandstone products like baptismal fonts was intensive.

When studying the historical maps, there are other areas near the coast, which might have a similar origin, maybe from the Viking Age/ Early Middle Ages. Especially Västergarn, with many small *tomt* inside the ancient wall, can be seen in this light. Recent excavations, conducted by Gotland University (now Uppsala University, Campus Gotland) revealed finds similar to what is found in medieval towns (Kilger et al 2013:3), so it is possible the *tomt* we meet in the cadastres originate from this medieval artisan activity. This could also be the reason why there are three *tomt*, Sigvards tomt, Rovalds tomt and Båtars tomt, on the western side of the northern part of Paviken, in Eskelhem parish. These *tomt*, however, are situated on the other side of Paviken, vis-à-vis the area excavated in the 1970s by Per Lundstöm (1981) and in 2013 by Dan Carlsson, which revealed the remains of artisan activity and trading activities during the Viking Age. This might indicate a second interesting area at Paviken.

While analysing the historical maps I have come across other areas, which might be of the same origin at other places. A brief survey might suggest that landing places or harbour sites from the same period have been identified in these areas, but there is a need for a deeper analysis, before this can be confirmed or falsified.

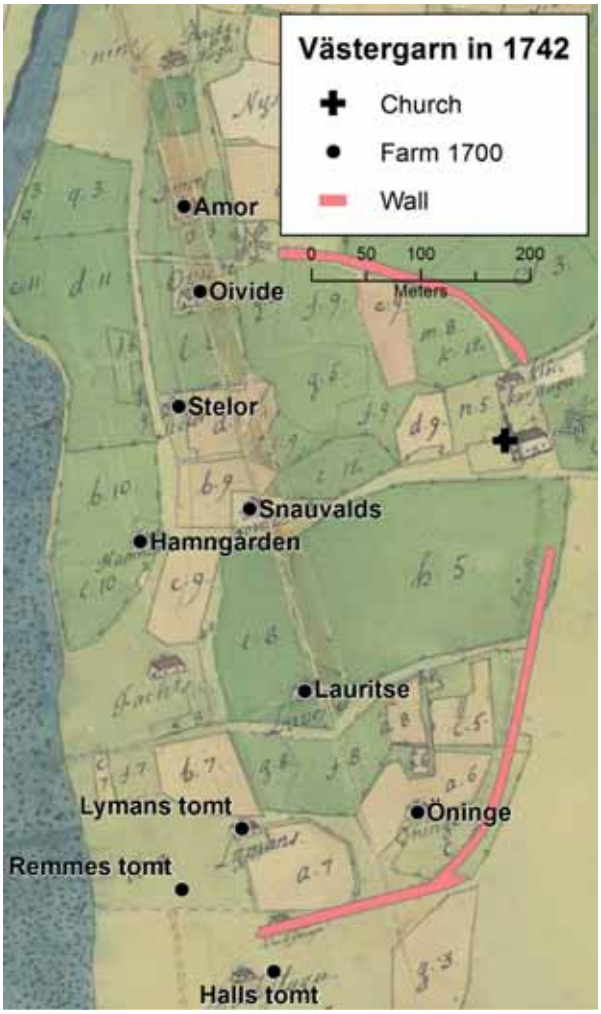


Figure 5.28. The small farms, mostly classified as tomt inside the wall, depicted in 1742 (LSA H90-1:1). (© Lantmäteriet, published with permission I2012/921)

Results of the visual interpretation of the selected parishes

In the visual analysis, 51 of the parishes are included, which is slightly more than half of the total. In these 51 parishes, there are 950 farms in all, which is 60% of all farms on Gotland around the year 1700, and 188 generic villages are identified with 511 farms altogether consisting of 764 parts. This means that around 53% of the analysed farms are found in generic villages. Not all farms have information of owner or tenants, so it is hard to know the exact number of parts of the farms, but the number of farms that lack this information are only 18, which all are assumed to have only one part. These mostly consist of a small *tomt* and it is of course open to discussion whether or not a small *tomt*, cultivated under another farm, can be regarded a farm part and be treated as a separate unit. Nevertheless, in most cases there is reason to believe they once were independent farms and possibly part of a generic village.

As seen in the map in fig 5.29a, the spatial distribution of generic villages is not even throughout Gotland. There is an apparent predominance of generic villages in the southern part of the island, even if the most northern part is also dominated by generic villages. A qualified guess after a brief survey of the rest of the parishes is that the non-analysed parishes do not change this picture to any major extent. The sampling of the 51 parishes is not done in a statistically correct way; the selection started with the parishes in the south, since more villages were believed to exist there. This assumption was based on the generic villages known from the written sources and on the fact that the south has large areas of commons. This means that the statistics below, most probably are somewhat too high if generalized for the whole

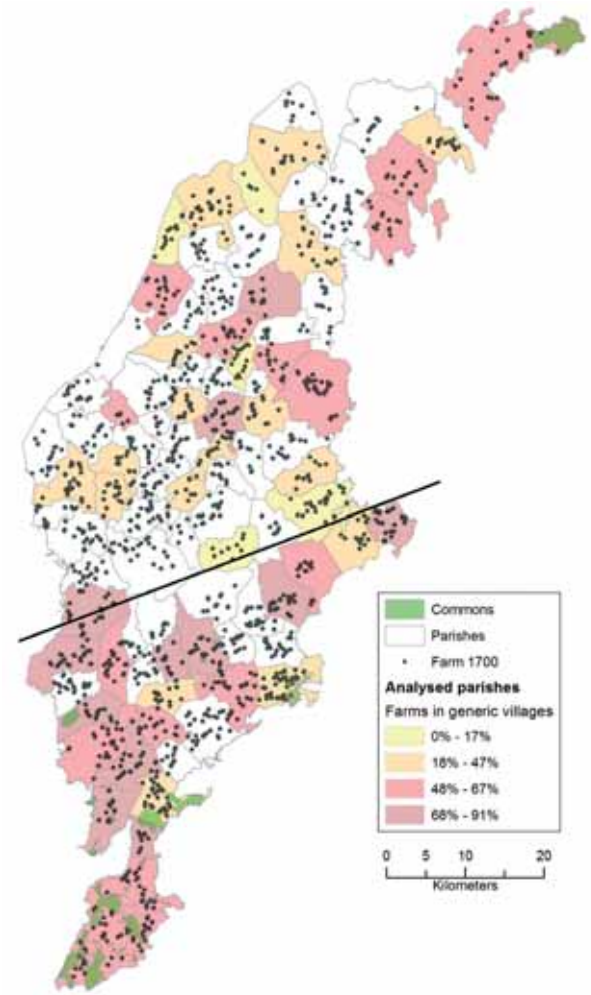


Figure 5.29a. Spatial distribution of farms and the distribution of generic village sizes

Table 5.5. Number of farms in a generic village

			Cumulative	
Size	Freq.	%	Freq.	%
2	112	60%	112	60%
3	43	23%	155	82%
4	21	11%	176	94%
5	4	2%	180	96%
6	4	2%	184	98%
7	2	1%	186	99%
8	2	1%	188	100%
Σ	188	100%		

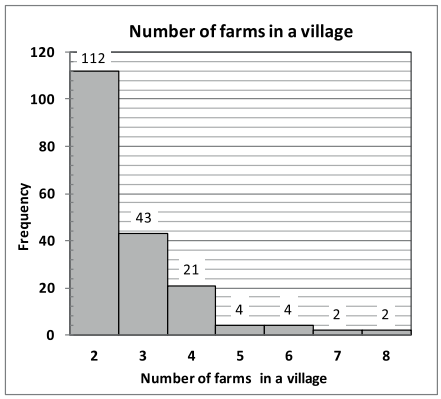


Figure 5.29b. Diagram showing the number of generic villages of different sizes.

island. Studying the distribution map, a notable point is that the forest belt dividing the island diagonally from Fröjel up to Kräklingbo, extending over Lojsta Hajd (the Lojsta forest) has bearing on this issue. Calculating the figures separately for the parishes north and south of this demarcation line, shows that ca 40% of the farms to the north are gathered generic villages and for the southern parishes the figure is 62%. If these proportions are assumed for the non-analysed parishes, slightly more than 780 farms are located in generic villages all over the island, which is nearly 50% of all.

The areas with many of the farms gathered in generic villages are the same as those that have undergone drastic changes since the Iron Age, according to our prediction model, presented in chapter 3.2. Examples of areas with major changes are Fårö, Bunge, När, Näs, Östergarn and on *Storsudret* (the most southern parishes on the peninsula; Fide, Öja, Hamra, Vamlingbo and Sundre), which will be discussed in the next chapter.

If farm parts are also taken into account, the generic village sizes will increase as can be seen in the table below. For the larger generic villages, the sample is small, so it is not statistically significant. The average number of farm parts for a Gotlandic farm is about the same for farms situated in generic villages (1.50) and for farms that are not located in generic villages (1.46).

Table 5.6. Average number of parts in different generic village sizes in 1700

Village size	2	3	4	5	6	7	8
№ of parts	3	4.2	6.2	9	8.3	7.5	10

Distances between farms in villages

The distances between the individual farms can be calculated in several ways. One is to calculate the distance of each farm in a generic village to its nearest neighbour, the NN-distance. As seen in the table to the left, 75 percent of the farms in a generic village have a neighbour within 220 metres and 95 percent have a neighbour within 580 metres, which means there are only 23 farms with longer distances to their nearest neighbours in a generic village. For all farms in villages, the mean distance is 196 metres and the median is 115 metres.

This is nearly twice the distance compared with farms in villages in Uppland, when calculated on data for 2 995 farms in 851 villages from the GEORGE database, where the mean is around 90 metres and the median 71 metres. The Gotlandic generic village is thus slightly more spread out, but since the villages in most parts of Sweden have been regulated according to paragraphs in regional laws, which will be discussed further on, it could be expected.

The furthest distance between two farms on Gotland is 3 700 metres, these are located in a generic village situated in the parish of Hellvi, consisting of the two farms Sudergårde (tax 30 *daler*) and Nystugo (14 *daler*). The pair is an anomaly, but there is no doubt about the two farms being connected. As can be seen in the map in fig. 5.30, their parcels of land are mixed, indicating a common origin. Most probably, Nystugo (new house) was separated from Sudergårde (southern farm) and the farm site was established in the fields by the shore, more than 3 km south of Sudergårde.

Nystugo is situated just beside the large pilgrim church at S:t Olofsholm. Today, only some walls, which are turned into a barn and some traces of the foundation are preserved of the church, or rather churches since there are two on top of each other. They have recently been excavated and an abundance of coins was found. Most things indicate that the church was abandoned in the mid 16th century (Carlsson 2013a), probably in connection with the reformation.

The farm Nystugo is mentioned in *Sören Norrbys Räkenskapsbok* from 1523, which means that the farm and the church were contemporary. It is very possible that the location was chosen because of the church and the visiting pilgrims. At what time Nystugo

Table 5.7. Nearest neighbour distances between all farms in generic villages

Distance	Frequency	%	Cumulative	Cumulative %
20	3	0.6%	3	0.6%
40	34	6.7%	37	7.2%
60	66	12.9%	103	20.2%
80	80	15.7%	183	35.8%
100	46	9.0%	229	44.8%
120	35	6.8%	264	51.7%
140	34	6.7%	298	58.3%
160	23	4.5%	321	62.8%
180	22	4.3%	343	67.1%
200	12	2.3%	355	69.5%
220	28	5.5%	383	75.0%
240	9	1.8%	392	76.7%
260	15	2.9%	407	79.6%
280	8	1.6%	415	81.2%
300	6	1.2%	421	82.4%
320	6	1.2%	427	83.6%
340	8	1.6%	435	85.1%
360	8	1.6%	443	86.7%
380	8	1.6%	451	88.3%
400	2	0.4%	453	88.6%
420	3	0.6%	456	89.2%
440	7	1.4%	463	90.6%
460	1	0.2%	464	90.8%
480	3	0.6%	467	91.4%
500	4	0.8%	471	92.2%
520	3	0.6%	474	92.8%
540	4	0.8%	478	93.5%
560	3	0.6%	481	94.1%
580	7	1.4%	488	95.5%

was established is not known, but it is not unlikely that it is as old as the church, which was founded in the early Middle Ages, probably already in the 12th century, according to Dan Carlsson (2013a). The fencing is not always easy to see in the GM1700 maps, but in some of the fields, where both farms have parcels of land, they are not separately fenced, and thus must have been cultivated jointly.

A second example of a great distance between some of the farms is the generic village consisting of the farms Östris (tax 31.4 *daler*), Butjärve (11.9 *daler*) and Gandarve (20.1 *daler*). Their parcels of land are mixed and evenly distributed within a clearly defined village territory, which is discussed above(see fig 5.10).

A final example is the quite odd situation in Hamra (fig.5.31), where the farms Norrgårde (tax 19.1 *daler*) and Skogs (19.7 *daler*) form a generic village, with the two farm tofts situated one km apart. In between the two farms is Lilla Sutarve (5.2 *daler*). It is most likely that Skogs and Norrgårde have a common origin, since all their parcels of land are scattered and mixed in two different areas. In addition, the farms Lilla- and Stora Sutarve (11 *daler*) are separated by more than one km, but their parcels of land are not particularly mixed. However, the situation in Hamra is very complex with several deserted farms in an area south of the church. In this area, many small parcels of land are scattered, which are owned by many different farms. The absolute majority of the farms in the parish own land here.

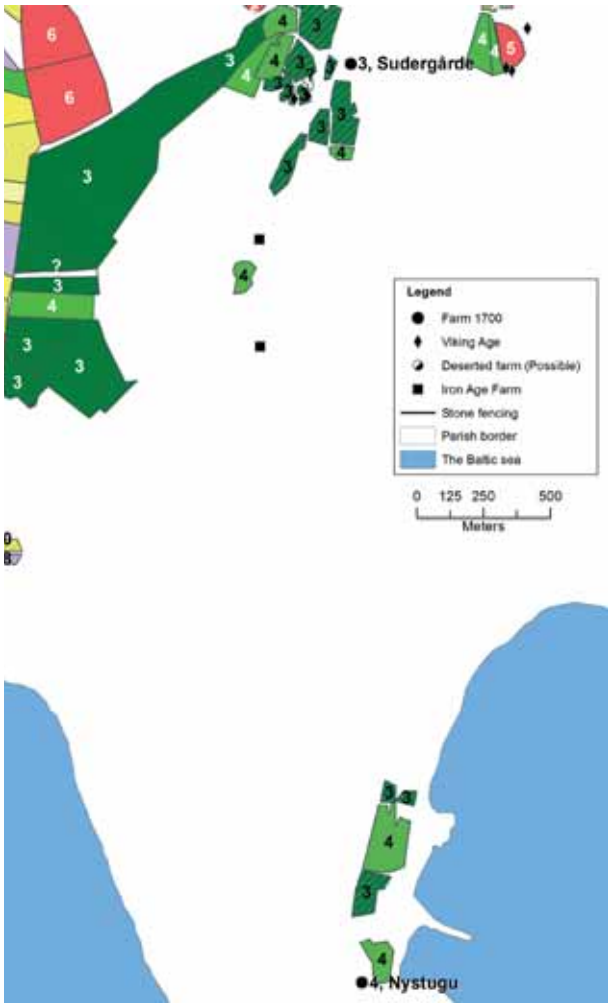


Figure 5.30. The farms Sudergårde and Nystugo in the parish of Hellvi. A fair copy of the GM1700 map LMA, 09-HEL-1.

The reason for the sometimes quite great distances between some of the farms in generic villages is most likely due to relocation of the farm tofts, which is not uncommon. Two additional examples of this can be seen at one part of the farm Bosarve in the parish of När and Stora and Lilla Häftings in Hangvar.

The way of calculating the NN-distance above has a drawback, since just averaging the NN-distance of all the farms in a village would give a false picture of the situation in multi nucleus villages, which is a village with more than one group of farms at different locations. The average NN-distance would be calculated between the farms in each of the groups, disregarding the distance between the groups.

An alternative method to overcome this was also tested, in which the full extension of the village was calculated and the distance was divided by the number of farms, this method takes account of the real situation in a better way. The extension of the village was calculated by creating a convex hull around all the farms in each generic village. A convex hull is a polygon enclosing all points (farms) in a group, and thus forming an area. The width and the length of it were summed up and the result was divided with the number of farms in the village, minus one. This gives a measure of the mean distance between farms that is more true to the extension of a generic village and takes more account of outliers. The width and length of the convex hull also makes it possible to see the true extension of the generic village. The average distance estimated through this method is slightly further than the NN-distances. In Uppland, the number is also a bit higher with this method, with a mean of 104 metres and a median of 81 metres.

Table 5.8. Summary statistics for the distance to nearest neighbour of all farms, calculated as the NN-distance between the farms.

Freq.	Mean	Median	Mode	Stdv	Min	Max
511	196 m	115 m	50 m	239 m	18 m	3 370 m

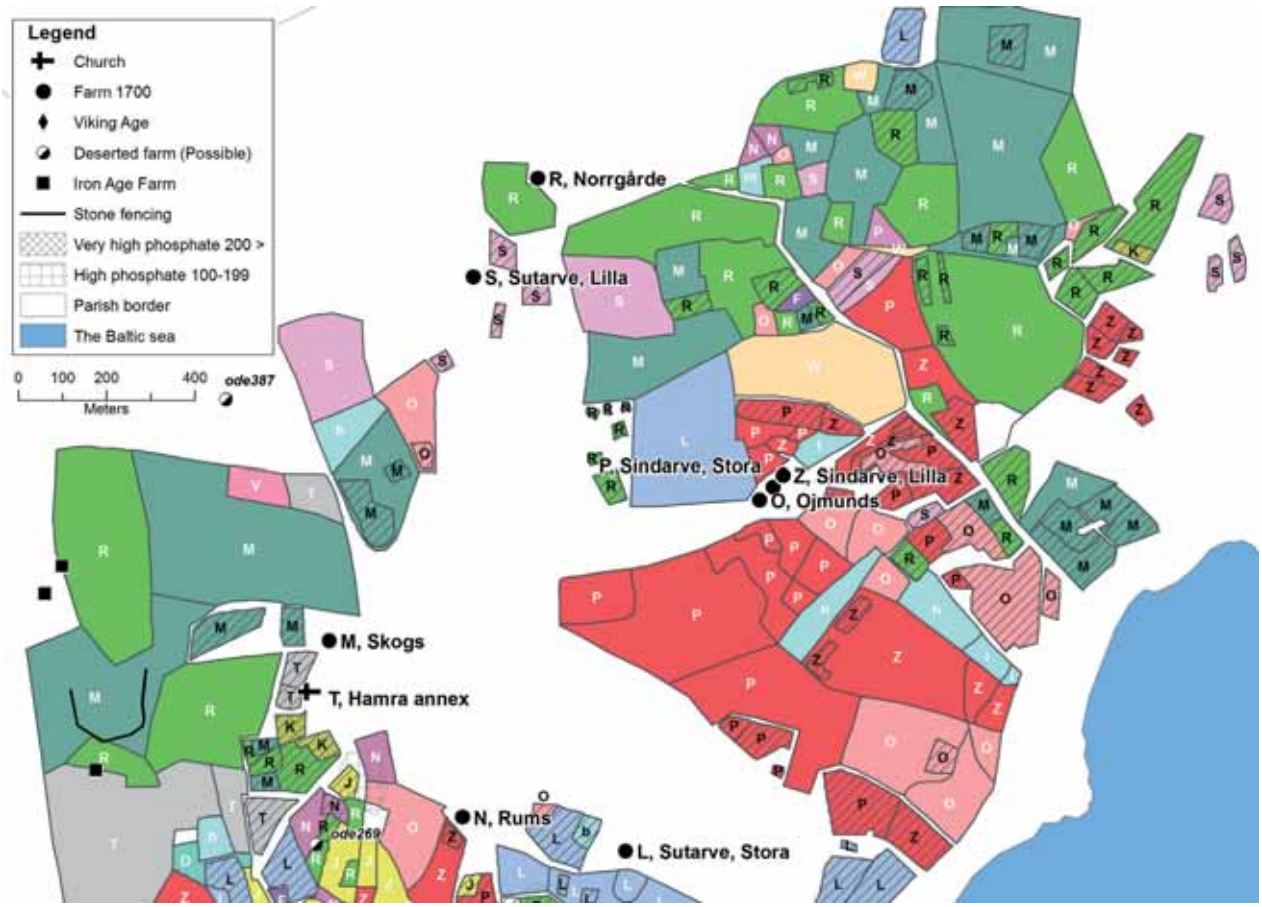


Figure 5.31. Part of the parish of Hamra in 1700. A fair copy of a part of the GM1700 map LSA, H40-1:1.

Table 5.9. Group statistics of the mean distance between farms in all identified generic villages, calculated as the distance between farms based on a convex hull, as explained in the text.

Freq.	Mean	Median	Mode	Stdv	Min	Max
188	224 m	154 m	80 m	298 m	22 m	3 370 m

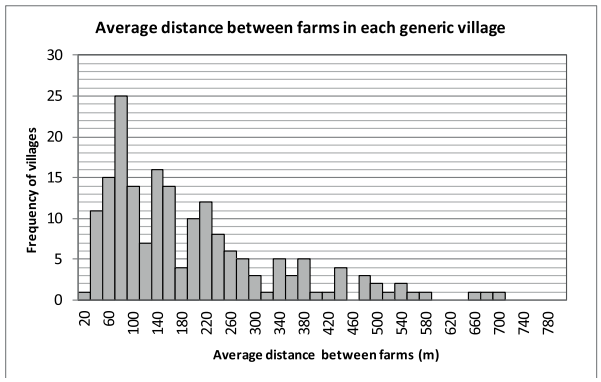


Figure 5.32. Average distance between farms in each generic village, calculated as the distance between farms based on a convex hull, as explained in the text.

Sizes of the farms in the generic villages

The measure chosen to define farms sizes is the amount of tax paid in 1747, as discussed above. In the diagram in fig. 5.33 the farm sizes for all pairs in the identified two-farm generic villages are shown. It displays a tendency of correlation and a Spearman Correlation test gives the value of 69% (0.69), which is high; this means that there is regularity in the relationship. Ersson briefly accounts for the relationship between the two farms, in what he refers to as double-farms, with the same name only separated by a prefix, like Stora-Lilla (greater-lesser), Nedre-Övre (lower-upper) etc. In every third of the pairs, the *marklej* is about the same, and in more than 90% of the cases, the Stora is larger than the Lilla farms (Ersson 1991:10).

An index, similar to the one created for the pair-wise Iron Age stone house foundations, was created for the 111 identified two-farm generic villages, which can be seen to the left. An index of one means that both farms are of the same size and an index of two means the larger farms is twice the size of the smaller. For example, a farm

pair with one farm paying 33 *daler* in tax and the other paying 27 *daler* gives an index value of 1.2. Even if Ersson is a bit imprecise and it is hard to know exactly what he means by 'about the same', the figures in the table seem to be the same for all 'double farms', regardless of name, if we regard an index value of 1.2-1.3 as being 'about the same' size, which seems reasonable.

In the three-farm generic villages, this pattern is somewhat more accentuated. The difference between the largest and the second largest is smaller among 50% of pairs with an index value of 1.3 or lower. The relationship between the two smallest farms in three-farm villages, is about the same as for the two-farm generic villages, with one third of the pairs having an index value of 1.3 or lower. The same pattern also roughly applies to the four-farm generic villages and most of the larger generic villages. The overall picture is that the farms vary largely in size within the generic villages. With some exceptions, the largest farm, is always much larger than the smallest.

As partly accounted for in the chapter concerning the village discussion, there are different views of how the farm clusters that have been identified were formed. Östergren thinks the absolute majority of the present farms were established during the Iron Age and were moved several times, before their location was fixed at the end of the Viking Age (AD 1050-1150) to the locations they have in the GM1700 maps, which is a movement towards the roads. In the last phase in these 'chains of movement', explained in chapter 2, Östergren suggests that a concentration of the farms occurred, which explains the pattern of groups of farms. The reason for the concentration is said to be under the influence of the central authority, the *Allting*, which made it more necessary for the individual farms to cooperate. She explains the fixation of the farm tofts by less mobility in the society and in the landscape; in exemplifying a reason, she mentions the construction stone churches and fixation of the parish borders (Östergren 1989:238f).

This is in direct opposition to Ersson (1974), who thinks the formation of these pairs and small clusters of farms are the result of *hemmansklyvning* (division of farms) during an intensive expansion period in the early Middle Ages. However, Östergren does not rule out the possibility that some of the farm pairs and clusters are formed through the division of one primary farm (Östergren 1989:219ff, 243). My view of this will be discussed in chapter 7 & 8.

Table 5.10. The relationship between the two farms in two-farm generic villages, expressed as an index.

Index	Freq.	%	Cum.	Cum. %
1.0	2	1.8%	2	1.8%
1.1	17	15.3%	19	17.1%
1.2	16	14.4%	35	31.5%
1.3	8	7.2%	43	38.7%
1.4	11	9.9%	54	48.6%
1.5	9	8.1%	63	56.8%
1.6	9	8.1%	72	64.9%
1.7	2	1.8%	74	66.7%
1.8	4	3.6%	78	70.3%
1.9	4	3.6%	82	73.9%
2.0	4	3.6%	86	77.5%
2.1	3	2.7%	89	80.2%
2.2	4	3.6%	93	83.8%
2.3	2	1.8%	95	85.6%
2.4	1	0.9%	96	86.5%
2.5	2	1.8%	98	88.3%
2.6	1	0.9%	99	89.2%
2.7	2	1.8%	101	91.0%
2.8	0	0.0%	101	91.0%
2.9	2	1.8%	103	92.8%
>3.0	7	7.2%	111	100%
Σ	111	100.0%		

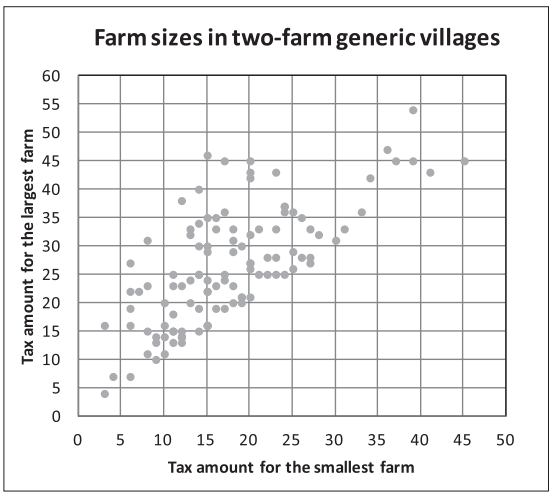


Figure 5.33. The correlation of the amount of tax between the two farms in a two-farm generic village.

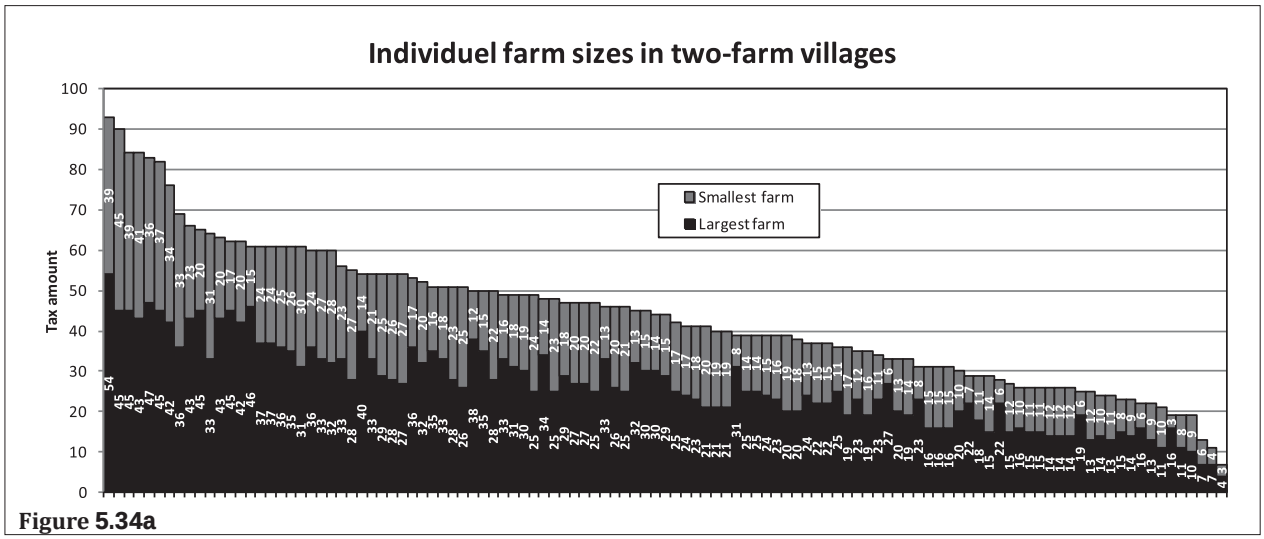


Figure 5.34a

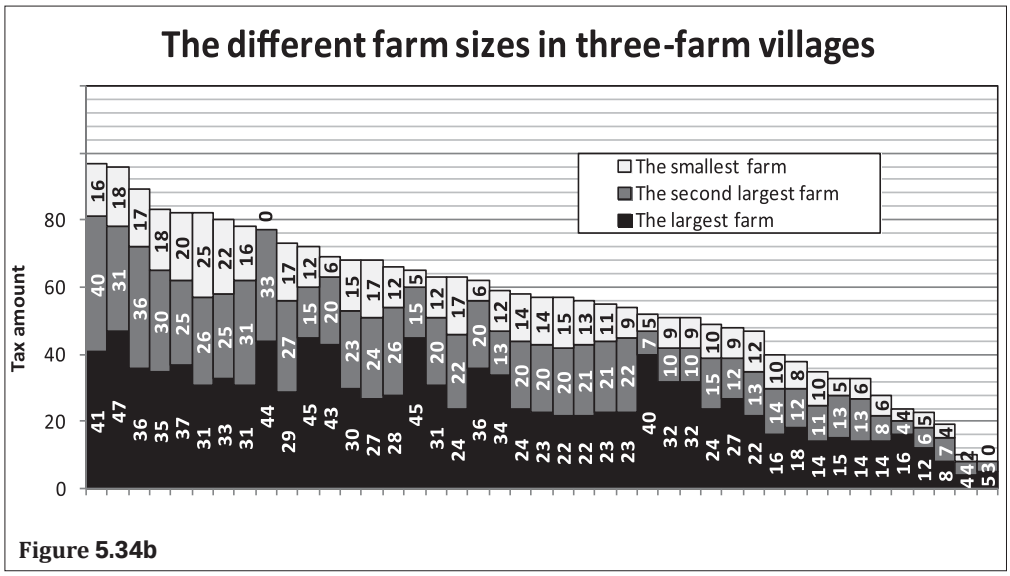


Figure 5.34b

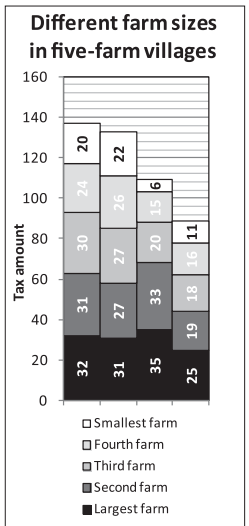


Figure 5.34c

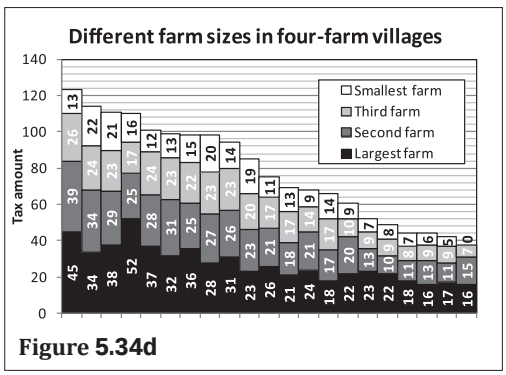


Figure 5.34d

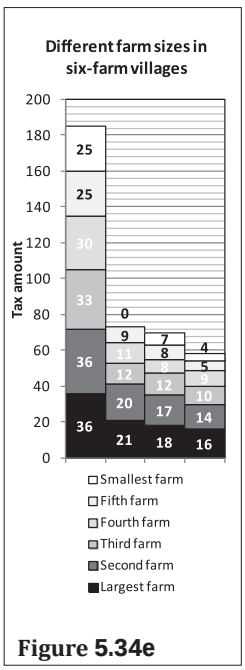


Figure 5.34e

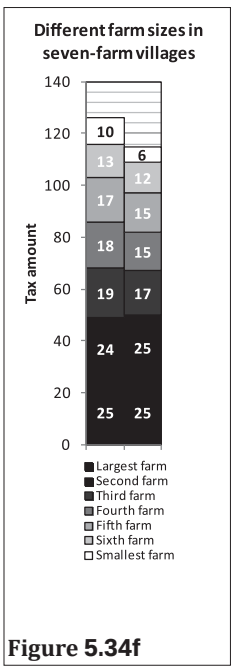


Figure 5.34f

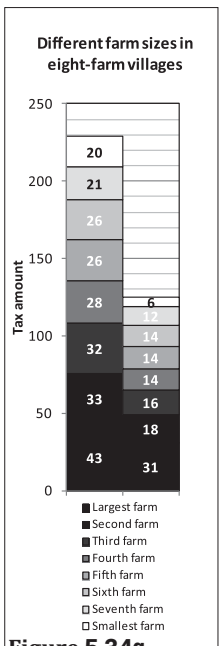


Figure 5.34g

Figure 5.34a-g. The different sizes of farms in villages

Chapter 6
Comparison between the mid millennium and 1700

As seen before there is a strong correlation between the mid millennium settlements and moraine soils. It has long since been noticed that the farms and fields in the 1700 were more apt to be situated on lighter, sandy soils. The shift from the denser clay- and moraine soils, utilised in the mid millennium, to the more permeable, sandy soils farmed during the historical periods have been noticed by many (cf. Arrhenius 1938:11f; Moberg 1938:18f; Lindquist 1979b:251). Moberg claims that it is a solution to the problem of drainage. In the flat landscape of Gotland, drainage is a problem and sandy soils have much better natural drainage (Moberg 1938:18f). However, there have not been any more detailed studies of these shifts to my knowledge, which will be done here, but first some analyses on a more general level will be presented.

In the table below is an account of the acreages and frequencies for different features regarding how they are distributed over different soil types. There is an almost perfect concordance between the stone enclosure systems and house foundations. When it comes to the historical situation, there is an increase in the use of sandy soils, but not so much as perhaps would be expected. The reason is probably that the sandy soils are not evenly distributed across the island, and in most areas the option of taking up new fields on sandy soils, is just not there. In areas where larger areas of sandy soils are available for many farms, there is shift, as will be seen later. However, for the actual farm tofts, there is a pronounced shift towards sandy soils for the 1700s.

The figures for the farm sites around the year 1700 are a bit different from what Lindquist (1979:250f) calculates. He calculates that 20% of the farm sites were situated on dense soils, like moraine, and the majority to be on sandy soils, in an early GIS based analysis. The difference is probably due to the choice of samples in Lindquist's study and to the quite low resolution of the used GIS layers, which was one hectare. The fact that Lindquist's study is based on the old geological map and the present on the new, also explains some of discrepancy, as explained in chapter 3.

Dan Carlsson argues that it is important to distinguish between the farm toft itself and the production landscape (the infields), as such. He concludes that the farm tofts have shifted location, but the production land is the same, both in location and extent (Carlsson 1979:40,127). This is only partly true, since at a more detailed level, it is important to make a distinction between different parts and types of the production landscape. Calculated on a sample of ten randomly

Table 6.1. Localisation of different features in relation to soil types. The calculations are based on raster layers with a resolution of 10 metres.

Type	All	Moraine & silt		Sandy soil		Unspecified soils	
		120 211 ha (39 %)		*81 906 ha (26 %)*		*110 364 ha (35 %)*	
Iron Age stone enclosure*	585 ha*	350 ha	60 %	120 ha	20 %	115 ha	20 %
Iron Age House foundations	1 969 #	1 201 #	61 %	379 #	19 %	389 #	20 %
Viking Age sites	109 #	61 #	56 %	38 #	35 %	10 #	9 %
Fields 1700**	19 718 ha	10 757 ha	55 %	5 907 ha	30 %	3 054 ha	15 %
Farm tofts 1700 (incl. vicarages)	1 681 #	651 #	39 %	696 #	41 %	334 #	20 %

* The acreage the stone walls themselves occupy in a raster layer with 10 metres resolution. It is not possible to calculate the mid millennium infield area with any reasonable degree of certainty, other than in rare cases.
** The sum is a bit too high since the used database is generalised and the fields are calculated as the entire fenced area around the fields, not only the tilled area, which is the area calculated by the coeval surveyors.

Opposite side: A place with continuity. The farm Änge in the parish of Buttle. At the bottom of the picture, the historical farm of Änge can be seen, with two picture stones and graves from the late Vendel period/early Viking Age, right beside an ancient road, leading through pastureland with Iron Age house foundations. Aerial photo from the excavations by Uppsala University in 2013 (see Andreeff 2012). Photo by Gunnar Britse.

selected parishes, almost 75% of the infields consisted of meadows and only 25% of fields in 1700. To my knowledge, no systematic analyses has been made of how the mid millennium fields relate to the Iron Age stone house foundations, but based on my experience, they were situated very close to the toft, as they were in historical times. There is a form of auto-correlation between the toft and the fields, which means that if the toft moves, so will also the fields, at least in the long run. There are some exceptions to this rule, but they are probably moves of a later date. This means that there is a shift of land use within the infields in many areas. This is also to a degree confirmed by the figures in table 3.2.1, in chapter 3, where nearly 50% of the Iron Age stone house foundations are found in meadows and only 13% in fields in 1700.

Also on a less detailed level, Carlsson's statement is only partly true. Carlsson generalises the results from his investigation area, which in many respects is not representative and thus does not pick up the local variations across the island. In some parishes, there is not much difference between the two time horizons, for instance, the parish of Anga. In others, there is what looks like a shift in both production land and farm tofts; at some places again, there is only a shift in the tofts. It is also clear that some areas, densely populated in 1700, were very scarcely populated in the mid millennium, and must be seen as the periphery. This is something that also Nihlén (1933:16f) notices. He stresses that there is continuity in many areas, and even though the farm tofts have moved, the 'frame' as he expresses it, of the settlement is the same, and he thinks that in many areas the present day neighbourhood communities (bygd), goes back to the Bronze Age (Nihlén & Boëthius 1933:16ff).

A quick glance at the Viking Age gives the following figures of how the settlement sites are located in respect of soil types. Of the 109 identified Viking Age sites, which most likely represent the toft of a farm or village, 35 % are found on sandy soils and 56 % on moraine soils, which is close to the figures of the 1700s, but different from the calculations made by Östergren in 1981. She calculates some 65% on sandy soils (Östergren 1981:41). The main reason for the difference must be because she uses a different sample, and that she also used the old soil map. The sample of Viking Age sites is small in the present analyses, so there is a degree of uncertainty. However, the figures confirm the result from the analysis in chapter 4, where the mean distances between the Viking Age sites and the 1700 farm tofts were found to be shorter than the distance between Iron Age stone house foundations and the historical farm toft (see table 4.1.2). It is clear that the soils and geological conditions play a key role in this pattern, even if it of course is not the only explanation.

To better portrait the difference between the mid millennium settlement areas and the historical ones, a comparison with the help of the prediction model, from chapter 3.2 can be made. The settlement areas from the mid millennium that were abandoned and were never resettled are probably impossible to predict with any available data. In addition, areas of 17th century infields on sandy soils, far from any moraine soils, are difficult for the model to predict. When it comes to the latter areas, the question is whether these areas were settled during the mid millennium or not. As presented before, the density in number of preserved Iron Age house foundations on sandy soils is less than half compared with those preserved on moraine soils.

Around 78% of the historical farms fall within the area of the prediction model for the mid millennium. This is roughly the same proportions as for the Iron Age stone house foundations, but the missing percentages in the two time horizons differ in location. Of the 370 farms in 1700 not located within the model area, around 270 are located on or near (within 50 m) sandy soils, which is 73%. When it comes to the Iron Age house foundations only 35% of those not within the model area (158 of 448) are on or near sandy soils. This indicates a difference in the settlement patterns between the two time horizons in certain areas.

Pettersson (1955) has also observed this lack of settlements in many areas populated in 1700, but he does not analyse the differences in the geological conditions between the different areas. Instead, his explanation is that the visible remains of any stone house foundations that might have occurred were destroyed by later activities, mainly farming (Petterson 1955:56). The absence of Iron Age stone house foundations on sandy soils is not total, but it looks like they are much fewer. Maybe the sandy soils had poorer supporting capacity or were utilised for other things.

The difference between the two cultural landscapes is depicted in fig 6.1. The cultural landscape of the year 1700 is defined as the infield areas with a 100-metre buffer applied, and the mid millennium landscape with the area

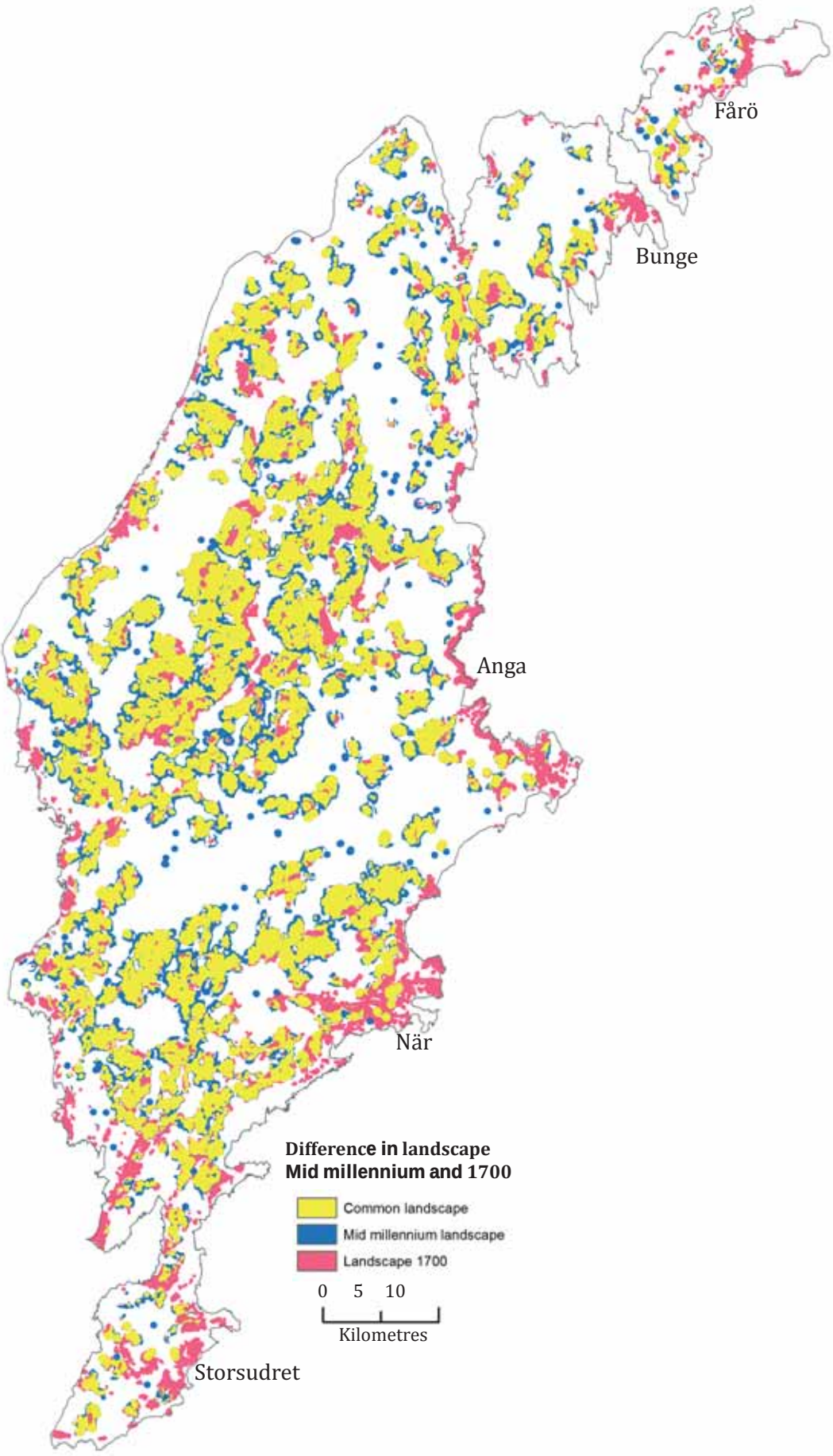


Fig 6.1. A Comparison between the cultural landscape of the mid millennium and 1700. The map shows the infield areas of 1700, with a buffer zone of 100 metres, and the mid millennium landscape, as predicted in chapter 3.2, as well as the common landscape of both periods. Since the mid millennium landscape is based on a prediction, the map must be seen as a generalisation and is not correct in every detail, but the broad outline, and as a general model it is believed to be correct.

predicted in chapter 3.2, plus the known house foundations outside of it. To some degree, the differences are of course due to weaknesses in the prediction model, but the map gives a good picture of the differences on a general scale, and shows the areas where the major differences are to be found. One striking difference is of course all the infields situated by the coast in 1700. The chronology of when they were established has never been studied, to my knowledge, but most probably this occurred already in the early Viking Age, as a result of the establishment of all harbour and landing sites, and a general expansion towards the coastal areas. The interesting areas for these coming analyses are mainly the many larger areas with infields only from the 1700s, which can be seen at some places; some of these will be presented more in detail.

A neighbourhood network was created for both the mid millennium farms and the farms of 1700 at a suitable distance, which was empirically determined to a bit more than one kilometre. Similar methods were used by Edgren & Herschend (1982) and Lindquist (1981) to depict settled areas and neighbourhoods, in their areas of study. Such network is good for visualising the neighbourhood communities (*bygd*) and, as in this case, the differences between two different periods.

The first area to be presented is Fårö. Östergren (2004) has observed that the majority of the preserved Iron Age house foundations are located in different areas than the farms in 1700. The majority of the Iron Age house foundations are found on the south-western part of the island, but the historical farms are mainly found

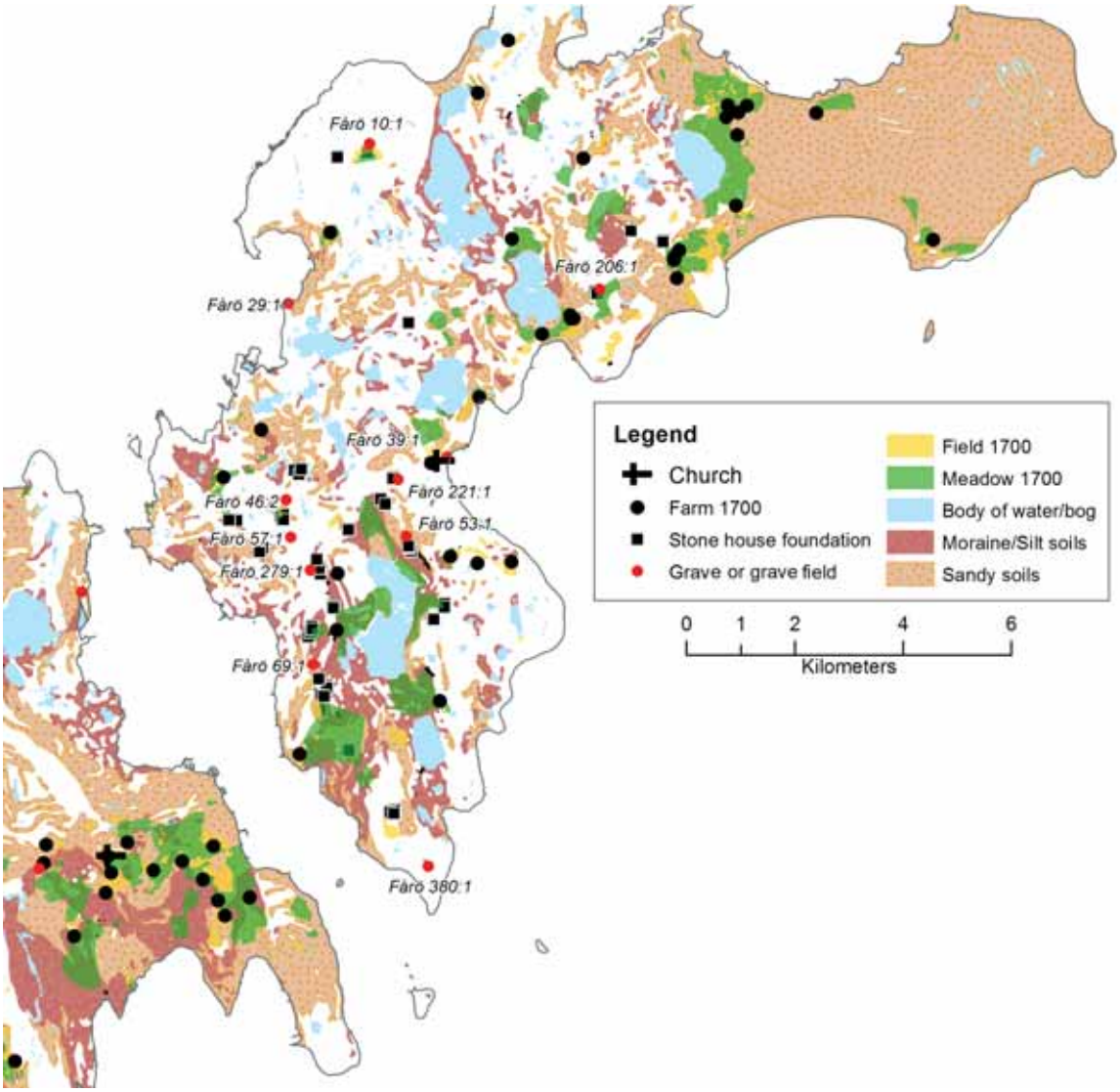


Figure 6.2. Comparison between 17th century farms and predicted areas of Iron Age sites on Fårö

in the northeast. Östergren speculates over the reasons behind the shift, and sees an overexploitation of the western part as the main cause (Östergren 2004:56). As also noted by Östergren (ibid), this picture is largely confirmed by the grave fields on Fårö, which correlate with the mid millennium settlements, as can be seen in fig 6.2.

However, there is a large difference in the soils between the areas. The north-eastern part, where most of the historical farms are located, is totally dominated by sandy soils, and moraine soils dominate in the south-west, where the mid millennium farms are located. Our model for Iron Age shows the same picture for Fårö ,the largest predicted areas occur in the southwest, but due to variables used it also misses some of the Iron Age farms, although only marginally, probably due to the thin soil covers on Fårö.

The fields on Fårö are most often much smaller and do not cover as large areas as in other parts of Gotland. Of the 199 hectares (ha) of field on Fårö in 1700, only 14 ha (7%) are on moraine soils and 98 ha (50%) are on sandy soils, and 87 ha (43%) on other or unknown soils, according to the new geological map. On Fårö, the difference between the old and new geological map is evident, since there are many areas, with obviously shallow soils. In studying the rectified older geological map, it is obvious that the domination of fields on sandy soils in the 1700s is even greater than the figures above indicate. Most of the 87 ha on other soils, seem to be on what must be thinner layers of sandy soils, since they are not depicted in the modern geological map. These figures make it evident that it is the soils, which are the prime reason for the shift in settlement areas on Fårö.

Even in areas where sandy soils are not so common, it is evident that it was very attractive. This can be seen in the parishes of Garde, Lau, Lye and Alskog, where a band of sandy soils attracted many of the farms in 1700. Not to the degree as in Fårö, but it is probably mostly because there are no larger areas of sandy soils, as on Fårö. The map in fig 6.3, clearly shows the different locations of the settlements of the mid millennium and in historical times, and that most of the grave fields and cairns are located by the house foundations. In the parish of Ardre, a completely new settlement area was established down by the coast, which is dominated by sandy soils. Some areas settled in the mid millennium are completely abandoned, both as settlements and as cultivated areas, sometime after the mid millennium. Some of them were still cultivated, mostly as meadows, but not settled in the 17th century. In fig. 6.3, abandoned areas are seen at Visne ängar and parts of Garde and Etelhem up in the northern part of the map.

The recent removal of house foundations due to modern farming has of course a part in emphasising the present picture, but there is a shift in location of fields and settlement sites to sandy soils between the two periods.

In the parishes of Anga and Kräklingbo, the shift is not so dramatic (fig. 6.4). In Anga, there are hardly any sandy soils at all, and the shifts are not that great, but at some places, it is clearly seen that the fields are laid on the existing small patches of sandy soils. In Kräklingbo, there is a shift of sites along a patch of sandy soils down towards the sea in the east. There are some small remains of stone enclosures and a grave field (RAÄ Kräklingbo 3) with a ship-setting and some smaller cairns in the area. According to Wehlin (2011), who has visited the grave field, it dates mainly to the Bronze Age and the early Iron Age, and probably not used after the early Roman Iron Age, and thus older than the mid millennium. Some of the stone enclosure walls down by the coast are probably not dated to the Iron Age, since they are situated on an elevation lower than the mid millennium shoreline. There is no known harbour or landing site at the coast in this area. The three historical farms closest to the sea are probably established quite late, and it is clear that the sandy soils in the area have motivated the location, since all fields are located on sandy soils.

If the distance from the Iron Age stone house foundations to the farms of 1700 is considered, there is a difference between the parishes with a great deal of sandy soils and those without. The distances for the parishes where many stone house foundations are preserved, are also calculated, as can be seen in table 6.2. There is a much greater distance between the settlements of the two periods in parishes with plenty of sandy soils.

Table 6.2. The distance between Iron Age stone house foundations and the nearest farm 1700.

	Distance to farm 1700
In parishes where sandy soils are less common: Akebäck, Anga, Barlingbo, Dalhem, Högrän, Mästerby, Vall and Vänge (105 stone house foundations and 119 farms 1700)	492 m
In parishes where sandy soils are common: Alskog, Burs, Garde; Grötlingbo, Lau, Lye; Rone and Stånga**.** (115 stone house foundations and 194 farms 1700)	761 m
In Parishes with many known stone house foundations: (Kräklingbo, Anga, Norrlanda and Buttle)	480 m

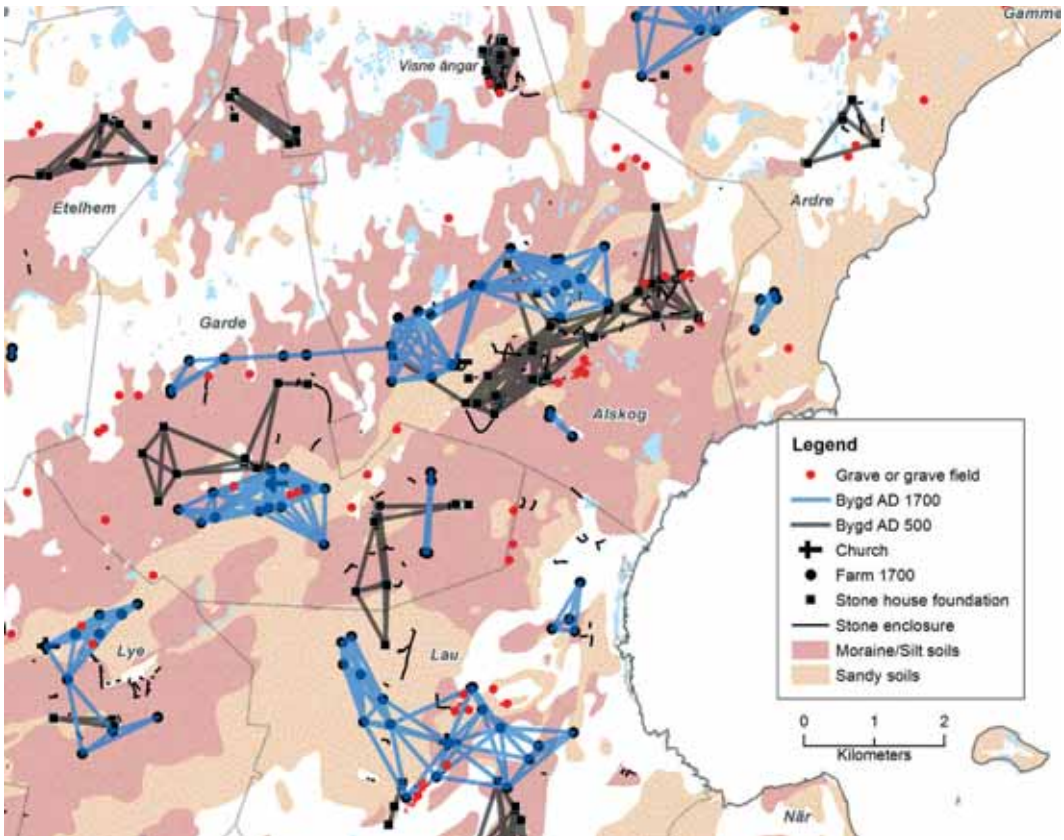


Figure 6.3. The difference in settlement areas between the mid millennium and 1700, in the parishes of Lau, Garde Alskog and Ardre

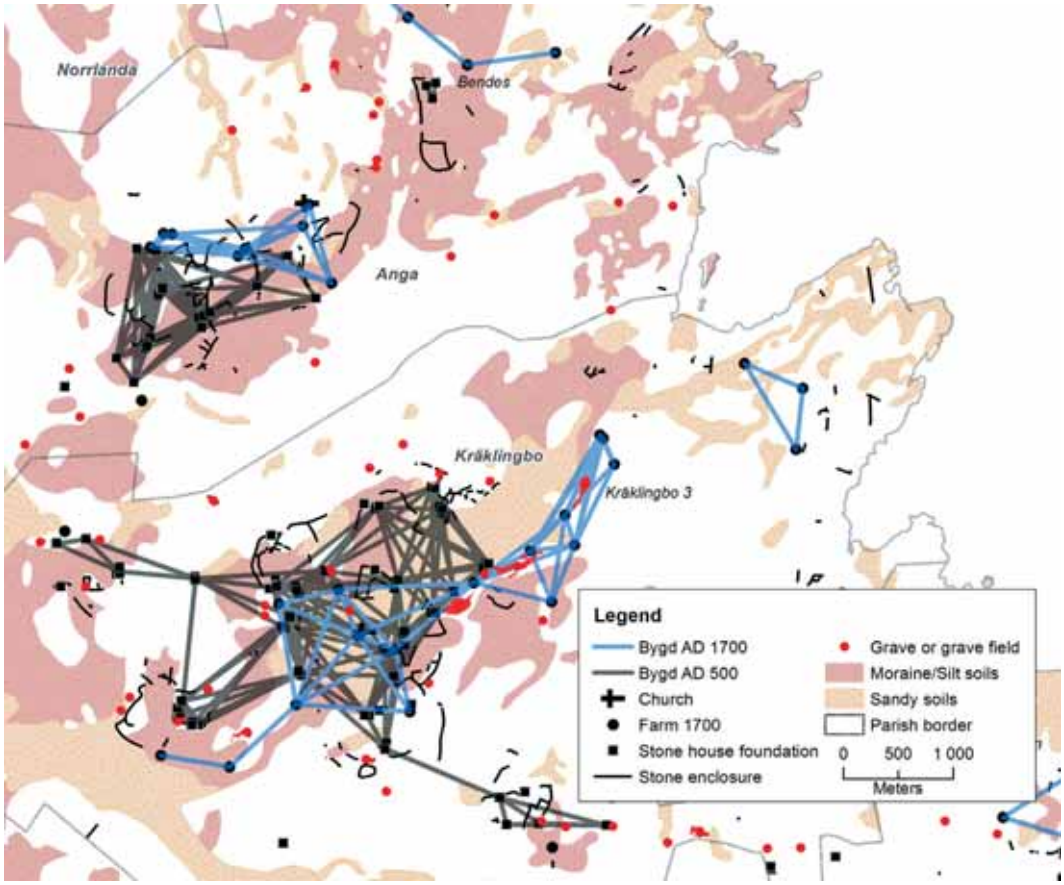


Figure 6.4. The difference in settlement areas between the mid millennium and 1700, in parts of the parishes of Anga and Kräklinbo

It has been argued that one of the main reasons for the shift of the location of settlements to the sandy soils was a need to come closer to the roads (Östergren 1989:196, 219ff, 243). The roads are often built on sandy soils and along sand eskers, especially on the banks of the former shorelines of the Litorina Sea and the Ancylus Lake, since they have good natural drainage, and are thus suited for fields as well. Kalle Måhl (2002) has studied the road network on Gotland, but it is difficult to make any more general conclusions from his analyses.

According to his analyses the Iron Age stone house foundations are situated further from the roads found in the GM1700 maps than the Viking Age and Medieval farm tofts are. However, within the mid millennium settlement areas, many abandoned roads have been found (Måhl 2002:188). This indicates a restructuring of the road network and according to Måhl, new roads were constructed as communication routes to the churches, which was an important institution in the medieval society (ibid:77), and to the harbours (ibid:143).

An example of an old road, which did not attract many historical farm tofts is found in the area of När and is shown in fig 6.5. The road goes from an area with many Bronze Age cairns in Alskog to another similar area in Burs. Both these areas were probably central areas in the Bronze Age since there are many cairns at both places. The road has most probably continued, slightly inland, further south along the coast. Most of the way, it is bordered by graves that indicate that it probably was an important main road, connecting several larger areas of settlements. Only a few sections are still used as road, but is visible in the GM1700 maps most of the way. There are several mid millennium settlements along its path, but not many historic farms. The farms are mainly situated along the present road, which is seen to the north on a sand esker (fig. 6.5). The age of this road is not known, it is probably also old, but there are not many graves along it. As can be seen in fig 6.5, most farms of 1700 are on sandy soils, while the mid millennium settlements are situated slightly to the side on the moraine soils, where also most of the graves are located.

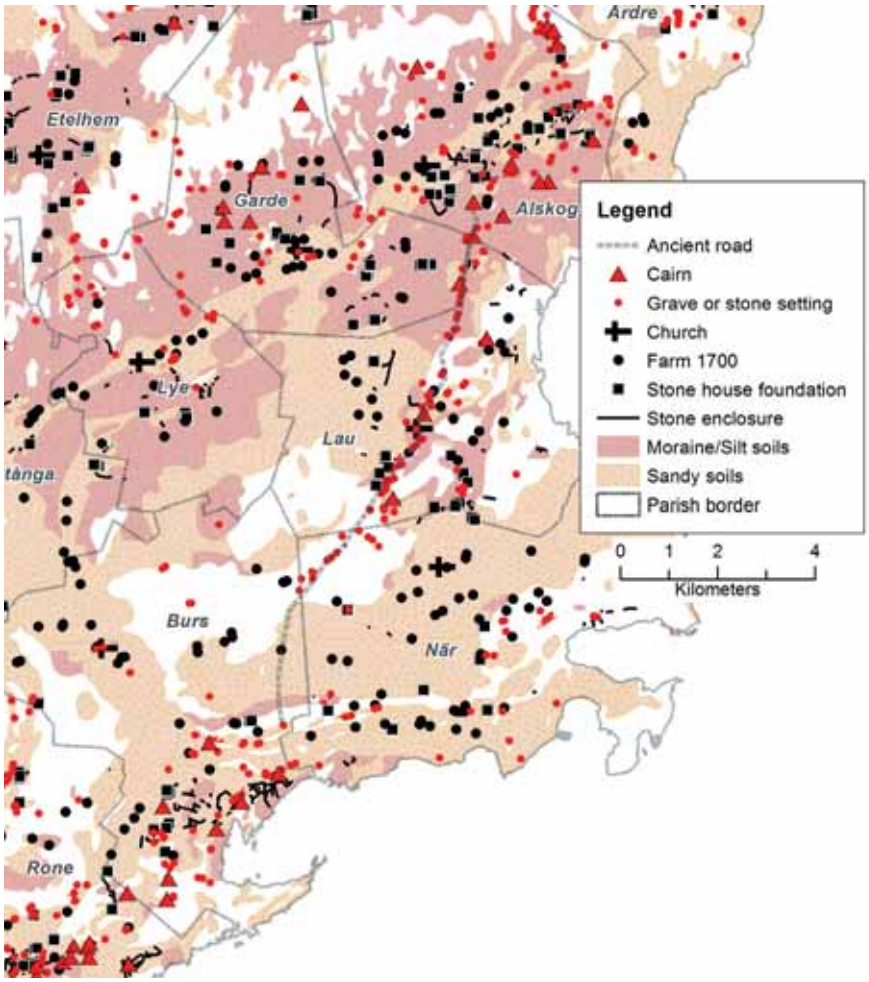


Figure 6.5. An ancient road going from the parish of Alskog to the parish of Burs. Along most of the way, it is bordered by graves.

This example, and the two from Fårö and Kräklingbo, indicates that the agricultural conditions on the sandy soils are the main reason, and not the roads themselves, for the shift of settlement sites. Many of the roads found in the GM1700 maps are probably old, but as Måhl has shown in his study, it is clear that when the farm/settlement moved, a new connecting road, a *kvia* in Gotlandic, had to be built by the settlers (Måhl 2002:124).

My conclusion is that the road network is more adapted to the new settlement structure, than the settlement structure is adapted to an existing road network.

Another area, which probably did not contain many mid millennium farms, is the parish of När. It is totally dominated by sandy soils. The land ownership in the parish seen in the GM1700 maps is very complex and unusual. Nearly 25% of the field acreage in the parish is owned by farms in neighbouring parishes and large areas of wasteland constitute commons owned by the Crown. Most of these lie in areas at the coast (fig. 6.6b). This might indicate that much of När parish is old common land and maybe utilised in a collective manner during the mid millennium and that the later settlements, probably starting in late Vendel period or early Viking Age, occurred on these commons.

There are 40 farms in 1700 and they are often small; the mean tax for all farms in the parish is only 15 daler, which is lower than the average of 21.3 daler for the entire island. Moreover, in the parish of Lau, the part of the coast bordering to När belongs to the Crown or farms in other parishes, mainly Garde, but far from the same degree as in När.

The areas with fields owned by many farms, often in other parishes, are called *samsåkrar* (jointly owned fields) and they are often located nearby common fishing hamlets, according to Moberg (1938:36). This is also the case in När, where several harbour and landing sites are located by the coast (ArkeoDok 2013 No. 13). Another well-known example of a *samsåker*, is the very large field, named Bunnäs åker in the parish of Sundre nearby the fishing hamlet Revet, where many farms in neighbouring parishes own land parcels.

None of the few house foundations in När situated in the southern part, far from the model area, seen in fig. 6.6a, are confirmed and they must be regarded as uncertain. They are only noted in old surveys in 1907-08 or in 1939, and even then, only vague traces were seen that were hard to interpret (RAÄ När 14, 182, 183). They are all gone now.

There are ten grave fields; the largest, dated to the Vendel period and the Viking Age, containing more than 800 graves (RAÄ När 6). Five of the other grave fields are situated close to the small areas predicted as suitable settlement areas of the mid millennium, but four smaller grave fields are situated very close to the coast. One was placed directly on the shore; it was excavated and removed in 1959 (RAÄ När 52). It contained datable finds to the 5th and 6th centuries. It is probably connected to some coastal activity and not to any of the farms. The other three are

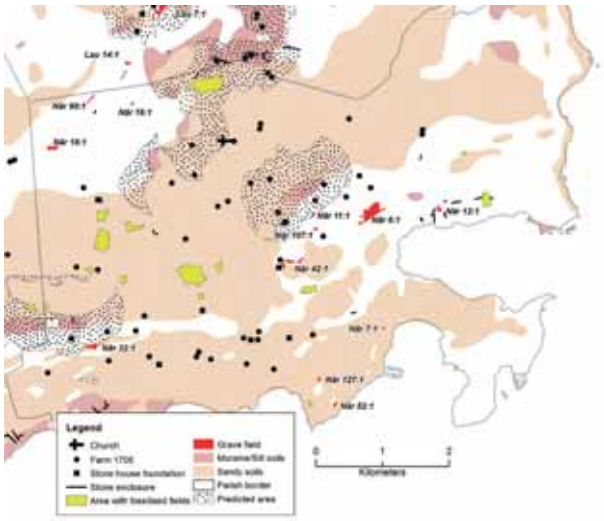


Figure 6.6a. Soil types, predicted area for Iron Age stone house foundations and certain types of ancient remains in the parish of När

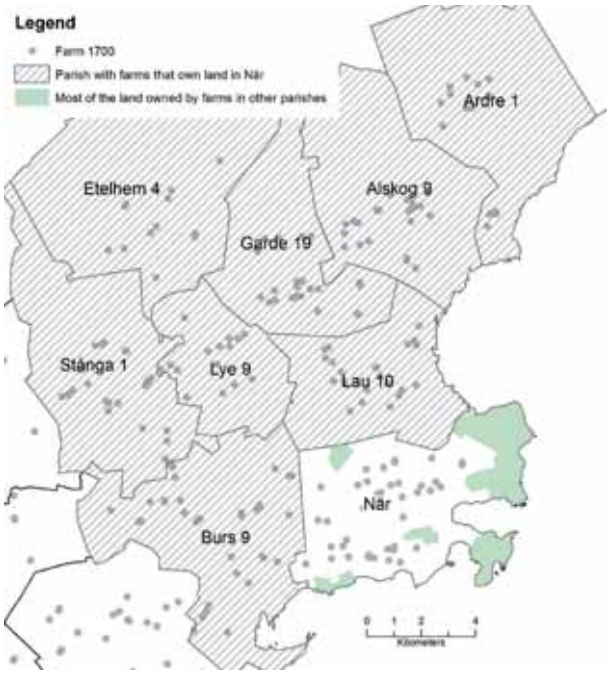


Figure 6.6b. Land owned by farms in other parishes and commons owned by the Crown in När

Table 6.3. Number of farms and in other parishes that own land in the parish of När.

Alskog	*9*	Lau	*10*	Stånga	*1*
Etelhem	*4*	Ardre	*1*	Lye	*9*
Garde	*19*	Burs	*9*		
The Crown own land, used as commons at 6 places (*kronoallmäning*)					

undated but have similar locations, close to the shoreline. Evan though När is largely cultivated today, the lack of house foundations and grave fields cannot be solely explained by recent removal. Compared to other cultivated areas, the modern field systems in När looks much more cluttered with many patches of wasteland and the fields are not so continuous. När also has

12 areas with preserved fossilised fields, mainly from the Bronze Age and Pre-roman Iron Age (Arnberg 2007:269) within the present field system, seen in fig 6.6a, which does not match with a high degree of removed ancient remains.

The parish of Hamra is also totally dominated by sandy soils and was probably settled at a late stage. It had remarkably small farms in 1700, and the mean tax is as low as 10.6 daler, which is only half of the mean for the island. According to FMIS, there are very few prehistoric graves, situated in one small grave field. Most of the farms in Hamra are situated quite close to the coast, which strengthens an interpretation of late settlement.

Comparison between the village structures of the two periods

No continuity between the villages can be seen in any statistics between the two time horizons at the parish level. In the diagram in fig 6.7, the frequencies of villages can be seen for the 51 parishes analysed for both time horizons. There is no correlation; it is even negative with a correlation coefficient of -0.13. The result of a visual interpretation of the map confirms this. The villages in the two time horizons are not in the same areas in the parishes, and it is hard to see any continuity in the spatial locations.

The descriptive statistics for the two time horizons for the whole island show a different picture. In the tables and diagrams in figure 6.8, it can be seen that the farms situated in villages are distributed among the different village sizes with the same proportion in the two periods. The correlation between the number of farms in different village sizes is 99.9 %. The relationship between the amount of solitary farms and farms in villages does not show the same high correlation, but there are no big differences. The similarities between the two time horizons for the whole island can be seen as a form of continuity, at least in the fundamental features of the village structure, which shows its old origin.

No continuity at a parish level can thus be shown, which probably has several causes, like recent removal of stone house foundations and the changes in farm locations between the two time horizons, as discussed above. In addition, the fluctuations in the number of farms/households is probably also to a degree responsible for this discontinuity at the local level. Two periods of expansion are identified, which are the mid millennium and the Viking Age/Middle Ages. The processes behind the expansion in both time horizons are the same, however. There was

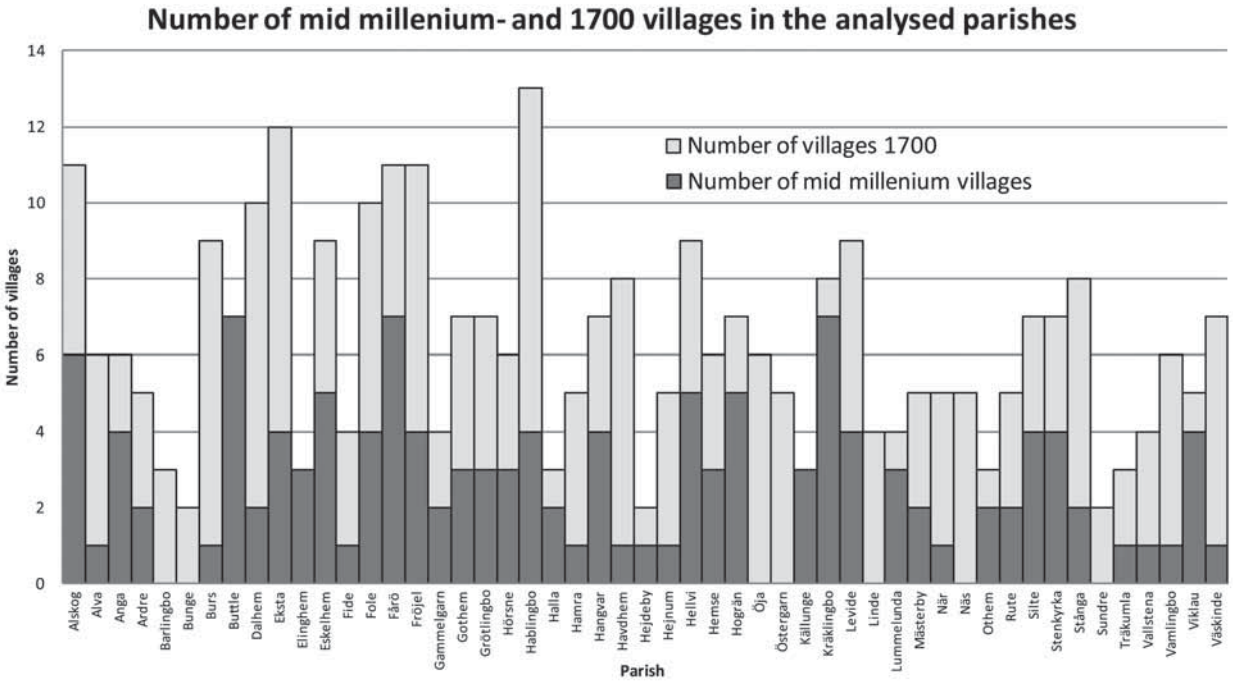


Figure 6.7. The number of mid millennium and 17th century villages in the 51 analysed parishes. There is no correlation at all and it is in fact negative with a correlation coefficient of -0.13.

probably also a flexibility in the village organisation, which allowed them to fluctuate in the number of farms/households over time. Nonetheless, the long-term trend is an expansion of more and more farms, but with sudden drops of the number of farms in times of crises of minor or major character, after which the process starts again, which will be discussed in a coming chapter.

The expansion periods occurred in the form of internal and outward colonisation. Internal colonisation means that the already settled areas become more densely settled. The meaning of outward colonisation is that the colonisation moved further from the central areas, to the edges of the settled areas or to completely new ones. Ersson is of the opinion that on Gotland, the first colonisation was outward and when there was no more available land, an internal colonisation took place (Ersson 1977:12). This is in contrast to the results of Sven-Olof Lindquist (2001) in a study of the colonisation on the island Öland and the Möre region in the county of Småland. His results show that before the outward colonisation started, an internal colonisation took place, making the central settlement areas more densely populated; later, the more remote areas were taken up for cultivation (Lindquist 2001:481f).

On Gotland, there is a clear difference between the mid millennium expansion and one of the Viking Age and Middle Ages, since the outward colonisation obviously appeared in different areas.

In the mid millennium, the expansion was mostly to areas in the woodlands, in the central parts of the island. Many of these areas were not repopulated in historical times and many Iron Age stone house foundations are found in such areas today, apparently unaffected by later activities, as can be seen in fig 6.1. Some occur around the parish of Buttle, where several mid millennium settlements have been identified. These new, remoter areas in this outward colonisation process are believed to be situated on soils of less quality and were the first to be abandoned, in times of decline. This is, as addressed several times in this work, not certified and needs further research.

In the expansion during the Viking/Middle Ages, the coast was a new area to be utilised for new farms and fields, as seen in När and Hamra, as discussed above, but also at several other places.

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gum orum þet wir sculum
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hailsu oc þet et wir magin halda
cristindomi orum oc tro rettri oc
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kuna seng sina þann hann . barn fangit

Chapter 7

Farms, villages and the society on Gotland

The existence of villages on Gotland has not been acknowledged by most modern researchers, as discussed earlier. The absence of villages is explained in different ways. Sporrong, for instance, sees Gotland as a relict area with its social conditions, including birth control to limit the population, and a ban to divide farms; this could be a reason for the lack of villages (Sporrong 1970:33f, 1981:35). Since the results of the analyses, presented above, show that villages on Gotland have existed, the question must be; why did not regulated, fiscal villages emerge in the same fashion as in most regions on the mainland?

The answers to such questions are probably found in the different development of the Gotlandic society, compared with societies in other parts of Sweden, especially from the late Iron Age and onwards. This leads to a society organised by other principles, which will be discussed here. Thereafter, I will present my view of the role and character of the villages on Gotland, and why the fiscal and regulated village never emerged on Gotland.

Governance and social order on Gotland

Some issues, which have been discussed over the decades, are the degree of social stratification on Gotland, the existence of any landed gentry and the magnitude of the influence of the *Svear*[1], and the emerging Sweden. I suggest that the existence of a strong central government, in the form of a king, and land-owning gentry, with vast estates, are two key factors in the formation of the regulated medieval village, seen on the mainland. The different views in these questions thus have bearing on my interpretations of the origin and development of the generic villages, so there is a need to discuss some aspects of these matters.

1. *Svear* is the denotation of the people living in *Svealand*, with its central areas around the Lake Mälaren.

The society during the mid millennium

Based mainly on analyses of the structure of the mid millennium villages on Öland, Fallgren concludes that the larger farms in the villages were most probably owned by the aristocracy on the island. He makes an analogy with the Saxons, which in the 8th century were divided into four distinct social classes, which is also described in their coeval laws. Fallgren interprets the large farms in the village, as similar to manors in a medieval estate, and socially dominating the other farms in the village, even if they most probably owned their farms (Fallgren 2006:143ff).

Can the Gotlandic society during the mid millennium also be described in the same fashion, as a hierarchical society? I think the answer to a large degree is no. In saying this, I do not suggest that differences in status, wealth or influence did not exist, but rather that there was no ruling class. Considerable differences are seen in relation to some other areas, especially parts of Denmark, where densely structured villages were predominant. Cassel studied the Iron Age stone house foundations in her thesis, along with most other types of remains of the material culture from the Roman Iron Age on Gotland, which she compares to Denmark and sees evident differences. She argues that the development in Denmark is not the same as on Gotland. According to Lotte Hedeager the formation of the central power during the Roman Iron Age and the kinship-based relationships were in Denmark replaced by other relationships with a professional army, which became the power base for the ruler (Hedeager 1992:246). Cassel sees no traces of such development on Gotland as described by Hedeager for Denmark. On the contrary, Cassel argues that social ties based on kinship became stronger on Gotland. Furthermore, she points out that changes in other parts of Scandinavia cannot automatically be transferred to Gotland (Cassel 1998:126ff).

Opposite side: A page from the Gotlandic version of the Gutalag (B 64, KB [hs A]), written on vellum. Reproduction by Jens Östman, Kungliga biblioteket.

She suggests that the larger farms were not farms of families dominating and ruling other families, but they were just the central farm of families more or less equal (Cassel 1998:161). She defines larger farms as groups of a larger number of houses and 'special' types of houses with finds out of the ordinary. These were not only the central farm for each family, but also the centre for the family's production (Cassel 1998:123, 161).

Cassel suggests that there has not been any central power on Gotland, but the island consisted of several smaller communities (Cassel 1998:181). These communities were led by families, with a leading role, who resided at smaller centres. Cassel identifies some places as centres of such leading families, like Sojvide in the parish of Sjonhem, which is situated only around 2.5 km southeast of Broa in the parish of Halla as the crow flies, or Havor in the parish of Hablingbo. She has not been able to identify any aristocracy, separated from the farmer community, which indicates that the leaders were a part of the ordinary society, and took part in the production (Cassel 1998:161, 167ff, 173ff, 181).

This is well in accordance with the result of the analysis of the Iron Age stone house foundations presented in chapter 3. The larger farms of different sizes are more or less equally distributed across Gotland, and were probably such central farms and centres as Cassel suggests.

The independence of Gotland

Several scholars want to link Gotland administratively to the Svea-realm from the latter part of the Iron Age and onwards, implying a large influence of foreign royal power over the Gotland society. Hyenstrand creates an administrative division of Gotland based on a model from the early Sweden (Hyenstrand 1989:51ff). He primarily uses names containing Stenstugu, (house of stone) which according to Anders Carlsson (1983), indicates some type of centre of an administrative district (Hyenstrand 1989:55f), which was believed to have been established under Svea influence (Hyenstrand 1989:131ff). Hyenstrand suggests that Gotland had the same degree of freedom versus the Swedish king[2] as any other part of Sweden, maybe even less (Hyenstrand 1989:135). Ola Kyhlberg uses different arguments and focuses on other data; his argument is also mainly based on place names although he uses the distribution of Snäck names instead, which he believes to be central places. In addition, the distribution of early Swedish coins suggests that all of Gotland was controlled by the Swedish king with an administrative system copied from the Mälar region and the presence of a foreign royal power, which Kyhlberg argues must be the Swedish king (Kyhlberg 1991:237ff).

Both models are quite hypothetical and are based on models created for the Lake Mälar Valley. The assumption about the meaning of the name Stenstugu, as being some kind of storage for armoury or some other kind of central storage is launched by Anders Carlsson without any empirical data. He is not taking into account, the interpretations made by toponymists, who for a long time have convincingly argued that the common Gotlandic place name Stenstugu is linked to the erection and presence of stone houses in the middle Ages (Olsson 1984:200). The models for a strong influence of the Swedish king, created by Hyenstrand and Kyhlberg, are not very convincing and in my opinion, there is no real evidence of any major influence from the mainland on the administration and internal affairs of Gotland at the time.

In some sense, Gotland can be regarded as a part of the Swedish realm, but the influence of the Swedish king was very limited. The king's relationship to the Gotlanders was not regulated in the Guta law (GL), and the only known account is in the Guta saga (GS), according to Lindkvist (1983:282f). In the Guta law, the king was not mentioned and he had no rights to any fine, like he had in the rest of Sweden's regional laws (Wessén 1945:XXIII & XXXIX), which is a very strong indicator that he had no judicial or administrative power on Gotland. During the Middle Ages, fines were an important source of income for the royal power, and if the Swedish king had any major influence, he most surely would have taken his share of the fines, like he did in all other parts of his realm. On Gotland, all secular fines were paid to the Gotlanders themselves at different administrative levels. The highest was 'till landet' (to the country), which means to the All-thing, the highest central administration on Gotland (see Holmbäck & Wessén 1943). Fines to the king, were introduced on Gotland by the Danish king Hans in a revision of the Guta law in 1492 (Lerbom 2009:61).

Even if the Uppland law in one paragraph states that the Swedish king is also king over the

2. Before the formation of the Swedish kingdom, sometime during the early Middle Ages, which consisted of both *Götaland* and *Svealand*, the relationships that are referred to are the *Svea*-king and the *Svea*-realm.

Gotlanders, Gotland's relationship to him was, as described in the Guta saga, clearly defined and of a different character than with the other regions. It involved paying a fixed tax amount of 60 mark of silver, and to assist in warfare against heathen countries with seven fully manned ships, so called snäcka. Beside this the Gotlanders had, what we can call a 'trade agreement' with Sweden, in which all realms were opened up for each other's merchants (Yrwing 1978:19ff). Gotland is what is sometimes referred to as, a tribute country or taxpaying country, to the king of Sweden (Schück 1945:194f; Yrwing 1978:19, 95). In the latter part of the 13th century, the Swedish king Magnus Ladulås strengthened his influence fiscally by enforcing new tax regulations and Gotland became a bit closer linked to the Swedish kingdom. The events in the early 14th century, with battles between the king and the Gotlanders, however, shows the independent nature of Gotland vis-à-vis the Swedish king (Yrwing 1978:23-38). The king had no representation or state demesne or other properties on the island. After the Danish conquest in 1361, the taxes were instead paid to the Danish king (Andrén 2011a:11f).

In addition, the rights of the bishop on Gotland were limited in the Middle Ages. Gotland was part of the bishopric of Linköping, where the bishop and the king had a large influence, but this was not the case on Gotland (Pernler 1977:9). It was the Gotlandic priests not the bishop, as usually was the case, who selected the rural deans. This right was acknowledged several times by the Pope during the Middle Ages, probably because the right was threatened by the bishop. Most likely, such a right was maintained throughout the Middle Ages (Pernler 1977:154f). The bishop had incomes from Gotland, but there are indications that the Gotlanders did not have to pay tithe to the bishop like the rest of Sweden, even if it is not possible to confirm this for certain (Pernler 1977:150). The bishop of Linköping had no representation of his own on the island and his rights were severely restricted. The responsibilities and rights of both the bishop and the Gotlander were regulated in detail. Fritzell argues that the regulations in the agreement between the bishop of Linköping and the Gotlanders, almost has the character of a business deal, which not only regulates the financial issues, but also limits the authority of the bishop and gives the Gotlanders a uniquely independent position in proportion to the bishop (Fritzell 1975:30).

Yrwing is of the opinion that the strong judicial position of the parish on Gotland, which is discussed below, is because the bishop had little authority, as opposed to the mainland, where the bishop was the centre in ecclesiastical issues. On Gotland, the authority was in the hands of the local community at different levels (Yrwing 1940:106f).

There are thus no reasons to believe that there was any direct intervention or large influence from any foreign powers on the laws or the administrative system of Gotland during the Viking Age or early Middle Ages.

Even after the Danish conquest in 1361, Gotland was mostly left to manage its own internal affairs, via its traditional administrative bodies. These mainly comprised the 20 local *ting* (Thing) and the *Allting* (All-Thing), which was the central authority and judicial body for the whole country. Through these different administrative bodies, Gotland was governed by the free landowning Gotlandic men, who resided on their farms (Visby is excluded here for simplicity), under the leadership of judges, also living on the countryside owning farms. These farms are referred to as *domargårdar* (magistrate/judge farm).

Hierarchies and stratification

The nature of the local government and how 'democratic' it was and especially the role and powers of the judges have been debated. Depending how you interpret the source material, very different societies can be depicted. I will here give very short account for the main thoughts of the three most referenced scholars in this issue. It is clear that the judges had some privileges and were relieved from some of the taxes, but had to pay others (Siltberg 1993:36).

Carl Johan Gardell argues for a very 'undemocratic' and non-egalitarian society on Gotland, far from any egalitarian society based on equal rights for all freeholders, at least from 1412 and until 1618 when Danish reforms altered the situation. He is of the opinion, that the judges were an oligarchy, which he also calls a 'farmer aristocracy', governing capriciously in their own interest, without any written law or keeping any records and without any public control. This gave the other farmers a thoroughly insecure position; in matters like taxes and juridical issues, they were at the mercy of the judges, who controlled both (Gardell 1986:153f).

The number of *domargårdar* was limited, and they often remained the same farms throughout the decades, moreover, the judges were often closely related. Therefore, Jens Lerbom (2003) argues that the office of judge was reserved for a limited number of people, knitted together by kinship, and that these families constituted an élite in the Gotlandic society. According to a revised version of the Guta law from 1492, and later Danish decrees, the judges were treated as an upper strata together with the burgers of Visby, rural deans and priests; they were socially separated from the ordinary farmers. This élite also manifested its wealth and scholarship through more elaborate tombstones, with inscriptions in Latin, unlike the other rich farmers who mainly used Gotlandic and runes (Lerbom 2003:173ff).

A scholar who objects to these views is Tryggve Siltberg, who considers that Lerbom and Gardell depict the judges as too powerful and dominating. According to his view, the farmers of Gotland participated and were highly active in the political life at the different Things (Siltberg 2006:279f, 285f). Siltberg is of the opinion that the judges were recruited from a group of well-to-do farmers. He suggests that for the first half of the 17th century, some 90% of the judges come from any of the largest 425 farms, which constitute the top quarter of Gotland's farmers. He argues that the 20 or so judges could not have dominated this group (Siltberg 2006:280). Siltberg suggests that the tax reliefs and the share in taxes entitled to the judges was a fair pay for the services rendered, and cannot be seen as an exploitation of the other farmers (Siltberg 1993:34ff).

The much summarised debate above, rests mainly on a source material from the 16th and 17th century and only few sources from the later part of the Middle Ages, which are tombstones with engravings. Consequently, the time span to the period before the medieval agrarian crises is considerable. Lerbom suggests that it is very probable that the mid 14th century, with all the catastrophic events hitting Gotland, like the Black Death and the Danish invasion, is a watershed in economic, political and cultural terms for the island (Lerbom 2006:293). That I fully agree with, which will be discussed shortly. This means that any picture painted of the early historical times, becomes very uncertain if extrapolated back in time before the mid 14th century or earlier. It is thus problematic to know how 'democratic' the different levels of administration of government and justice were, and to what degree the common farmers participated in the political life and decision-making. Important and influential men are mentioned in the Guta saga, like *Avair Strabain* from Alva who is said to negotiate the treaty with the *Svea*-king after many others had failed (GS chap. 2). In another passage (GS chap. 3) is it said about *Likair den vise* (Likair the Wise) from the parish of Stenkyrka:'*Han rådde mest på den tiden*' (*He ruled the most at the time*). The exact meaning of the last statement is unclear, but I suggest they are just influential men or at the most *Landsdomare*, (County judge) of the island, with for us unknown mandates and powers, which is a thought first brought forward by Fritzell (1974b:6).

Linked to the issues discussed above is the question regarding the presence of any landowning aristocracy or landed gentry on Gotland. The latest debate was held recently between Anders Andrén (2009, 2011b) and Tryggve Siltberg (2011b), which will be addressed soon. For a long time the society of Gotland had mostly been described as quite egalitarian with no landed gentry, comprised only of free farmers. This notion has been questioned in recent decades, and a more stratified Gotland, with large estates, has sometimes been depicted. Hyenstrand's administrative system, briefly described above, is based on the presence of *storgårdar*, (large farms, estates), possibly even large estates, which are the administrative centres and the homes of an aristocracy, linked to the *Svea*-realm. He suggests that the formation of these estates might be the cause of the changes in settlement pattern seen on Gotland after the desertion of the mid millennium settlements (Hyenstrand 1989:131ff).

For Hyenstrand the area around Broa in the parish of Halla plays an important role in his reasoning. By the farm of Broa on the border between the parishes of Roma and Halla, the only crossing for miles of two large bogs is located. Here many roads from different parts of the eastern part of Gotland merge and there are many single graves and large grave fields in the area, e.g RAÄ Halla 46, 48 et alis (see fig 7.1) Some hundred of these were excavated some decades ago, not yet reported, so the material is still to be analysed and interpreted. For the late Vendel and early Viking Age, there are some finds that indicate a high status milieu and wealth. According to Nylén (1979b:137) the quality and exclusiveness of the find can match the finds of Vendel and Valsgärde in Uppland. Mainly based on this, Hyenstrand places a large estate in the area, possibly linked to the *Svea*-realm. It is how-

ever not self-evident to interpret such finds in the same way as on the mainland, as Hyenstrand (1989:124) does with these few rich graves.

On the mainland, it is logical to interpret finds like these as the graves of kings or aristocracy, connected to the emerging *Svea*-kingdom and the medieval nobility, since we have the answer. In the Mälar Valley, there are numerous traces of an emerging élite manifesting its presence in the landscape with monumental grave mounds and boat-graves (Ljungkvist 2008:277f). It is known that a kingdom with aristocracy was created, which probably started to form around this time. To our knowledge, no kingdom and no landowning aristocracy with estates were formed on Gotland. There are no traces of such things in any records; all we have are some rich graves. This almost certainly represents a very important and high-ranking person or family in the Gotlandic society, but does not make him or them, a great landowner or petty king.

The finds from the grave fields at Broa are by some scholars linked to the farm of Hallgårde, some two kilometres north of the Broa grave fields. Hallgårde in the parish of Halla has many attributes of an important place (see Broberg et al 1990), but should most probably not be interpreted as a *storgård* (estate), at least not as it appears in the first historical maps (LSA, H39-1:1). It was a large farm, the largest in the parish, paying 53 *daler* in tax in 1747, but it was not exceptionally large and the distribution of the land does not suggest that it ever had been much larger. However, if the small farm of Kambs and the church land once were a part of Hallgårde, it would have been some 30% larger. In the present work, a generic village is identified just to the north, which consists of three farms not including Hallgårds. This village is bigger with a combined tax sum for all three farms of 98 *daler*.

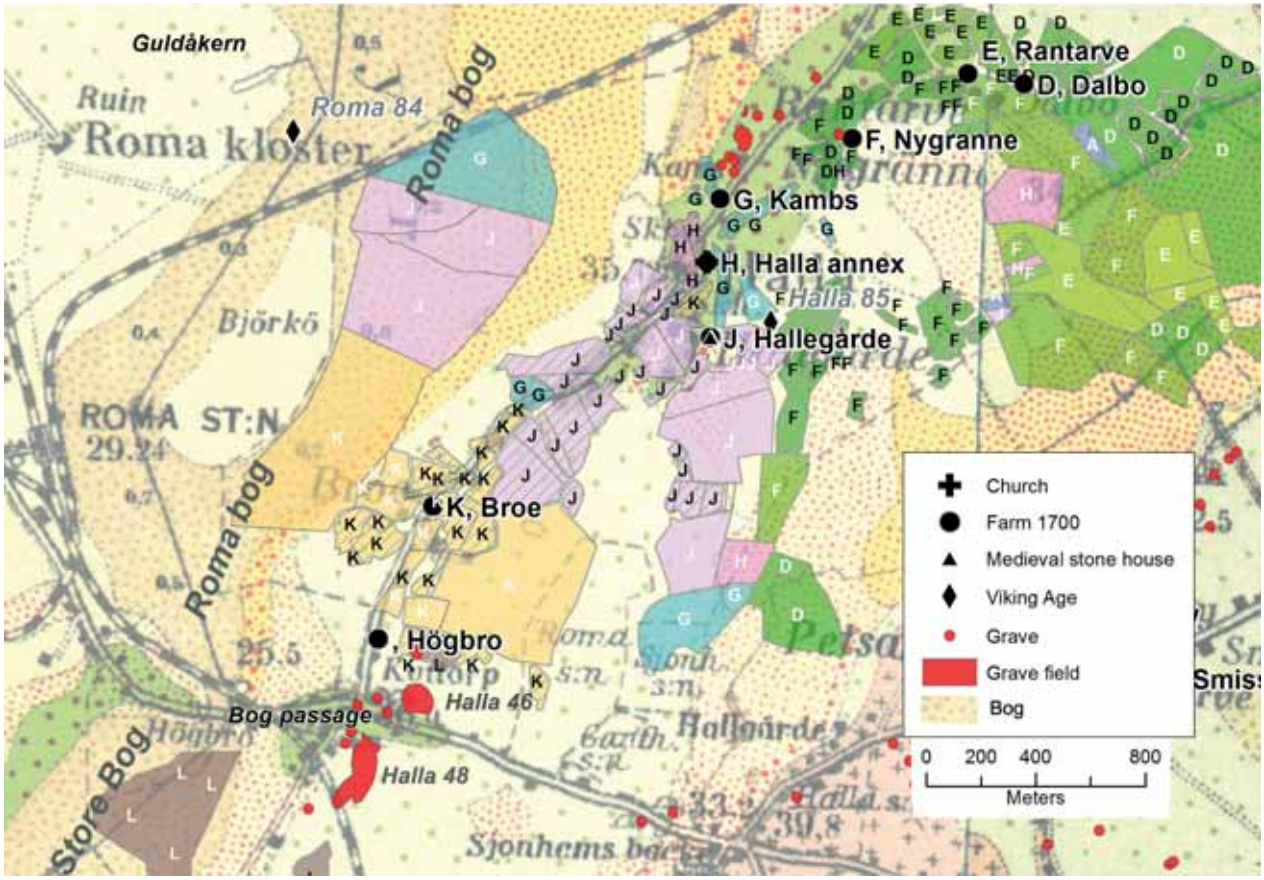


Figure 7.1. Parts of the parishes of Roma and Halla, with the possible place for the All-thing, the farm Hallgårde and the place where the bog can be crossed. (A fair copy of the map LSA, H39-1:1, superimposed on the geological map SGU, Aa160 Klintehamn).

Hallgårds is situated near Roma, the most likely assembly place for the Gotlandic All-Thing, but to link Hallgårds with Roma is a not self evident, since it is on the wrong side of the two large bogs, with the narrow bog crossing over to the Roma side, about 2.5 km to the south. The distance to the likely place of the assembly in Roma, is only around 2 km as the crow flies, but by road it is 5

km, which makes it less suitable if you want to have control over Roma. The Thing place is believed to be situated in connection with an area called *Guldåkern*, (the gold field) (RAÄ Roma 85), which is an area with extensive traces of trading activities, but the exact spot is not known (Östergren 1990:64). Nanouschka Myrberg has suggested that the assembly place for the Thing might be on a small islet named Björkö in the bog, situated some 1.6 km from Hallgårde. This idea is based on analogies from the British Isles, where Thing places sometimes were situated on islets in lakes (Myrberg 2009b:107ff). There is however, no physical evidence or known ancient remains supporting such an idea in the case of Roma.

If Hallgårds is linked to Roma, it ought to be located on the other side of the passage place or just by the passage place to be able to access control. The role Hallgårds and the graves at Broa played in the Gotlandic society is unclear and the connection to Roma cannot be ruled out, even if it is not ideally situated for that.

A less rigid view of the presence of any landed gentry on the island is taken by Andrén in a recent (2009) contribution. The focus of the article is the debate about the formation of parishes and who erected the first churches on Gotland in the Middle Ages, which is closely connected to the question of a hierarchical society. I will not comment the entire article, since most of the things discussed are not issues in line with the objectives this thesis, but he has interpreted the features I present as generic villages as *storgårdar* (large farms, estates), which I thus must say a few words about.

Storgård according to Andrén does not mean the same type of large estate or very big farms, which existed in other parts of Scandinavia, owned by the nobility, but a more modest version (Andrén 2009: 50, 2011b:234). Andrén paints a picture of one of these larger, dominating farms in more or less every parish; the owners of these took the initiative to erect the first churches in many of the parishes, and the names of these large farms have given name to the parish in most cases. Many times the farms were not big enough to finance such a project on their own, and had to do it in cooperation with the neighbours. The *kastal* (small fortification tower), which exist at some parishes situated by the church, should also be seen in this context according to Andrén (2009:45ff).

I partly agree with the picture of Gotland being to some degree stratified during the Middle Ages, but not to the degree seen on the mainland at the same time, and the stratification is based on the control of other resources than land, which will be discussed further on. Probably, landowners existed who owned more than one farm on Gotland, which is indicated by paragraphs in the Guta law, both concerning inheritance (GL chap. 28§8) and the leasing of land (GL chap. 47§1). These land holdings were probably of a temporary nature. They were not merged into any larger lasting estates, but were formed by one owner and then dissolved, in the same way as can be seen in later times in the cadastres from the 18th century, where sometimes persons owned more than one farm.

The objection and question I have to Andrén is that if these larger estates existed as frequently as he depicts, were did they all go. Property rights are considered rigid structures and are not easily changed (Holm 2012:10), so what processes obliterated all of them? I cannot find any plausible answer to this question, and thus I do not believe the picture is likely. Siltberg also raises the same objection towards Andrén's conclusions (Siltberg 2011b:128). Even so, there were crises, like the medieval agrarian crisis with several outbreaks of plague, aggravated by the invasion of Valdemar Atterdag and later events; summed up, these probably took a large toll of the Gotland society. Nevertheless, I cannot see these catastrophic events impoverishing the landed gentry to the degree that they lost all of their estates. Many of these dramatic events in the mid 14th century also struck the mainland without such dire consequences for the landed gentry as a class.

Important arguments for Andrén's reasoning are centred on the church itself. These consist of the traces of higher estates as seen in church architecture, like the existence of early west towers and second floor galleries, open towards the nave, but also the fortified towers, *kastal*, in close connection to the church etc. (Andrén 2009:35, 49ff). However, his main argument is based on the results of map studies, using the same method as in the present work. As described in chapter 5, this method is primarily based on examining how the parcels of land are mixed among farms in the earliest geometrical cadastres of the island, the GM1700. Andrén confines his studies to the areas around some churches, based mainly on the work of Ersson. The mixing of several farms' parcels of land close to the church is by Andrén interpreted as the traces of a large farm on whose land the original church was erected.

As discussed in chapter 5, the matter of how vicarages were formed, makes such interpretations problematic, and I have been cautions in my interpretations of land belonging to the church. I have not studied all of the parishes Andrén refers to, but I do have some vicarages that form generic villages with other farms in my examples, like in the parish of Dalhem and maybe also in Barlingbo, since they appear to be examples of former farms in villages.

In the presented analyses in chapter 5, the structures with mixed parcels of land, which are interpreted as village structures, are found in any location in a parish and more often far from the church than close to it. In addition, there are often many generic villages in each parish, so if they were the remains of farms of magnates, *storgårdar*, the higher estates would have been a very large part of the Gotland population. As seen in the maps in fig 7.2a-b, the spatial correlation with churches is low. Only 41 of the 188 identified villages were situated closer than 1 km to the church and 108 were closer than 2 km to it. The mean distance is around 1.9 km.

Andrén also argues that the names of the parishes were often derived from these large farms he identifies (Andrén 2009:41). I have not investigated the matter of names in any depth, but one interesting example is found in Fide, where there is no existing farm named Fide, but there is a village called Fidbyn (village of Fid), as mentioned earlier, so the names Andrén argues are names of large farms, might as well be old village names.

By not supporting Andrén's idea about the *storgårdar*, I do not say he is wrong about who built the first churches, I just do not think that control of land paid for it. If Andrén is right, most probably trade generated the capital. Andrén has made what I believe to be a correct observation at the end of his article, where he reflects about the connection between the first churches and the leading merchants on the island (Andrén 2009:52). Whether or not just a few rich

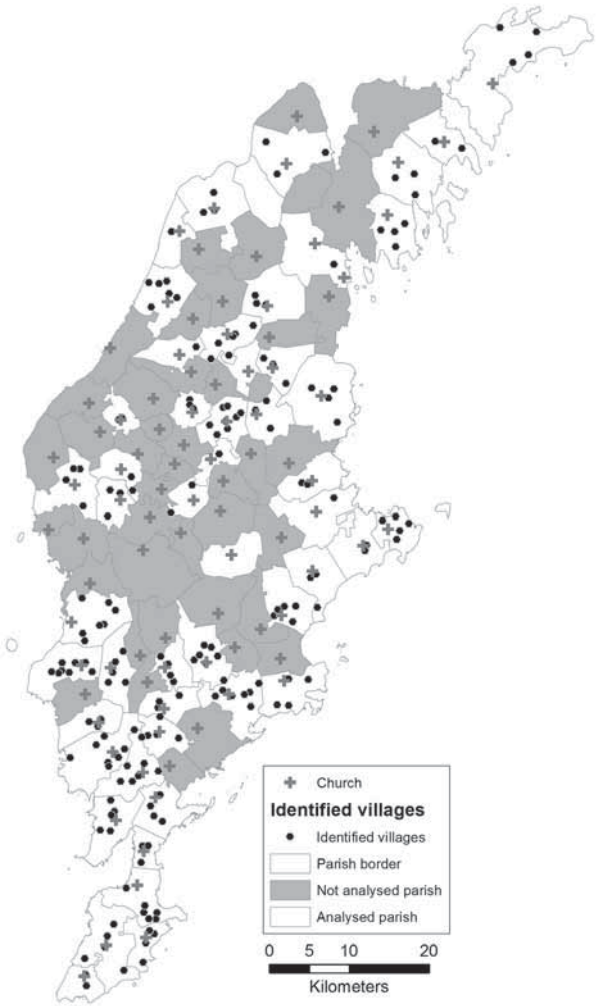


Figure 7.2a. All the identified generic villages.

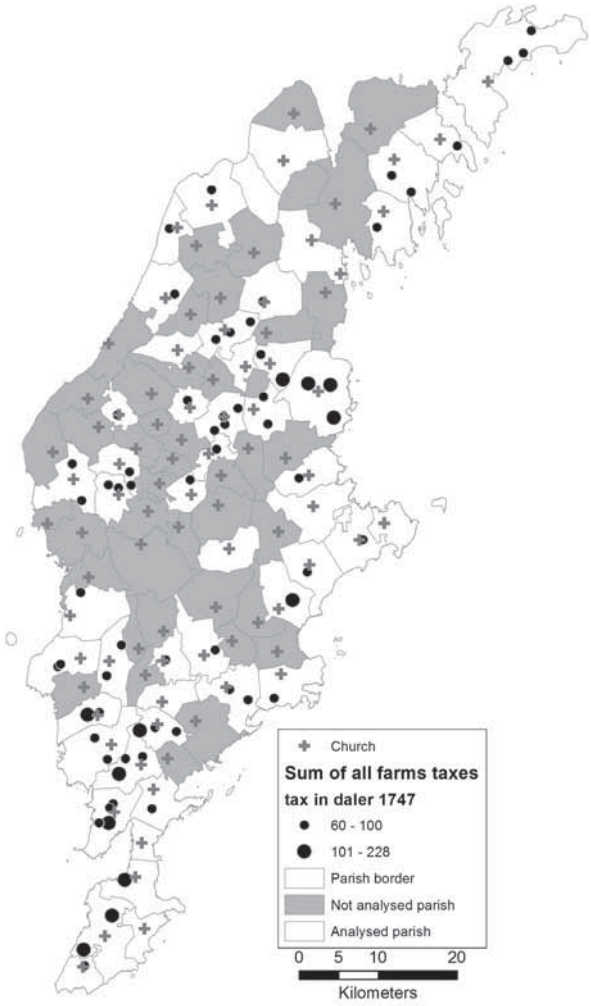


Figure 7.2b. All villages in which the sum of taxes of all farms are more than 60 *daler*

merchants financed the churches, or whether all landowners contributed, as the rune inscription in Anga suggests, is not important in the present work; I will thus leave this question open. The important thing is that I believe the socio-economic stratification on the island was based on the control of trade and not on control of real property formed to estates, like in most other places.

Middle Age stone houses and trade

Andrén also argues that the stone houses on Gotland is proof for large farms (Andrén 2009:41ff), which I believe is not the case. When looking at the distribution of the known medieval stone houses, they are concentrated to mainly two areas (see map in chapter 4). Around 40 are located in the area east and northeast of Visby and about the same amount in the southernmost parishes, called *Storsudret*. The Visby group could probably be linked to trade in Visby. There is a clear connection to Visby, since in the same areas as the stone houses, a lot of land was owned by the burgers in Visby or institutions connected to Visby, like the Hospital, which can be seen in the GM1700.

Before the civil war between the town of Visby and the countryside in 1288, the city was not independent, but a part of the Gotlandic political sphere (Blomkvist 2010:99).

In the southern group on *Storsudret*, the village of Norrbyn in the parish of Vamlingbo was situated, which in 1700 consisted of seven farms on a row, with less than 100 metres between each of them and five having remains of medieval stone houses. In the cadastres of 1653 and 1700, the farms on *Storsudret* are not particularly large. Of the more than 100 farms on *Storsudret*, only 10 farms paid more than 30 *daler* in tax in 1747; the average farm paid 16 *daler* on *Storsudret* and the mean for the entire island was 21 *daler*. Expressed in *marklej*, in 1653, only 9 farms had 10 or more, which is not large at all. The mean for all of Gotland is around 9 *marklej*. The mean tax for all farms on Gotland with stone houses was slightly higher (27 *daler*) than the average (21 *daler*), but there were also many small farms with stone houses[3]. This certainly does not indicate any areas with many large, dominating farms, but the stone houses must have been expensive to build and demand financial resources.

For the southern group the riches most likely came from the stone industry, which was very early here. This link between the stone export and the many times magnificent stone houses on *Storsudret*, is advocated by Waldemar Falk (1976:19). According to Anna Larsdotter and Annette Landen there is a concentration of old quarries in the southern part of Gotland, around Hoburg and Hemse (Larsdotter & Landen 1993:44ff; Landen 1997:85). The stone quarries most probably started already in the 9th century, but the industry was not considerable until the middle of the 11th century (Landen 1997:85). The oldest types of baptismal fonts were made of sandstone and the sandstone is concentrated on *Storsudret*. Of the around 140 quarries on *Storsudret*, the majority are sandstone quarries (Andrén 2011a:28). Baptismal fonts, and other stone artefacts made of sandstone or limestone were major export articles and are found in abundance around the Baltic Sea and in Denmark, of which many probably came from *Storsudret*. The most likely explanation for this is that both the know how of working in stone and the building material were common here, as in the Visby group, and the incomes from the stone industry supplied the capital to build them.

The rest of the medieval stone houses spread throughout the countryside, were most probably also owned by leading merchants, likely to operate from other harbours and landing places, than Visby. According to Blomkvist, most of the farmers probably also participated in the trade activates (Blomkvist 2010:109). This does not contradict the idea that most of the trade was in the hands of a few.

There are around 200 known medieval stone houses, excluding vicarages, and probably some unknown; say that there have been somewhat more than 200 stone houses on the countryside, excluding vicarages. It is very hard to say how many farms/households there have been in a total at the same period, but a qualified guess would be that around 10% of the farms had stone houses, which constituted the homes for the bulk of the socio-economic élite. Since the stone houses vary in size and elaboration, there must have been differences within this group too, but it is within this group the heads of the trade must be found, those who consequently also took the bulk of the profits.

The rest of the farmers most probably lived in a uniform and standardised type of small wooden farmhouses, like those found at Fjäle in the parish of Ala, or Bingeby in Visby, or Hul-

3. Examples of small farms with stone houses are: Duss (14.2 *daler* in tax), Ytlings (15.2 *daler*), Suderbys (14.6 *daler*), all in the parish of Bro. Hägvier (6.2 *daler*), Kastelle (8.7), Svalstäde (2.3 *daler*) in Vamlingbo and Sigfride (8.8 *daler*) and Lasses (7.8) in Öja and several more.

tungs in Bunge and in the trading place of Västergarn. Besides the stone houses, nearly all medieval houses excavated on the countryside are of this type. There is however one slightly more elaborated variation of this kind of farm, which was found at the excavated medieval farm at 'Heilig Geist' on the border between the parishes of Endre and Fole. The farm was excavated in 1937 and consisted of four houses. The dwelling house was of the standard type found on Gotland as mentioned above, but there was one building with some unusual features. It was some eleven metres in length and consisted of three rooms. The middle room was built in stone, possibly with a barrel-vault and was interpreted as storage house (Bohrn 1942:63ff).

Figure 7.3a. The dwelling house (building 1) at Heilig Geist, which is of the standard medieval type found on Gotland (From Bohrn 1942. Fig 2 p. 63).

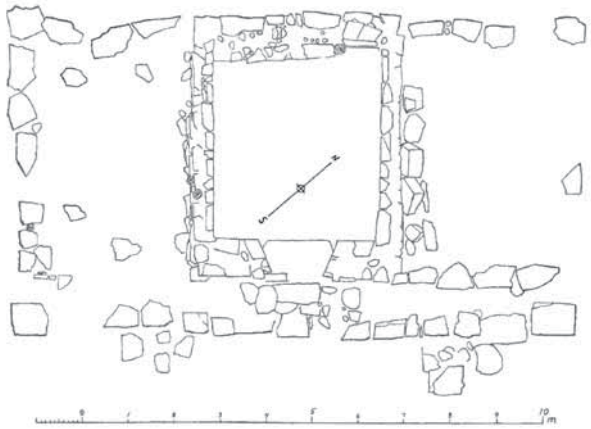


Figure 7.3b. Building 2 at Heilig Geist, which is of the unusual type, with what is interpreted as a three- room building, where the middle room is built of stone, possibly with a barrel-vault (From Bohrn 1942. Fig 3 p. 64).

Blomkvist also discusses socio-economic differences on Gotland, and takes his point of departure in the famous Anga list, which is a runic inscription on the wall in Anga church, naming all who contributed to the building of the church. There are fourteen names mentioned of which one or two contributed with four draught beasts, five or six with two and the rest with one. There is some uncertainty concerning some contributing persons, but Blomkvist concludes it reflects the social differences within the class of freeholders, and can be divided into three levels (Blomkvist 2010:91ff).

Two or three medieval stone houses have probably existed in Anga, one farm is named *Stenstugu* (stone house), and it might be the farm of one of the top contributors, probably Häggmund, who made the largest contribution with four draught animals. The farm Hemmungs is a part of the generic village consisting of Stenstugu, Hemmungs and Botes. Within the village territory, the deserted farm of Hägdarve is situated (Eriksson 2010a:ode217), which can be connected to the Häggmund mentioned in the Anga list. Ersson (1974:85) mentions a now vanished medieval stone house situated between the farms Botes and Hemmungs, which might be the remains of the stone house of Stenstugu, however. At Österby there are remains of a medieval stone house, found underneath the present farm house (Ersson 1974:85), which might be the residence of Liknvid, who according to Blomkvist (2010:92) made a second and even larger donation to the church.

Olof Holm (2012) has in a study of the common denominator for areas in Scandinavia with only freehold land and no landed gentry during the Viking Age and medieval times, shown that a high degree of trade is of major significance. His main area of investigation is the county of Jämtland, which is situated by the border between Norway and Sweden, in the southern part of northern Sweden. According to the famous rune stone on Frösön, Christianity came to Jämtland from Sweden. During the Middle Ages it was under the Norwegian crown and became Swedish in the same peace treaty as Gotland in 1645. In Holm's study, Gotland and some other areas are reference areas, which confirm his results. They are all areas with a high degree of trade and were socioeconomically stratified, but not hierarchically structured (Holm 2012).

He argues that there are two main reasons for an area to be either dominated by estates owned by landed gentry or by freeholders. One reason is favourable prerequisites for agriculture and the other is trade. On Gotland, the prerequisites for agriculture are good, yet no estates were formed. This is, according to Holm, because there were no incentives to develop estates of

real property in areas, where it was easy and profitable to engage in trade (Holm 2012:164). I find this a very plausible reason for the lack of landed gentry, but on Gotland the strict rules concerning sale of land, must also be considered as a constraining factor in acquiring land and forming estates.

Exactly to what degree Gotland was stratified during the Viking Age is of course difficult to say. In 1988, Anders Carlsson expressed thoughts partly similar to those above, but for the Viking Age. According to him, the Viking Age trade was controlled by a few men, and it was the control over the silver that substantiates their power, and not the control over real property. He suggests that their farms were not necessarily larger than others were (Carlsson, A 1988:204). Carlsson considers that all the small silver hoards found in the soil are merely the pay of Gotlanders who manned the Viking ships, hidden by men who perished on some later journey (Carlsson, A 1988:204f). The picture he gives is of a quite stratified society, controlled by a small élite during the Viking Age.

According to Östergren, the silver is found all over the island mostly in smaller hoards, dating from the most part of the Viking Age, and potentially on any farm. Hoards dated to the latter part of the 11th century, until the practice of depositing stopped in the middle of the 12th century, tend to be concentrated to few, but larger hoards (Östergren 1989:65). This might indicate that the control of the transit trade was concentrated to fewer hands and the stratification increased during the Viking Age (Östergren 2008:14).

The golden days of Gotland was over after the merchants on Gotland's countryside were outmanoeuvred by Visby and others in the lucrative transit trade, followed by the events of the latter part of the 14th century that will be accounted for later. This led to that the bases for the rich socioeconomic élite in the countryside collapsed, and they did a 'downward class journey', if the expression may be permitted. Since they did not possess any large estates of real property, like the aristocracy in other parts on Scandinavia, they had nothing to fall back on and an impoverishment and thus socioeconomic levelling occurred. This scenario agrees with the fairly egalitarian Gotland society of farmers we meet in the historical sources. Of course, there were rich and poor farmers, and a stratum of *storbönder* (well-to-do farmers) existed, but the differences were probably much less than before. This is one indication of the period being a watershed in the history of Gotland, when great changes in the Gotlandic society occurred.

According to Yrwing, the trade did not completely cease, but shifted in extent and character and continued on a much lesser scale. Only the domestic surplus was traded during the later part of the Middle Ages, and not transit trade with foreign merchandise like before, with some odd exceptions (Yrwing 1978:145ff). To my knowledge, it is not known whether it was the same families as controlled most of the transit trade that continued trading with domestic products.

Farms, villages and social organisation

In her interpretation of the Gotlandic society during the Roman Iron Age, Kerstin Cassel suggests that the farms were organised in larger units, which she refers to as unregulated villages or *hägnadslag* (enclosure district). These were based on some kind of kindred relationship (Cassel 1998:161). Cassel's thoughts about the villages on Gotland as being established on the grounds of kinship are not new, neither concerning villages on Gotland nor villages in general. On the contrary, it has since long been an established view that villages originated and were sprung out of kinship. Even if Jan-Henrik Fallgren interprets the social structure as hierarchical on Öland, he sees the villages as based on social- and kinship groups (Fallgren 2006:186).

In my opinion, this applies to both prehistoric- and historical villages on Gotland. The feudal society based on landowning and control over the agricultural surplus of landowners (Lindkvist 2004:168) and the forming of new relationships and loyalties was never introduced on Gotland. Kinship relations seem to be central throughout the Viking Age and early Middle Ages and constitute the backbone in the Gotland society, which is clearly indicated in many of the Guta laws paragraphs. No other regional laws have so detailed and strict rules around selling land and to whom.

I think the basic structures of the society and the villages were much the same on Gotland during the mid millennium and the Viking Age/ early Middle Ages.

The traditional view of family and kinship in prehistoric Scandinavia was the notion of *ätt* (family, clan). However, this view is often based on an unspecified idea of an original Germanic society, being based on a patrilineal, agnatic linage family, or sometimes matriarchal, which stemmed from a common ancestor. This is in line with an evolutionistic concept of society in which the primary stage, in some unspecified past, occurred before man became sedentary, as described by Åke Holmbäck (1919:7ff), and he advocated the existence of such a society on Gotland (ibid:14). In this traditional view of the Germanic society the farm and the land is seen as being the property of the *ätt* (clan) rather than of the individual. The individual had no right to sell or give away the old clan-land, which was understood as a specific and delimited piece of land. The base for this view of the clan-land, was interpretations of the old regional laws and other written sources from Scandinavia, which have restrictions concerning to whom land could be sold. The members in the clan had far-reaching rights and say, called *bördsrätt* (birthright), in transactions with real property (Winberg 1985:10-29).

During the past half century, this view of the clan-based society has been challenged by many scholars in different disciplines, and must be regarded as outdated[4]. Today a much more complex and nuanced discussion on family structures in Scandinavian society is at hand. Two of the early critics of the traditional view of the family based society, David Gaunt and Alexander Murray, believe that the relationship system in Scandinavia was bilateral. Gaunt argues it can be traced at least as far back as to the Viking Age (Gaunt 1983:200). According to Murray, Tacitus' description of the Germanic society is of a society built around bilateral family relationships, making it even older (Murray 1983:57). The family was based upon the kindred, this means that the relationships all members had to each other made up the family. The term clan (*ätt*) is still widely used, sometime with an unspecified meaning and I will use the term clan as a description of a broader circle of relatives, an extended family without giving the term the old meaning of a clan-based society.

Concerning the existence of specified family land connected to the birthright, Winberg suggests there was no such land since it seems evident that the regional laws treated all real property the same and made no distinction between old family land and land that had been acquired later. He points to the fact that the family in regional laws was clearly bilateral and that the birthright, along with those who were considered legal stakeholders in the in land transactions, often followed the rules of inheritance (Winberg 1985:29). Both Gaunt and Winberg think the paragraphs concerning restrictions in selling land and the birthright merely can be seen as a protection of the rights of the heirs (Winberg 1985:29, Gaunt 1983:209).

In the Guta law there is mention of genealogies in the form of written genealogical tables. It is stated in the Guta law (GL chap. 20 § 14):

> *'Ingen oäkta son kan göra sig god till arv, utom i det fall att han har äkta gotländsk både fader och moder, och han styrke då med skrift i ättarskrå'*
>
> (*No illegitimate son may claim inheritance, except in the case he has a genuine Gotlandic father and mother, which he must validate in writing by a genealogical table*).

The circumstance that the Gotlanders obviously kept written genealogical tables, to keep track of their ancestors, does not necessarily mean that the society must be agnatic (patrilineal) and/or unilineal. In a study of land and inheritance in 18th century Hälsingland, which is a landscape with much in common with Gotland, Elisabeth Wennersten identifies the social groups to be constituted of bilateral kindred groups. They were horizontally integrated between different households and vertically between the generations via cognatic kinship systems, also known as bilateral and undifferentiated, starting with a named forefather or foremother. In Hälsingland, it was very important to have knowledge of the kindred and to keep track of the genealogy. Wennersten compares with genealogies found on rune stones from the Viking Age, which in some cases mention up to seven generations and she concludes that the system goes far back in time (Wennersten 2008:224).

Nils Blomkvist points to the patrilocal paragraphs in the Guta law, in which the wife never becomes a part of her husband's clan, except through her sons. She is treated more like a guest and clearly considered an outsider. This along with the inheritance rules favouring sons and brothers leads Blomkvist to the opinion,

4. For a more comprehensive account of the critique of the traditional view and an overview of the research history, see Cassel (1998) or Winberg (1985)

that the Gotland society was of a patrilineal and clan-based nature, with the farm as the nave and centre of the family (Blomkvist 2010:113ff).

However, it is probably difficult to support the view of a strict patrilineal system on Gotland, but Blomkvist has many strong arguments for tendencies in this direction, together with the low influence and rights of women in many aspects. This is also supported by the facts, submitted by Lerbom, that prior to 1619 women are very rare in any *saköreslängd*[5] (roll of fines) compared to other regions. According to Lerbom, women are also very rare in land transactions on Gotland and when they are, a man is most often representing the woman. Lerbom suggests, that men were preferred before women as head of the farm to a higher degree than in other parts of the country (Lerbom 2003:82ff, 2009:66f). According to Lerbom, this points to a society more dominated by males than in other parts of Scandinavia (Lerbom 2003:85).

It is probably not possible to classify the social and inheritance system of Gotland exactly and I tend to agree with Lévi-Strauss (1987:187):

> *'One is therefore led to question whether, when anthropologists multiply labels by which to distinguish each shade of difference in systems called patrilineal (but with matrilineal aspects), matrilineal (but with patrilineal aspects), bilineal, double descent, cognatic, etc., they are not the victims of an illusion. These subtle qualifications often belong more to the particular perspective of each observer than to intrinsic properties of the societies themselves'.*

Based on an analysis of different ways of establishing a family, Blomkvist depicts how family, farm and the society interact on Gotland during the Middle Ages. He points to the uniqueness in the paragraphs concerning marriage, kinship unity, inheritance, land transactions and the position of women in the Guta law. The central position of the farm and the disfavour of non-Gotlanders are also unique features of the law, which he sees as remains of an ancient society (Blomkvist 2010:107). The farm is in the centre of the family system and the Guta law supports the preservation of the farm and keeps it undivided since no main heir is pointed out. The law states (The Guta law chap. 20, from Blomkvist 2010:108):

> *'Om det efter faderns död finns både minderåriga och vuxna söner, får den äldste inte vika från den yngstes sida förrän denne har åldern inne, även om det är svåra tider. De delar allt oskiftat tills han är 15 år gammal. Då skall han få börs och våg, och var och en sörjer för sig själv, såvida de inte önskar fortsätta tillsammans.›*
>
> (*If there, after the death of the father, are both sons who are not of age and adult sons, the older must not part from the younger until he is of age, even if the times are harsh. They share everything undivided, until he is 15 years of age. Then he will receive purse and a pair of scales and each brother cares for himself, unless they chose to continue together*)

There is an interesting gravestone, which should probably be set into this context. This is the above-mentioned stone from 1326 commemorating *Petrus...Dictus Bingil de Gautem*, which was ordered by his brother, *Olavr Bingil*. These two were most likely brothers who shared the farm in some manner, but how the farm, and possibly the two families or more were organized is unknown. Blomkvist makes an interesting observation in the metaphor '*...receive purse and a pair of scales...*' which indicates that trading is what the sons not staying at home were supposed to do for a living. He could however still be a silent partner in the farm, which would explain why almost every farm on the island seems to have participated in the international trade (Blomkvist 2010:108f). A similar perspective is taken by Anders Carlsson. In line with this, he has an explanation of why so many Viking Age silver hoards were left in the ground; it was the property of sons, who never returned from voyages (Carlsson, A 1983:36f).

There were several options when a son was married. The son did not have to leave the farm and could get his part of the movable property, and at least in theory also his share of the land, but at the same time the father had the right to keep the farm intact. The son could also leave the farm, but receive a part of the yield in proportion to his share (Blomkvist 2010:109f). For this work, the most interesting option is that the son could settle at a different part of the farm with his household and worked it 'on account', as Blomkvist puts it. The sons' part was not called a *gård* (farm), but a *bol* (place of residence), which must be the forerunner of the term part. There

5. Lists of fines for crimes and misdemeanours, noted by the courts

was also an option for one of the sons to buy out the other heirs. This was facilitated by the strict clauses regarding the sale of land. In principle, sale of land was forbidden outside of the clan and the law patronized the closest relatives. The sale of land had to be done through consent from relatives and the parish men (ibid:109f).

If the farm was sold outside the clan, the seller was expelled from the Gotland community, and was considered a non-Gotlander and left without inheritance, according to Blomkvist (2010:109f). Here, the central role of the farm is clearly seen. Without ownership in a farm, you could not be considered a full member of the Gotlandic community, but were regarded as a stranger, who had less value in the eyes of the law. Land should preferably not be sold to outsiders, but non-Gotlanders could own farms on Gotland, they would then have some rights that were equal to a Gotlander (GL chap. 13§4), in other respects they were less worth. It is clear that the Gotland identity is linked to the possession of land and being part of a farm. According to Blomkvist, the law favoured stem-families (extended families), with loyal and flexible members, who did not necessarily have to live on the farm at the same time (Blomkvist 2010:113). The view of the farm being the central node for the kin on Gotland is also emphasised by Westholm (1990:24), and Siltberg who points to the great importance of the farm as the base for the identity, the kin and a place of abode on Gotland (Siltberg 2013:213).

Blomkvist finds an analogy of how the Gotlanders might have perceived matters concerning property and farms in the concept of the House, as it was perceived by the inhabitants of the medieval village of Montaillou. This is described by Le Roy Ladurie in the book 'Montaillou, village occitan de 1294 á 1324'. It is one of the few coeval sources, which describe medieval life from the farmer's perspective. It is based on the minutes kept at the court of inquisition of Jacques Fournier, bishop of Pamiers in Ariége in the county of Foix, now in southern France. In these detailed and carefully kept minutes, the thoughts and beliefs of the farmers come alive, which gives a unique insight in everyday peasant life in the Middle Ages. The concept of the House, Domus in latin and Ostal in the local dialect, is a much wider concept than just land and a physical structure (Le Roy Ladurie 1989:7, 43). The physical house, with all its land, rights and the personal property, could not be separated from its inhabitants. They were the same and more than the just the individuals making up the household. The house conveys the dead master's personality and is the true owner of everything. The deceased were still part of the house and participated in its luck (Le Roy Ladurie 1989:50). Blomkvist stresses that not every detail matches Gotlandic conditions, but the general spirit and basic idea fits (Blomkvist 2010:114). The farm's central position as the true owner of everything indicates ancestral cult, which often coincides with unilateral family systems (Blomkvist 2010:114f). The old ancestor cult practiced on Gotland can also be seen in the Guta law paragraphs forbidding the worship of *stavgårdar*, discussed earlier in chapter 4.

Cassel also uses Montaillou as an analogy for how the Iron Age Gotlanders may have seen the relationship between house and people in the mid millennium (Cassel 1998:97,109,128).

This is not unique for Gotland, however, these are features shared by all, or at least most peasant societies. The farm as a central part in the minds of the prehistoric people is also discussed by Gurevich (1985), who describes a similar perspective in the Norse sagas and mythology, in which people and gods always are linked to real property, and are often named after farms. The person and the farm have melted together and cannot be separated (Gurevich 1985:48). The farmstead and the landowner serve as a model for the universe. The world of the people is *Midgård*, which is cultivated and tilled. The *Utgård*, where the monsters and giants lived is outside the fenced and tilled area. In Scandinavia, the settlements were the centre around which the world radiated, which probably goes far back in prehistory (Gurevich 1985:49).

The farm was also a protected place and to enter a person's farm unlawfully gave severe penalties. In the Hälsinge law the penalties were raised the closer to the house the trespassing occurred. The highest level was if the encroachment on a person's rights was committed when the landowner was in bed. These paragraphs are considered to be of considerable age (Burström 1995:166).

Even if there are some 6-700 years between the mid millennium and the Middle Ages, I think the basic concept and ideas about the farm and land are the same in the two periods on Gotland, as being the base for both spatial and social conceptions and also the centre concerning kindred and other relationships. Of course, there are great differences between the two societies, but the essence of the discussed matters are prob-

ably close to each other in both societies. Considering the detailed and strict regulations in the medieval Guta law, compared to other medieval laws, the farm as a centre of the society probably lived on stronger and longer on Gotland than other parts of Scandinavia, where the feudal society developed and introduced new loyalties, parallel with the old.

Villages on Gotland

As shown in the analyses of the empirical data in previous chapters, villages have existed on Gotland, both in prehistory and in historical times, but they were most probably not regulated and were not fiscal villages. To signify this kind of village that is not fiscal in a 'regulated', 'historical' sense, the term generic villages is introduced as an analytic term for this kind of villages, as discussed in chapter 1. However, there are at least two examples, which motivate the 'probably' regarding the regulated villages. One is the Uddbyggarebyn in the parish of Näs, presented in chapter 5. Ersson also suggests that Alnäse grannelag on Fårö, is regulated with systematic and regular division of fields (Ersson 1991:14f). This regulation was of another character, however, than the regulated villages on the mainland, which will be discussed shortly.

On Gotland, the village has never been the fiscal unit registered in cadastres, as on the mainland, the farm has always been the registered unit. The question is thus, what these Gotlandic villages found in my analyses, represent. As discussed earlier, the farm on Gotland was the centre of the family, as in many other farmer societies. The nature of these farms and families has been discussed by many. I argue that many of these generic villages identified in the present work, have their origin in villages centred on extended- or stem-families, principally in accordance with the views of Blomkvist, and perhaps also to some extent the view of Lithberg. In some sense, they can be seen as multi-household farms. Lithberg argues for the existence of '*Store boolagh*' (large companies) with extended families in the late 17th century. As discussed in chapter 2, Lithberg suggested that extended families existed on Gotland in the 16th century, which were of a kind still existing in the province of Jämtland at the turn of the century 1800-1900. In Jämtland, a farm often contained several generations under the patriarchal leadership of the father, or grandfather and was divided into different households or *matlag* (meal cooperation) as Lithberg calls them. Evan if I do not totally agree with Lithbergs description of their nature, these farms can probably be seen as the remains of a system, much more common in the Viking Age and Middle Ages, probably with their roots sometime in the prehistory. As accounted for above, Cassel advocates that villages or other larger organisational units, organised around kinship, existed in the Roman Iron Age.

Based on the English historian Hajnals thoughts of a division of preindustrial Europe into two different systems of family formation, Blomkvist elaborates on Lithberg's thoughts, putting them into a European context. John Hajnal divides Europe into a western and an eastern part, with a line extending from Trieste by the Mediterranean to S:t Petersburg by the Baltic Sea in the north (Hajnal 1965:101). In the western part, couples married late when there was opportunity to form a household of their own and they formed a nuclear family with farmhands and maids of their own, maybe together with some other relative in the household. In the eastern part, couples married young and became part of a joint family, under leadership of an older head (Hajnal 1965:133). Blomkvist stresses Gotland's location in the western part, however close to the border between both systems and with extensive contacts to the east, thus balancing on the border. He lists some examples of eastern family systems of extended families, and asks the question if the family structure on Gotland during the Middle Ages is better understood in an eastern context (Blomkvist 2010:74ff).

There is, however, no need to go to the east to find evidence of areas with extended families. The well-known Swedish ethnologist Orvar Löfgren accounts for the basic principles of the preindustrial family and household. During this time, marriages among landowning farmers were often based on strategic decisions, focused on land and property; the family and household was not primarily a unit for consumption, but for production. The size of the family and household must be seen in the context of the need for labour and means of income (Löfgren 1970:8f). According to Löfgren, the concept of extended families is, when used, often vaguely defined and does not necessarily mean that they have to live as one domestic unit. It can also be more a matter of co-residential groups of many households and consumption units that pool their labour and capital in some aspects, but remain separate in others (Löfgren 1974:21f). The examples of geographical areas where extended families

are known to have existed in historical times have some common characteristics, like having a sparse settlement structure and/or having economic diversification. As examples, Löfgren mentions Jämtland and parts of Norway where extended family systems existed as a means to organise and combine extensive trading with farming. He also points to the circumstance that there could also be differences in a socio-economical respect, since extended families were also more common in the upper strata of the agrarian society (Löfgren 1974:21f).

These conditions are also present on Gotland, which supports the existence of extended families on the island, and I suggest that this type of family structure existed on Gotland during the Viking Age and Early Middle Ages, when trading was intense, as a means of organising the trade. This meant that some members of the family could conduct journeys of trade, while other attended the domestic work and farming. They did not have to live in the same household or physically close, but could be organised and living as separate parts or households, in a village-like structure. These villages, which I refer to as generic villages, were most probably flexible and could vary in size and number of households/farms depending on the needs of the family, as Blomkvist suggests, accounted for above.

Siltberg argues that the Gotlandic system of family planning, with few children, in order to prevent the farm from being divided, is of an old date, probably going back to the Middle Ages (Siltberg 2011a:264; 2013:195). This is not necessarily the case. Family systems and rules of inheritance can alter over time as a response to changes, and adapt to a new situation. As an example, Löfgren mentions the changes on Ireland. As a consequence of the enormous increase of the population in the 19th century, a new family planning strategy with a single heir was introduced. The other children had to find other means of support or had to emigrate (Löfgren 1970:15). There is no reason to believe that the Gotlandic society and family organisation has remained unchanged through the drastic changes between the High Middle Ages and the early modern period. A society where many were deeply engaged in trade and conducted wide and prolonged trade journeys, such as on Gotland, required a different social organisation than the agricultural society that was common in other places in Scandinavia/Sweden, without extensive trading activates. Such an organisation, supporting trade activities implies a farm/village that consisted of many households/farms, which most probably were more resilient and in line with what is indicated in the Guta law, where the inheritance rules gave several options.

Cassel has similar thoughts regarding the Roman Iron Age. She argues that the larger units that existed were most probably organised as production units, and that they might have been a means of organising artisan production and exchange of goods (Cassel 1998:161). In addition, Anders Carlsson argues that some types of artisan production of fibulas during the Viking Age required specialists, which could only be sustained within larger units than just a one-family farm. Consequently, he advocates the existence of farms with many households (Carlsson, A 1983:36f, 85).

The layout and structure of the generic villages as seen in the first historical maps from the 17th century, is probably not exactly the same as existed during the Middle Ages. The number of farms/households/parts has changed over the centuries, as well as the location for some, which was discussed in several of the cases in chapter 5, and will be further addressed in the next chapter. The structure has also probably varied between the different generic villages. After the extensive trading ceased in the Middle Ages, the social organisation adapted, and a form of organisation with more independent units/farms was established. When kinship no longer was a key ingredient and farms could be sold and bought outside the family, the village in its old form as a centre for the family became passé, and the individual households/farms became more independent in all respects. An analysis based on Rev1653d shows that in 1653, some 32% of the farms or farm parts were acquired by purchase and some 50% were inherited. The historian Åke G Sjöberg (1981:120) reaches the figure of 37% of the farmers who had bought their farm, but this is just a minor difference.

To my knowledge, the collaboration between farms on Gotland in the 17th and 18th centuries has never been studied, so we really do not know how extensive it was. The fact that the land surveyors noted farms being in *byalag* (cooperating in a village community), as discussed earlier, indicates that there were organised collaborations even at that point in time. They must be regarded as villages, but were no longer organised through kinship. There is nothing contradictory in the collaboration being as extensive as in any similar unregulated village on the mainland. The different ethnological re-

cords and notes of different villages, accounted for above, also indicate the existence of different types of villages even at a later stage.

Lithberg is of the opinion that the traditional forms of cooperation of *bidlag*, which still existed in his time, and accounted for in the beginning of the book, had its roots in these medieval villages, but not with exactly the same constellations of farms as seen in the ethnographic sources (Lithberg 1915:48). To some degree, this might be true, but later alterations are probably large in many areas, which is not surprising considering the time span of the two studied periods. It is hardly likely that an organisation, mainly built around social bonds, would remain intact throughout the centuries.

If the three different distribution maps of farm groups are compared, which are the map depicting the groups identified by Lindquist, the map of the *bidlag* identified by Lithberg (Lindquist 1981:60-61), and the map of the identified historical villages in this work, a somewhat incoherent pattern is revealed. At some places the correlation seem to be good and at some not so good. An example can be given in the small parish of Viklau, where all farms are quite spread out and there is very little mixing of parcels of land between the farms. Only two generic villages are identified, Stora and Lilla Vikare and Stora and Lilla Tune, judging by the names both probably quite late divisions. Stora Tune is also situated in a different parish than Lilla Tune. In Viklau the whole parish constitutes a *bidlag*, which makes it very difficult to link it to any former village organisation. One parish where the *bidlag* and generic village coincide fairly well is Dalhem.

Why the regulated and fiscal village never emerged on Gotland

In Scandinavia, the regulated village is a phenomenon, which most probably emerged in the Middle Ages. There are, as always, exceptions to this. Frands Herschend has found what he believes to be a village regulated in a medieval fashion in Darum, Denmark already in the 5th to 6th century AD. It was however short lived and ceased in the 6th century (Herschend 2012). In Vorbasse, Sten Hvass sees a connection between the regulated village and royal power as early as the 8th century (Hvass 1993:194). There are no traces of such an early example in Sweden and even though our knowledge is poor, regarding exactly when the regulated village emerged it is believed to be established in the early Middle Ages or late Viking Age. It is explained in various ways as the result of different changes, both internal changes within the local society and external changes such as increased population, technological change and change in agricultural systems, social change and formation of states with increased royal power etc. (cf. Grøngaard Jeppesen 1981:143; Skansjö 1983:138ff; Sporrong 1985:196f; Callmer 1986, 1991; Porsmose 1987:27ff).

In many of the medieval Swedish regional laws, there are paragraphs describing how a village must be geometrically structured and spatially organised to be legal. The term *Lagligen skiftad* or *Laga läge* (legal situation) means that each farms toft is proportional to the farm's *byamål*, signifying the share of each farm in the village. The width of a farm's toft in the village is proportional to the width of each parcel in the fields, known as '*tomt är åkers moder*' (toft is the mother of the field). The well-known system of *solskifte* (sun division) is often misunderstood to cover both the size and position of a farm and its parcels in a village, but it only refers to position and order of a farm's parcels of land in each field. The parcels of land must be at the same position and in the same order as the toft in the village (Göransson 1986:38). For example, if a farm's toft is in the south in the village, its parcels of land must also be in the south of each field. Together, the two principles of *laga läge* and *solskifte* make the village toft into a map of each farm's share in the village and the location of its parcels of land in each field (Holmbäck & Wessén 1933:228f). In the Uppland law an older system called *hammarskifte*, is referred to (Holmbäck & Wessén 1933:228f). This is of an unclear nature, but it indicates that regulated villages might go back to the Viking Age.

The system of *laga läge* and *solskifte* becomes a very handy and important instrument for controlling ownership within a village and was chiefly introduced by the land owning aristocracy, or landed gentry and other institutions, such as the Church or the King, who owned farms in villages they did not live in themselves (Myrdal 1996a:103). These farms were leased to *landbor* (tenants) who paid *avrad* (rent) to the landlord. Freehold farmers participated in the daily village life and most probably had sufficient control of their farm properties without such a system, but for a landlord who often owned vast estates with a number of farms in many different villages, such a system became vital to keep track of all their property. In addition, in these regulated villages each farm's parcels of land

were spread over many fields and interlaced, the result was that the land could only be worked in a yearly rhythm that all farmers had do abide to; thus having to do all the work like sowing and harvesting at the same time. This system was also good for, as Nils Blomkvist (1993:10) puts it: '*...driva på motspänstiga bönder att ägna mer tid åt åkern än åt mångsyssleri...*' (*...force reluctant farmers to work their fields instead of diverse occupations...*). It can be seen as a system for increasing control of, and the yield from, the fields and thus increase the landlord's revenues and/or the King's tax. Thoughts similar to those expressed here are also put forward by Katalin Schmidt Sabo (2005:84f).

There are also other factors involved in implementing such a system. Callmer suggests, after studying villages in Skåne, that regulations were introduced by the landed gentry due to the introduction of estates of the medieval type and when shifting to a new type of field-rotation system (Callmer 1986:202ff). Changes in technology are also often brought forward as an explanation. These regulated open-field systems are most developed in the plain areas in Sweden, especially in Skåne, where large wheeled ploughs were introduced in the Middle Ages, which demanded long straight fields (Myrdal 1997:168), but it is hard to know what came first, the chicken or the egg.

In my opinion, the main reasons to regulate villages are to control ownership and access control over village life and a means to enforce and legitimise such a system by the landlords and the King, was through the law.

The role of the regional laws

The origin of the Swedish medieval regional laws has been debated through time and the understanding has shifted between extremes. The prevailing view of the early 20th century was that they were based on an old oral customary law, *Germanisches Urrecht*, of an non-hierarchal and equal Germanic peasant society, in which free farmers together with the *lagman* (judge) took wise decisions (Brink 2010:119f). In the 1930s, this view was challenged by Per Nyström, who suggested that the laws were completely in line and interlaced with a common European law tradition, and were created mainly as political instruments of power for different groups in the Middle Ages (Winberg 1985:19). This view is later picked up and developed by Elsa Sjöholm, who refutes any element of *Urrecht*; she argues that the laws are the norms of the legislators at the point in time when they were written down, and cannot be used as a source for understanding any society prior to that time (Sjöholm 1988:250f). As with so many things, the truth is most probably somewhere in between.

Today a widely accepted standpoint is that the initiative to write down the laws came from the King, Church and landed gentry, and Stefan Brink advocates in two recent articles (2010 and 2013) that the Hälsinge law (HL) is a product of both new paragraphs initiated by them and old customary laws. The law is most probably written down on the initiative of the Archbishop Olof in the beginning of the 14th century and the Uppland law has served as template with adjustments for a local tradition (Brink 2010:119ff). As said above, one important aspect of the Scandinavian medieval laws and the paragraphs regulating the villages' physical structures and life in the village is to see them as a means for the landlords to exercise control. There are of course other agendas, such as the King's desire to increase his revenues from fines, or the Church desire to have their own legal system, etc, etc, which I will not go into. Brink points to the fact that in order to get these 'new' written laws accepted by all parties, they could of course not deviate too much from the old customary laws and practices (Brink 2010:123). What these older customary laws contained is to a large degree unknown, but they did not regulate everything. As Lindkvist says, even the 'new' medieval laws in writing only cover few conflict situations that might need resolving, and were mostly based on the perspective of the authorities (Lindkvist 1991:517).

The only law, which does not contain any regulations for how a village must be laid out, is the Guta law. The Guta law exists in a few copies from different times and languages of which the oldest one is dated to the mid 14th century (Yrwing 1978:10). However, setting the law into writing is believed to be initiated by the Danish archbishop Andreas Suneson in the first decades of the 13th century and thus the Guta law mainly reflects this time (Holmbäck & Wessén 1943:297). Elsa Sjöholm is of a different opinion and argues that the law was put into writing in the middle of the 14th century and that it reflects the situation during this period. She suggests that it is a strategic defence document for the landed gentry on Gotland in times of crises and is highly inspired by German feudal law (Sjöholm 1976 cited in Blomkvist 2010:67). This dating and interpretation has however not been adopted to any higher degree and I have not seen

any references to it, which is probably because it fails to explain certain aspects convincingly, which Blomkvist (2010:62) points to. Blomkvist argues that the Guta law was not rendered in writing on one occasion but rather for particular reasons and new paragraphs were gradually added as precedent cases (Blomkvist 2010:115).

The Guta law contains no *byalagsbalk*, or regulations of any 'village life' and hardly any paragraphs of how neighbourly conflicts are resolved; there are only passages concerning common fencing (GL chap. 26) and some paragraphs on common fields (GL chap. 47). The lack of such would be expected, since Gotland was not subjected to any King at the time and the Bishop of Linköping had a quite weak authority on the island, and there were no landed gentry, who would urge for such paragraphs. These neighbourly conflicts were most probably handled in other ways or by other bodies prior to the written regional laws, in other counties too.

In a recent article, Siltberg refers to Yrwing who suggests that because no villages or *byalag* existed on Gotland, the parish had an exceptionally strong status in legal matters in the Guta law, compared to the *byalag* and *hundrade* in the regional laws on mainland (Siltberg 2013:182). This is true in most cases, but there are two other regional laws showing similarities to the Guta law in this respect. It is however very difficult to make direct comparisons, since the laws on the mainland to a high degree influenced each other. Especially the Uppland law was something of a template for many laws when they were set in writing, most often in the first half of the 14th century or late 13th century.

In the Dala law (DL), there is no mention of the village community having any judicial power at all and there is no allusion to the term *byalag.* In the law, the term *by* is used meaning both an individual farm and a village. In the meaning of village, it is used almost exclusively in connection with regulating the village as *lagligen skiftad* (lawfully divided) and *solskifte* (sun division). In the Dala law, the village men were not central and are only mentioned a few times. It is the parish men that appear to have had a more central role and had control functions and judicial powers, they are mentioned in connection with many tasks and responsibilities (Holmbäck & Wessén 1936:Dalalagen). Furthermore when disputes were settled with a panel of lay judges, they were often picked from the parish (Holmbäck & Wessén 1936:XXXI). The major judicial body in the Dala law is the *ting* (Thing), and in the county of Dalarna it is not entirely clear what area constituted a Thing at the time when the law was written down, but documents from the latter part of the 14th and 15th century mentions the parish as a Thing area. This is also the case in preserved *domböcker* (court protocols or court rolls) in which the parish is also the Thing (Holmbäck & Wessén 1936:XXVf). This makes it similar to Gotland in this respect.

The law most similar to the Guta law is the Hälsinge law. In Hälsingland, the parish also most likely coincided with the Thing (Sjöholm 1988:323; Brink 2013:44). Stefan Brink suggests that the parish in Hälsingland originated from an older neighbourhood community (*bygd*)-organisation, probably with a common administration of justice and cult. In the Hälsinge law (HL), the parish had a permanent legal position since it was also the Thing (Lindkvist 1991:515).

Both Dalarna and Hälsingland are far from the central part of Sweden, landed gentry are scarce or absent and so is the King. In other regional laws, the parish also existed as a judicial body in settling different conflicts; these parishes were on an intermediate judicial level between the village and the *Hundrade* and sometimes the parishes also collected fines (Lindkvist 1991:511ff).

In substance, I agree with Siltberg and Yrwing that the parishes had a strong position on Gotland, but not because of the lack of villages. As seen from the examples of Hälsingland and Dalarna, it seems like the parish, or any similar pre-Christian organisation, as a judicial body probably is older than the village. The village might have been introduced as judicial body in Sweden during the Middle Ages as a result of a society with a high degree of external landowners in the villages and a strong central power, like a King. Lindkvist sees a correlation between the absences of, or weak, royal power and the importance of the parish as an organisation for profane issues (Lindkvist 1991:516f), and I would like to add the absence of landed gentry and landowning church.

Before the regulation of villages and village life, the village was a body for cooperation and social relationships and kinship. The villagers most probably regulated their common work and settled minor disputes themselves, without any written law. The type of European, feudal medieval society, with landed relations never appears on Gotland and thus the village as a judicial or fiscal body was never introduced on the island.

The farm as the fiscal unit on Gotland

At least in theory, the society rested on all free Gotlandic individuals owning farms, who gave name to their farms. A farm could thus change names when a new owner took over. The place name or village name was not as important in this respect; it was the individual freeholder, who was important. The Anga list indicates this, since it only contains the farmer's first name, but it cannot be inferred from the list how these individuals were organised and what social or organizational bonds existed between them. Farms could change names until the names were stabilised and became fixed, due to the introduction of written cadastres and other fiscal records made by the Danish and Swedish authorities. Not all farms had names after the owner, but could also be given other types of names, like directional names after their location compared to other farms in the village, as Lindquist suggests (Lindquist 1981:58), trade names etc. Agne Enekvist suggests that many of the combinations of farm names in double, triple or larger clusters of farms are indications of an original unit, which was divided into several independent farms. He has identified 192 such cases and in half of them, one of the farm names is a nature- or settlement name and the rest are personal names (Enekvist 1992:44ff).

I argue that many of these clusters are originally generic villages, and originally identified by one common name, probably a nature or settlement name, not the name of a person.

When cadastres, or similar records, were introduced, which was late on Gotland, new farms that had separated from a larger unit were not named and registered as independent units in the cadastres, but became parts of an existing farm. The processes are in essence the same as on the mainland, but here the names and fiscal units were fixed much earlier, due to a more centrally organised society. Ersson also makes the reflection that the processes on Gotland are the same as on the mainland, and that there essentially is no difference between the situation on Gotland and in unregulated villages on the mainland, regarding the spatial structure (Ersson 1974:55), but he does not analyse the issue any further.

Also on the mainland, it is not unusual that farms are divided into parts, owned and cultivated as separate farms by two or more farmers. A mainland village can thus consist of several farms, of which some have more than one farmer. I have not made any systematic survey of this, but browsing through the oldest geometrical cadastres on the mainland, it seems to be as common as on Gotland in the mid 17th century (cf. GEORG: U2:30-31, U2:41, U2:95-96 and others).

There is reason to believe that the lack, or at least weak, central control on the internal affairs of Gotland by the Danes, and the construction of the tax system, are the key factors why fixed farm names were so late on Gotland and the farm became the fiscal unit in the cadastres.

The tax sum is set for each Thing area and not for each individual farm. It is up to the local community under leadership of a judge in each Thing to set the exact amount of tax for each farmer, and then collect it and deliver the tax for the whole Thing to the castle of Visborg. There was thus no need for the central authorities to keep any cadastres on the farm level, and according to Siltberg, the Danish cadastres are only specified on the Thing level (Siltberg 1986:175).

The first more complete list of farms is the *Husarbetsbok* from the later part of the 16th century. There is mention of a *slots bog* (castle book), from the first half of the 16th century, where farms were noted, which might have been some kind of cadastre, or at least a record for the obligation of labour in lieu of taxes at the castle, but it is unclear what it contained (Siltberg 1986:198). If any type of cadastres was kept on the Thing level by the local officials, this is unknown; if it existed, which is not unlikely, it is impossible to know how they were organized. Siltberg points to the fact that it was not until the first Swedish cadastre in 1654 that the farms were fixed once and for all. Even if the *husarbetsbok* and other such lists mention many farms and farmers, they were not as normative as a cadastre. Siltberg lists several known examples of farms known by different names in different sources, even in the 17th century (Siltberg 1990b:129).

Chapter 8

Ups and downs - the development of settlements on Gotland

In this part, I will paint my picture of the development regarding settlements on Gotland. However, sometimes it is painted with a broad brush, because as always when you start to answer a question you find the complexity of the problem larger than anticipated and more questions arise all the time, needing additional analyses although time is limited. There are thus parts in this account, which I hope to come back to in order to fill in the missing details in later work.

In the beginning, I had the ambition to estimate the number of farms at different points in time, but soon realised that the complexity and high degree of fluctuation and change during the centuries made it an impossible task within the timeframe. Some numbers have been presented, but only for periods where the source material permits this, after detailed and thus time-consuming analyses. Still the numbers presented can only be seen as rather rough estimations.

Previously in chapter 1, the concept of village, farm, part, household, farmer etc was discussed and defined. In an archaeological material, however, it is often impossible to distinguish a farm from a household. To a high degree, this also applies to many sources from later periods. How it is used by many scholars is also often unclear and not discussed nor defined. This means that there is confusion in the use of the concepts and the exact meaning is many times unclear, which also affects this text. For my reasoning, the most important matter is the number of households; to my mind, this best reflects the number of farmers. For most of the problems in this chapter, the matter of whether farms/households are grouped in villages or are "independent" farms, or any other unit, is not so important. However, the fact that Gotland not only has solitary farms, but also had extended families in generic villages, as shown in this work, does not make the task any easier; any attempt to identify individual farms or households becomes even harder. In many cases in the following account, the concepts of farm, parts of farms, household and farmer are hard to separate, but the when the distinction is vital for the understanding, I will try to clarify.

There have been many attempts to calculate the number of farms/households, also sometimes the population on the island for different periods in time. This is extremely difficult and such calculations are always easy to attack and criticise, since they usually rest on imperfect data and have many ifs and buts in their assumptions. Only in later periods, from the 16th - 17th century, do we have some more or less reliable sources for calculating the number of farms/households, but population calculations are still difficult and attached with great uncertainty. Reliable population data does not exist for Sweden until the mid 18th century. Different types of reconstructions of the number of farms/households or farmers for older periods are most often some kind of extrapolation and/or estimate back in time based on some historical source, complemented with older, often fragmented types of records, like different tax sums, partial enumerations of farms, data from a very limited area etc.

Many times such calculations, even if possible, require extensive analyses from a new point of view partly based on spatial analyses of relevant data, of which today only some is available; within this thesis there was not time for any additional data collections and analyses.

In this section, I will try to give my view of the general trend, make a critical overview of the some of the work done in this field and try to identify the most important processes and variables governing the development and changes.

Opposite side: The medieval stone house at Stora Hästnäs just outside Visby, is one of the best preserved traces of the rich merchants on the countryside of Gotland (Photo by Wolfgang Sauber, licensed under the Creative Commons).

The abandonment of the mid millennium settlements

The temporal starting point for this work is when the Iron Age stone house foundations start to appear, which is around the middle of the Roman Iron Age c. AD 200. The knowledge for the preceding period is scarce and no analyses are made in the present work, but the settlement pattern is generally believed to be of a less sedentary character.

The Migration period is considered one of the most expansive periods in Scandinavian prehistory, both in cultural and economical respect. During this period the population size and number of settlements are at a peak, which in many parts of the country probably is not exceeded until the 17th or 18th centuries (Gräslund 2008:111). Here Gotland probably is an exception, since the island also had an exceptional period in the High Middle Ages, which probably exceeded both the Migration period and the 18th century, as will be discussed later.

The building of stone house foundations ceased during the Migration period, and as earlier discussed concerning Gotland, the shift between the early and later Iron Age, around the 5th and 6th centuries is by many, but far from all, seen as a time of crises in all of Southern Scandinavia. The evidence is seen in many places all over Scandinavia, but the data for such analyses is not so extensive on Gotland, so the following discussion will therefore take a wider area into consideration, and will not just focus on Gotland.

The archaeological records

Remains of settlements visible above ground from this period occur in few areas, like Gotland, Öland and Hälsingland in Sweden, as well as Jæren, and to some degree Troms, in Norway. Since the extension and magnitude of the settlements representing the preceding and subsequent periods were not known, the interpretations were uncertain and could not be verified.

The question is what this abandonment of the Iron Age stone house foundations signifies and how it is visible in other archaeological records. Does it indicate a major reduction of the settlements, or is it merely due to a relocation of the houses to new locations in the same areas, but built in a way that leaves no traces above ground for us to see?

Previously, the interpretations had to be built mainly on visible remains of settlements and excavated graves. The interpretations of this for Gotland, have been accounted for in chapter 2. One additional source was pollen diagrams, which often also show a drastic drop, both from the mainland and Gotland. A pollen diagram from the lake Lojsta träsk on Gotland, shows a very clear and strong regression of human activities with a regeneration of forest and reduction of grazed areas. It is notable that the pollen diagram indicates a lengthy process and not a sudden drop (Påhlsson 1977:34). Another diagram from the bog Nygårdsmyr shows a somewhat weaker trend, but in the same direction (Påhlsson 1984:143), so there might be local variations in the desertion, but with only two samples, any conclusions are rather uncertain. The diagrams from Gotland, however, are in line with the more recent analysis of pollen and macrofossils from the mainland, which also gives a somewhat sprawling result that indicate local variations. The macro fossil samples from the E4 project, however, give a more distinct result of abandonment on several locations (Ranheden 2007:114f).

The large infrastructure projects with extensive archaeological excavations in Sweden from the 80s and onwards have supplied much new data. The excavated areas on the mainland cut through long stretches of the landscape, extending many kilometres, and must be regarded as more or less random samples, thus not favouring any setting or time period. This is at least true for the periods prior to the late Viking Age/Middle Ages, when the villages moved to their present locations, which are not affected by the excavations.

Hundreds, if not thousands, of prehistoric houses have been revealed and many dated by radiocarbon. This enables analyses of large series of dated houses for many areas. Many of these series give the same picture, with a drop in houses dated to after the mid millennium. The sequences of radiocarbon dates from the mainland can thus be used in analysing the situation on Gotland, to my mind.

As a representation of these sequences of radiocarbon dates, the very clear and well-presented diagrams from the excavations in Uppland in connection with the new E4 motorway are chosen, seen in fig 8.1a-b. There are some source critical aspects with the diagram, which have to be accounted for before they are interpreted. The very sharp increase, which is seen

around 800 BC, is probably more the result of problems with the calibration curve in the interval 400-800 BC. This is also true, but to a lesser degree, for the period AD 600-700, which implies that the drops are probably less drastic in reality (Göthberg 2007:440f). One other thing that has to be kept in mind is that the radiocarbon dates do not date the abandonment of the houses, but the time of construction or maybe the last repair. Another thing is that the houses have different life spans in different periods, which has been discussed earlier. Put together this means that the curve only shows a general trend, it has a low precision and the changes are probably not as dramatic as they appear in the sequence. The curve needs smoothing to represent the realities and abandonment of the houses better. In addition, a large part of the Viking Age and later period's settlement sites are missing, since from the Viking Age and onwards many settlements had moved to their historical locations, which are still in use today and thus not affected by the excavations.

To sum up; the diagram shows a very clear fall in the number of houses that were built, which I think starts in the 5th century. The phase of expansion in the Viking Age and early Middle Ages is not seen in the diagram, since by then many farms and villages had moved to their present location. Göthberg discusses the very dramatic drop at AD 600 and problems of continuity and discontinuity. Of 61 villages affected by the excavations, 24 were continually occupied from the early Iron Age up until the Middle Ages; this is 40%, which he thinks is a low figure. Some villages might have been relocated to sites near, or at the present village tofts, since the motorway was located at a minimum distance of 150 metres to present day villages; any abandoned settlements in their vicinity were thus not spotted (Göthberg 2007:444f). It is not likely for 60% of the cases, so there might be a drop in settlements and population by 30% to 50% after the mid millennium. This is also the estimated drop during the medieval agrarian crises for some areas, so it seems reasonable, but a more exact magnitude is hard to say.

By the end of the 6th century, more or less all of the Iron Age stone houses were probably abandoned on Gotland. However, some few houses have possibly been in use in the beginning of the Vendel Period. It is very hard to say when the abandonment started, but according to the available dated stone house foundations, it might have started at the shift between Roman

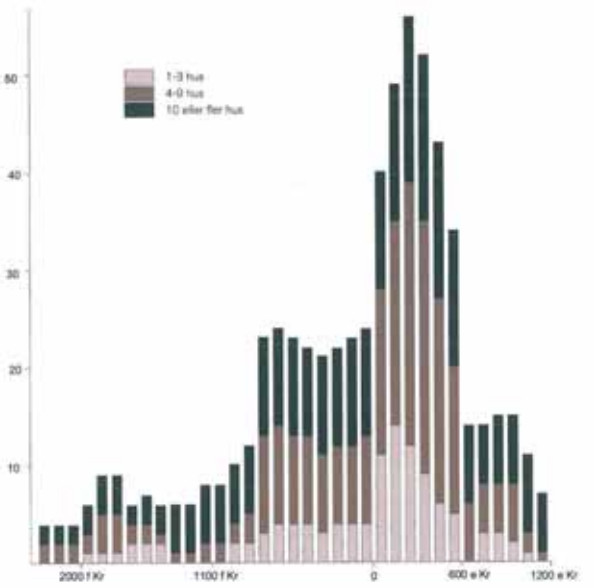


Figure 8.1a. The chronological distribution of settlements sub-divided according to the number of houses (From Göthberg 2007. Fig 15 p.441).

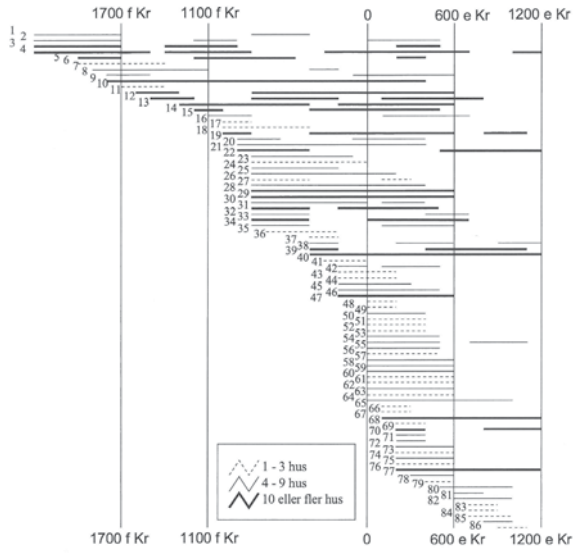


Figure 8.1b. The chronological distribution of excavated settlements displayed according to the number of houses (From Göthberg 2007. Fig 16 p.442).

Iron Age and Migration Period, but not at a large scale. Even if some of the dates are uncertain, there are not more than four stone house foundations recorded without any datable objects after the Roman Iron Age; the interpretation of this might be that they were not used after this period. These four houses constitute around 10% of the dated stone house foundations. This might indicate that some 90% of the stone house foundations represent the peak of the mid millennium settlements, which probably occurred in the

Migration period. Based on the estimate of some 2 000 mid millennium farms made in chapter 3.2, this gives around 1 800-1 900 farms in use at the same time. New stone house foundations were still erected at the shift between Roman Iron Age and the Migration period, around ten of the dated stone house foundations have no earlier dates than the Migration period.

The older researchers, like Nerman (1963) and Stenberger (1955), never estimated the number of deserted farms, but they assumed a drastic decrease. Nerman points to a reduction of graves by around 50% in the latter part of the Migration period as an indication of a decline in population. Moreover, Nerman points to the increase in gold deposit finds during the same period, which he sees as an additional proof of this (Nerman 1963:19f).

Some researchers have however calculated the drop after the mid millennium for Gotland. Dan Carlsson strongly objects to the more 'violent' interpretations of the abandonment and destruction of the Iron Age stone house foundations, and stresses the continuity between the Iron Age settlement areas and the historical landscape. His estimation of a decline by some 10-15% between the Migration period and year 1700 is based on what can be called an interpolation between the two periods. He sees the abandonment as a slow and lengthy process of low magnitude during the Vendel period and the Viking Age. Emphasising the great uncertainty, he calculates that the number of farms might have been about the same during the migration period as during the Middle Ages (Carlsson 1988:40). Carlsson's estimation of a drop of 10-15% is probably the interpretation mostly referred too.

Ola Nilsson makes an estimation of the number of farms that might have existed during the Vendel period, which is based on Östergren's work and the 20 find places of Vendel period artefacts that she interprets as coeval farms in her thesis. Nilsson discusses different manners of calculating the number of Vendel period farms for the whole island, but finally estimates the decline of over 70%, from 2 700 mid millennium farms to some 800 farms during the Vendel period (Nilsson 2011:83). To my mind, this is a far too drastic drop, and the number of 800 farms/households for the Vendel period seems a bit low. Even if Nilsson's calculations of the number of farms at different periods can be questioned, as they are somewhat too dramatic in their fluctuation, he is quite right in the general idea that the number of farms has varied to a much greater degree than most scholars of the 1960-70s and later have estimated.

The Vendel period is the dark ages of Gotland and a period, which needs more research. Since the source material is so scarce and sometimes ambiguous, it is hard to make any estimation of the decrease in settlement and population, so any estimation must be considered tentative until more research is conducted. I think the best way is to base such an estimation on figures from the mainland, instead of the Vendel period material from Gotland. This is because the Gotlandic material mostly consists of unspecified stray finds, with uncertain contexts, as discussed earlier.

Based on my calculations of the number of mid millennium farms, a drop of some 30-50%, would result in an estimation of around 1 000 - 1 200 farms/households, at the lowest point after AD 600 before the next period of expansion starts.

The explanations of the abandonment

Many scholars have acknowledged the interpretation that the abandonment of the Iron Age stone house foundations was connected with a major reduction of the number of settlements all over Scandinavia during this period. Not all areas seem as heavily affected, but it is true for many regions in Sweden and also in Denmark and Norway (cf. Göthberg 2000:147, 2007; Gräslund 2008; Löwenborg 2012; Gräslund & Price 2012), but there are further voices that are more cautious and see other explanations, or at least ask for more evidence (cf. Näsman 2008, 2012).

The debate has been intense and many different standpoints and evidence, both pro and con any major crises, have been put forward. Most of the arguments and standpoints in the debate concerning Gotland are already accounted for in chapter 2. Here, only some of the more recent contributions, for all of Scandinavia, will be discussed; a full account of this discussion covering more than a century of research is not possible in this context. For a more comprehensive outline Näsman 1988 and 2012 or Löwenborg 2012, can be recommended.

As a result of the global warming, the interest for environmental explanations has increased during the latest decade or so. As an example, the old ideas around the *Fimbulvinter* have recently been picked up and put in new light by

some Scandinavian scholars. The *Fimbulvinter* is mentioned in Norse literature as a period of some three years with no summer because the sun was obscured. Bo Gräslund and Neil Price (2008, 2012) argue that these myths and legends are based in a tradition, which can be linked to a population disaster and the myth about Ragnarök. A similar event is also described in the Finnish Kalevala, which are epic poems written down in the 19th century based on Finnish and Karelian myths and folklore. These myths and folklore are according to Gräslund and others, based on real events described in literary sources from around the world as a period of pale sunlight and a dimmed sun.

This is supported by modern geological and volcanic research; traces of a massive volcanic eruption, or a meteorite hitting the earth, can be seen in bore cores from the ices on the Antarctic and Greenland. This event is dated to AD 536-7. The eruption created a dust veil blocking the sun for probably two summers and causing cold weather for almost a decade. A period of nearly no growth can also be seen in the annual rings of trees in the northern hemisphere. According to Gräslund, the archaeological material all over Scandinavia also bears witness of this, as a clear and abrupt decline in the early Vendel period, which is also visible in pollen diagrams. The most important evidence is a large-scale abandonment of settlements that can be seen in most parts of Scandinavia, with some exceptions in areas not dependent on agriculture, like northern Norway. In addition, the plague of Justinian might have been triggered by the event and worsened conditions (Gräslund 2008; Gräslund & Price 2012).

The view of Gräslund and Price is also embraced by Daniel Löwenborg (2012). He sees this as the trigger for a fundamental change in society in the Lake Mälar valley, where the social elite was taking control over land and resources, which in turn led to a change in the placing of graves and settlements (Löwenborg 2012). Birgit Arrhenius also analyses this issue and she sees a connection between the dust veil and changed sacrificial practices at Helgö in Mälaren (Arrhenius 2013:11).

The existence of a dust veil in AD 536-7 is more or less universally accepted, but to single it out as, if not the only, but by far the most important cause for these major changes of society is to give it too much explanatory value. To my mind, single short events of this nature do not have the impact to change the society fundamentally. As a counter example of a short severe event, which did not give any lasting effects, the last decade of the 17th century can be mentioned. The height of the so called Little Ice Age occurred during the 17th century. Particularly the last decade was the coldest part of the Little Ice Age, with cold and damp weather (Charpentier Ljungqvist 2009:231). On Gotland, this resulted in bad crops during eight years between 1690 and 1699. Four or five of these can be defined as failure of the crops, and two years were extremely bad (Kellgren 1942:135). In addition, a severe winter in 1697-98 took a large toll of the cattle, which made the situation even worse and that led to some 2 000 people dying of starvation and sickness in the wake of the famine. This was around 15% of the total population (Olofsson 1945:264). The recovery was however very swift and not long after the tragic years the population numbers were back to the level of 1695 (Åkerman 1986:58). Some years later in 1710-12, a plague followed, which killed some 1 700 people on Gotland (Olofsson 1945:264). In Finland too, the last decade of the 17th century was dramatic, with probably one third of the population killed by famine and sickness due to failure of the crops (Charpentier Ljungqvist 2009:231).

Even if the death toll was higher after the AD 536-7 event, I believe the recovery might have been quite swift, if it was a single, short-lived event. Since it was not the system as such that was malfunctioning, but just a short external disturbance, the function of the society was not questioned and no 'counter measures' were taken. The event would perhaps live in myths and legends and be a part of the collective memory, but it would not necessarily lead to any major changes.

To trigger any major changes in society there would need to be fundamental changes of the living conditions over a longer period and/or several causes that interplay.

The plague of Justinian is also sometimes brought forward as a main reason for the decline. It is documented to have raged around the Mediterranean, but it is very uncertain if it appeared in Western Europe (Harrison 2000:44). According to Ulf Näsman, no remains of the black rat that is the host of the flea, which carries the pest bacillus, has been found in any cultural deposits older than the Viking Age in Scandinavia (Näsman 1988:246). Any impact of the plague on Western Europe has also been rejected by French research, which claims the plague of Justinian to be a phenomenon only in the Eastern

Mediterranean (Harrison 2000:44). This makes it less likely that it had any impact in Scandinavia.

Büntgen et al have in a large scientific study, based on extensive data, modelled how precipitation and temperatures have changed over the past 2 500 years in parts of the European continent (Büntgen et al 2011). As can be seen in the diagram in fig. 8.2, it is clear that changes were starting long before AD 536-7. Slightly before AD 400, there was a massive increase in precipitation and decrease in temperature, which quite rapidly changed to the opposite, with a drop in precipitation and temperature. Both curves hit the bottom at around AD 550 (Büntgen et al 2011:581. Fig 4). The decrease in temperature started during the first half of the 6th century and reached the bottom around AD 550. This could be in conjunction with any catastrophic event, but as seen from the curves above, it lasted for the remaining part of the 6th century, which means that other factors must also have been involved. The consequences of the AD 536-7 events probably just added to an already bad situation and might explain the extreme bottom values.

Climate change probably played a large part in the changes seen in the Scandinavian societies during the transition between Early Iron Age and the Later Iron Age, but other factors were involved.

Events on the European continent from the 4th and 5th centuries probably had the largest impact also on the development on Gotland, and large parts of Scandinavia. The contacts with the Roman Empire played a decisive role for the development of society in parts of Scandinavia and eventually also the consequences of its fall. How large part these climatic changes played in the turmoil on the continent and Scandinavia can be debated, but is out of scope of this paper.

Ulf Näsman, who in several papers (1988, 2012) has discussed the reasons behind the changes in Scandinavia at the period, stresses that the relations to the Roman Empire and events on the continent are prominent. He thinks the changes seen in Scandinavia are a result of processes over a long period with local and regional variations and with many different causes. For example he sees the changes in the Danish settlement structure in the 3rd century as

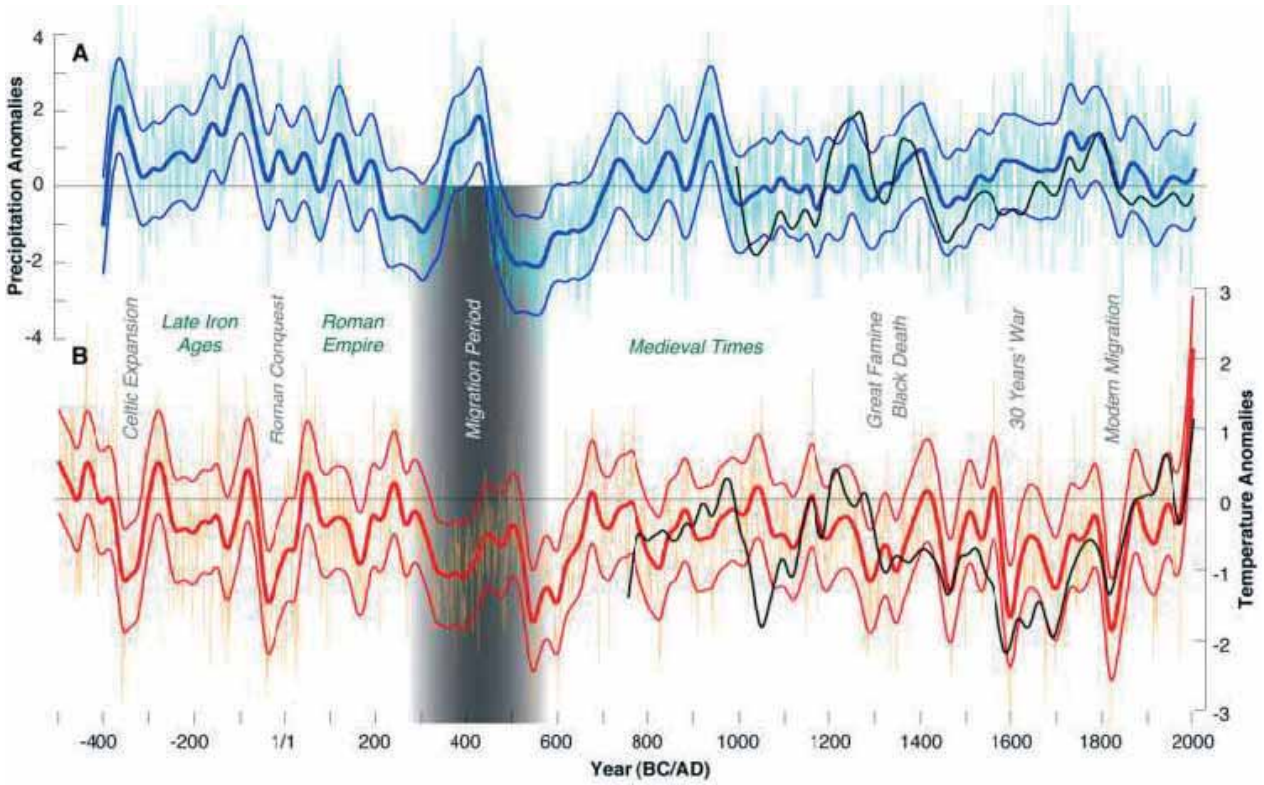


Figure 8.2. Annual-resolved and 60-year low-pass filtered reconstructions of (A) April-May-June (AMJ) precipitation and (B) June-July-August (JJA) temperature variability, expressed as anomalies with respect to the 20th century. Black lines show independent precipitation and temperature reconstructions from Germany and Switzerland. Periods of demographic expansion, economic prosperity and societal stability, as well as political turmoil, cultural change and population instability are labelled with green and grey font (From Büntgen et al 2011. Fig 4 p. 581).

the result of a break-down in the Roman economy, which is in line with the thoughts of Lotte Hedeager (Näsman 2012:8), but also internal conflicts and warfare, which to a degree had its roots in the contacts with the Roman Empire (Näsman 2012:4f).

The causes for the changes between the early and later Iron Age is clearly multifaceted; political, economical and social changes on the European continent and environmental changes caused by a change in the climate are factors to take into account.

Gotland's Roman connection

There is no reason to believe that the situation on Gotland was any different from the mainland in this respect. On the contrary, with the extensive contacts with the Roman Empire, Gotland may have been more influenced by Rome and events on the European continent than other parts of Scandinavia. The huge amount of Roman finds, and especially large amount of silver denarii and gold solidi compared to other regions in Sweden indicates this. The fact that there is correlation between areas where the people constructed many features in their landscape out of stone, and areas with a large amount of Roman imports, indicates an ideological influence from the Roman Empire. Outside the map, shown in fig 8.3, lies Jæren in Norway, which is the area in Norway where most Roman Age artefacts are found and the settlements are manifested in stone, so Norway also fits the picture.

I suggest that the stone material was chosen as a way to identify with the Romans, who were masters in building of stone.

However, the correlation between Roman imports and regions with manifest structures built of stone such as houses and enclosure walls is not total. It is also a matter of having easily accessible stone at hand, and not being too close to the Roman Empire; for the Germans living close to the Limes, the Romans were a great threat, with whom you might not want to identify, in such manners.

Other explanations to why the Iron Age Gotlanders chose to manifest their landscape in stone have also been brought forward. Cassel sees it as a means for Gotlanders to prevent change and manifest the farm and its territory as a permanent feature in the landscape. During the pre-Roman Iron Age, such manifestations were accomplished by stones in the graves; during the Roman Iron Age and the Migration period, this shifted to the houses and enclosure walls, according to Cassel. During the Roman Iron Age, only 65% of the graves had stone settings above ground, which according to Cassel (1998:100f) supports such an interpretation.

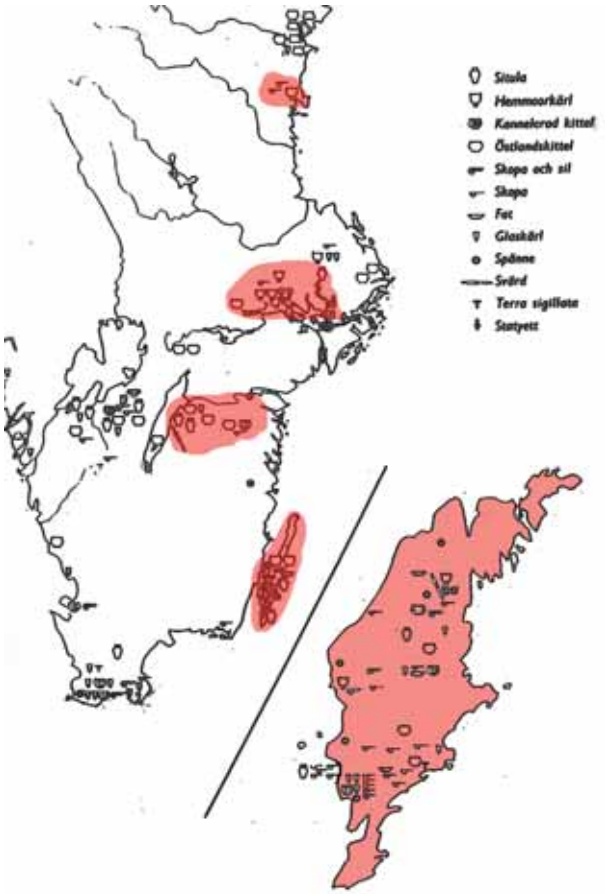


Figure 8.3. Distribution of Roman finds in Sweden (from Burenhult 2012:184). Areas where stones were included in the house constructions or enclosure walls are superimposed in red. In the Norway such areas exist in Rogaland (Grane 2007:152).

Another more functional explanation that has been put forward is that the building material was chosen because there was a lack of wood for building material, due to over-exploitation of the land (Nylén 1979a:183). A parallel to this would be the Scandinavian Viking Age settlements on the Shetland- and Orkney islands, where the longhouses were erected with stone walls, due to of a lack of trees. This might have been the case in the northern-most locations, in north Norway, where people during the mid millennium built their houses with an abundance of stone in the construction (Stamsø Munch et al 1965:21). Evidence from excavations, however, shows that the Iron Age stone house foundations in north-

ern Norway were constructed with inner walls of wood (Skre 1996:58), which contradicts this explanation. Thorleif Sjøvold (1974:345f) has however launched a theory that northern Norway was populated by an agricultural population from the Rogaland district (where Jæren is situated) in the mid millennium, and that there may have been an ideological component in the practice of building with stone walls here too. This migration theory is debated, however, and the link to Rogaland is uncertain (Sjøvold 1974:345f).

Also on Gotland, the house constructions include plenty of wood. The inner walls were made of planks and the whole supporting roof construction was made of timber, but probably not the roofing itself. The amount of wood needed for this type of house probably did not differ much from the mainland; it would have been equivalent to walls of wattle and daub or turf. Even if there was severe pressure on the landscape, due to a relatively high population density and thus extensive use of the landscape for grazing, this would most probably not deforest the landscape to the extent that a shortage of timber for house constructions occurred. This might have been a problem in some parts of the island, like *Storsudret*, the most southern peninsula, where there a shortage of timber has been recorded later in history. When the topographer Hilfeling visited Gotland at the turn of the century 1700-1800, he remarked that there was no shortage of timber and forests, despite the fact that the forests were heavily ravaged of timber for firewood in order to run all limestone kilns (Hilfeling 1800-01:173). Even in the 19th century, when the population density probably was higher than in the mid millennium and the pressure on the landscape must have been higher, there seems to have been no severe shortage of timber. According to Gislestam, Gotland's forest products were a national asset at the time and besides limestone production, tar and timber were important products (Gislestam 1994:25).

The expansion during the Viking Age and Middle Ages

After the decline, a new phase of expansion is seen all over Sweden and Europe. In Europe, the traces of a rapid settlement expansion are seen from at least around the year AD 1000 (Antonsson 2004:47). The expansion lasted until the severe medieval agrarian crises hit in the mid 14th century. This development is also seen in the pollen diagrams from Gotland (Påhlsson 1977:35; 1984:143). More tangible signs of Gotlandic trade start to appear in the 7th century. The important harbour site near the Church in Fröjel was excavated for several seasons by Dan Carlsson. The oldest traces are dated to the early Vendel period or late Migration period and period of use ceases during the 12th century (Carlsson 1999:58). The previously mentioned graves directly on the shoreline in the parish of När (RAÄ När 52) are also indications of early coastal activity, in an area with known landing sites, but with unknown dating.

In 1929-30, several Scandinavian grave fields were excavated by Birger Nerman at Grobina in Latvia. These contained finds from both central Sweden and Gotland from the period AD 650 to 800 (Nerman 1958:1ff). Nerman's interpretation was of a trading station, jointly operated by the Svear and the Gotlanders, which ceased after 150 years, in around AD 800 (Nerman 1958:199f). Since 1930, several more excavations have been conducted. Among other things, a Gotlandic picture stone has been found, of a type normally dated to the 6th or 7th century (Gunnarsson 2012:14), which strengthens the Gotlandic connection. Since then, several more grave fields have been discovered and excavations have revealed a much more diversified picture; Nerman's interpretation is today severely questioned. The new data point more towards a trading settlement populated by both local people and Scandinavians (Gustin 2004:59ff). Furthermore, several other places along the south-eastern coast of the Baltic Sea, show traces of Gotlandic presence at the time, or slightly later; these include Apoulé in Latvia (Gustin 2004:60) and Wiskiauten near present day Kaliningrad, Russia (Gunnarsson 2012:18).

Per Lundström also points to the picture stones which depicted ships as a sign of the start of the expansion and trade by the Gotlanders (Lundström 1979:134). The earliest picture stones depicting ships with simpler sails are dated to the early 8th century, but the more elaborate riggings appear in the late 8th century (Andreeff forthcoming).

Much evidence thus suggests that the Gotlanders started their trading activities during the Vendel period. Slightly more than 70-80 landing sites (harbour sites) have been identified along the cost of Gotland, of which some

have quite clear traces of being used in the Viking Age. An additional 30 display less distinct traces from the Viking Age. The rest are mainly undated. Some of these sites with clear traces from the period, such as Fröjel, Bandlundviken, Paviken, Bogeviken and Västergarn, show signs of extensive activities (Carlsson & Svedjemo 2006). Excavations from the last ten years conducted by Gotland University, now Uppsala University Campus Gotland, have revealed far more extensive traces of settlement in Västergarn than assumed previously (Kilger et al 2013).

The most known traces of these trading activities from the Viking Age, are the more than 750 hoards of precious metal, mainly of silver, which are found all over the island (Carlsson 2013c). They are dated from around 800 AD up until 1140 (Östergren 1989:11). For the early Middle Ages, the magnificent farm houses of stone and the abundance of stone churches are indicators of a wealth, not surpassed by any other region in the Baltic Sea in the period. This expansion period lasted until the medieval agrarian crises, and the invasion by Valdemar Atterdag in the mid 14th century, and the following events.

The peak in the high Middle Ages and following regression

There are several indications that the island had a large population during the Viking Age and especially during the Middle Ages, prior to the mid 14th century decline. Nils Blomkvist has accounted for this, and he argues that the relationship between economic activity and demography is not considered in the Gotland research. The long period of boom and exceptional growth, from around AD 800 up until 1300 would not have been possible without a large population, according to Blomkvist (2010:63f). Siltberg also finds a large population likely, even a crowded situation, when Gotland was at its peak in the Middle Ages (Siltberg 1993:78). Blomkvist compares with calculations made for the European continent, where the population increased dramatically for the period between the years AD 1000 and 1340.

According to Josiah C Russell, the growth was not evenly spread; for Southern Europe it was some 47%, from 17 million to 25, for central and in Western Europe there was an almost 200% increase, from 12 to 35.5 million. The growth was much less for Eastern Europe with around 45%, from 9.5 to 13 million (Russell 1977:36). Another calculation made for all of Europe by Collin Clark, shows an increase of some 110%, from 39.2 to 84.5 million for the period 1000-1340, which is a bit higher for all of Europe than Russell's figures. Clark estimates the European population to only 67.8 million by the year 1500 (Clark 1977:64). Blomkvist points to the uncertainty in the numbers, and that Gotland is situated on the border of two areas with very different growth. The dramatic growth in Western Europe is often explained by urbanism, expansion of trade and craft and a specialised economy (Blomkvist 2010:73ff and there referenced literature). These factors for growth are most probably also present on Gotland, in my opinion then, if any of the growth figures are valid for Gotland, it is most likely those presented for Western Europe by Russell.

Blomkvist points to the fact that such an economic boom with great wealth allowed for more children. In addition, all construction of the stone houses and churches, and specialised crafts indicate immigration of specialists from many places (Blomkvist 2010:81ff). These people are missing in previous calculations of the population, since they do not leave any traces in the historical maps and are difficult to trace in the archaeological material too. In the Guta law, there are paragraphs concerning the rights and obligations of people with houses, but no land (GL chap. 48, 56a) and that it was forbidden to build a house without the permission of the parish (GL chap. 55).

There is also a passage in a letter dated to 1285 from the Swedish King Magnus Ladulås, forbidding the Gotlanders to harbour perpetrators of lese-majesty crimes on their farms or guest houses. The passage that Gotlandic farms had guest houses is evidence, according to Blomkvist, for extensive settlements of non-farmers at or in connection with the Gotlanders farms (Blomkvist 2010:81ff), which I find reasonable. I believe the strong distinction made in the Guta law between the Gotlanders and non-Gotlanders, also is a strong indication for the presence of a large population of immigrants (cf. GL chap. 20 §14, chap. 28 §8 and several others). The strict rules concerning selling of land (GL chap. 28) and the ban of selling outside the family can also partly be seen in this light. It is important for the Gotlanders to keep the immigrants and visiting strangers at arms length and not let them in to take over the island or influence the society in

any great degree. This animosity between Gotlanders and foreigners could also be the cause of the civil war between Visby and the country in 1288. Blomkvist comes to a conclusion that a figure of 35 000 to 40 000 inhabitants on Gotland, including Visby's estimated 10 000, is not impossible, which points to somewhat over 2 000 farms on the countryside. He stresses that this is just estimation and a very tentative depiction of the situation open to large variations (Blomkvist 2010:98f).

Despite the tentative and sometimes speculative basis, I agree with Blomkvist's general picture of a large population. It must be taken into account that there must have been other types of settlements on the countryside of Gotland, which were not farms in the traditional sense, and which are not traceable in the GM1700 and yet have to be found by archaeological means, or have they?

There is one coeval source mentioning Gotland, which supports the idea of a large population during the High Middle Ages. It is however a bit problematic from a source critical standpoint, since the author and origin is unknown. It is first mentioned by Lindström in his book, published in 1892 on medieval sources mentioning Gotland. The source in question is 'The Book of the knowledge of all the kingdoms, lands and lordships that are in the world' and is written by a Spanish Franciscan Friar somewhere between 1350 and 1360, as an account of an imaginary journey throughout Europe (Markham 1912:VIII). Translation of the original Latin text (Markham 1912:10):

> '*I passed to an island they call Gotlandia, which is in the German Gulf, and on this island there is a great city called Bisuy in which there are ninety parishes, and the island is well peopled. There is a smaller island called Oxilia. The King of these islands has a flag of gold and purple bars.*'

It is the part '*...well peopled*.' or '*...totally populated*' [1], which is of interest here, since it indicates a large population. Even if there are some misapprehensions in the text – the 90 parishes in Visby should of course be on the island (the real number is 94) – there are reason to believe that the text is based on real knowledge. The order of Franciscans was present in Visby with a convent, S:t Katarina founded in 1233, and the circumstance that knowledge about Gotland existed in a Spanish Franciscan convent is plausible. The mentioning of a common king of Gotland and Oxilia (Ösel, Saaremaa), is a bit strange and it is hard to understand what it refers to.

The oldest source presenting some kind of number of people or farms for the Middle Ages is from a now disappeared tax record, from 1413, which simply states: '*Mantalet på Gulland...2 300 man*' (*The number of men [Hide?] on Gotland...2 300 men*). Several attempts have been made to analyse these figures, mainly by Siltberg, who has discussed this on several occasions (1986:199, 1990b:127, 1998:74, 2011a:250). He sees a clear connection to the *dagsverksskyldighet*, (labour in lieu of taxes), and he considers this to be the number of men who were liable to pay tax by working for the castle in Visby. He argues for three possible interpretations: 1. the number of farms or farm parts, which is the same as the number of farmers. 2. Settlements, by which he means the number of farmers plus free workers, artisans etc; or 3. the number of grown men, which also includes servants, farmhands etc. He points to the fact that depending on interpretation, you can depict an increase or decrease of farms after 1413 until the 17th century. Based on other written sources, Siltberg himself seems to favour the interpretation of a decrease in farms after 1413 (Siltberg 2011:248ff), and as I understand him, he does not rule out the possibility of 2 300 farms or farm parts in 1413.

1. I have come across two translations of the full original Latin text, but without the Latin original itself. One was rendered in Spanish in the late 19th century and was later translated to English (Marino 1999). The other is a translation made directly to English at the beginning of the 20th century (Markham 1912). They differ slightly in the choice of words, but the meaning remains the same for the interesting part, concerning the population. The Marino (1999:16f) translation is as follows: '*...and went on to an island they call Gotlandia, which is at the end of the Gulf of Alemana. On this island is a great city they call Bisuy, in which there are ninety parishes, and the island was totally populated. After it is another smaller island they call Oxilia. And the king of these islands has for his insignia a flag with yellow and cardinal red crossed bands, in the following manner.*' The greatest difference between the two translations is the description of the flag, which has no bearing for the present work. The translation that Lindström used in 1892 follows Markham's from 1912 in this respect, since the colours mentioned are blue and gold. The oldest map to be found depicting Gotland is on a map of Scandinavia kept in the state library of Florence, Italy and is believed to be of Spanish origin. It is dated to the beginning of the 14th century and depicts Gotland in the colours of purple and gold, which are the same colours mentioned in the Book of Knowledge (Lindstöm 1978:56f), which makes a connection between the two sources possible. Perhaps the Spanish friar had access to a copy of the map when he wrote his book.

This is in line with the opinion of Adolf Schück and Hugo Yrwing, who both interpret the figure to signify the relation that each *mantal* equals a farmer (Schück 1945:206; Yrwing 1978:98). Since it is unknown what the number really represents, the amount of farms and population will vary very much, depending on what interpretation is chosen, as Siltberg (2011:250) points out.

The year 1413 is in the middle of the European medieval agrarian crises, and for Gotland these were hard times, most probably at least from the 1350s, possibly even earlier with a decline in the trade. To my mind, the year 1413 can hardly represent the number of farms/households or farmers. This view is also supported by Blomkvist, who believes the number represents the amount of men that could be mustered in case of invasion (Blomkvist 2010:70).

In a European perspective, the signs of decline started to be seen at the end of the 13th and beginning of the 14th centuries. In Scandinavia the signs of abandonment of settlements are evident from the middle of the 14th century, except for Denmark even where earlier signs exist (Antonsson 2004:49). Most probably, the heydays of the transit trade involving merchants from Gotland's countryside were already over in the beginning of the 14th century (Yrwing 1978:141), and the decline of the population had already begun, prior to the Black Death in 1350, which struck all over Europe, including Sweden.

According to Janken Myrdal, there are calculations for Sweden, based on records of the Peter's Pence[2], showing that the population might have been cut to half in the decades after 1350. This corresponds well with estimates for all of Europe, with death rates of between 30-50% of the population within a few years (Myrdal 2011:224ff). Some areas were even more struck (Harrison 2000:72).

The plague hit several more times during the 14th and 15th centuries and even later, but there are also periods of recovery, so the population fluctuated, but at a low level. The bottom of the crises is believed to have been reached in the mid 15th century (Myrdal 2011:224ff). In a comprehensive study of the extent of the crisis in the county of Jämtland, in northern Sweden, Hans Antonsson has concluded that half of the farms were abandoned (Antonsson 2004:216), which also shows that the long-term effects were severe.

2. The Peter's Pence was a yearly tax paid to the Holy See (the Vatican) in some countries during the Middle Ages, among others Sweden and Norway.

How severely Gotland was affected is uncertain, but with the extensive contacts Gotland had all over Western- and Eastern Europe, there is no reason to believe that Gotland was less severely hit then the rest of Europe. The few available sources all point in the same direction; to a major crisis with a great many killed. The preserved wills on Gotland increase dramatically for the year 1350 and indicate the mortality to have increased five times (Myrdal 2011:225). The number of dated gravestones from Visby also increase considerably, from normally 1-2 per year in the beginning of the 14th century to eleven for the year 1350, which hardly is a coincidence (Harrison 2000:407). This is also seen in the Necrologium, which is a register of the deaths of brothers and beneficiaries, of the Order of Friars Minor (Franciscans) in Visby. For a good hundred years, 50 names were noted, of which 12 were for deaths during the period July to September 1350 (Blomkvist 2010:85). From the gravestone material in Visby, it can also be inferred that the plague struck several times in the 14th century (Widéen 1942:112ff).

The shock and dramatic effect that the plague must have had on the people can be traced in Scandinavian folklore. Legends about the plague are in fact the most common ones and still several hundred of years after the events transpired, they are told. It must be one of the most traumatic events within historical times and thus memorised by the people (Alver 1980:16). Legends about the plague also exist on Gotland. One example is about the village Ukebyn, which has been discussed earlier. In the legend, the whole village is said to have died and only a little girl survived (Österholm 1972:198).

To add insult to injury for Gotland, the Danish invasion by Valdemar Atterdag came in 1361, only ten years after the first outbreak of the plague. In several battles, the last one outside the gates of Visby, some 2 000 Gotlanders were slain by the Danish invasion army (Blomkvist 2010:85), which lead to the conquest of Visby. It is unclear how the rest of Gotland was affected, but according to Schück, Valdemar's soldiers burnt, murdered and plundered in the countryside (Schück 1945:197). This is described in a Latin verse, which indicates that the Gotland countryside was also severely affected by the Danish invasion (Siltberg 2002:32):

> *'Husen är stuckna i brand, ett lidande folk nedhugget; se en hunds like går härjande fram med svärd och Gotland erövras av danskar'*

(*Houses are torched, a suffering people cut down; see the like of a dog ravaging with sword, and Gotland is taken by Danes*).

Later Gotland became the place of refuge for the *Vitaliebröder* (Victual Brothers, the Vitalians or Vitalian Brotherhood), who were a companionship of privateers, hired by the Swedish king Albert of Mecklenburg. They ravaged and plundered on Gotland in 1391 (Schück 1945:199) and after the kings dethronement, they became pirates with Gotland as a base in 1394, where they built several strongholds. In 1398, Gotland was invaded by an army of 4 000 men under the leadership of the Teutonic Knights (*Tyska ordern*), who defeated the brotherhood and they were forced to leave Gotland. The Teutonic Knights then controlled Gotland until 1408.

Based on a copy from 1585 of the so-called *taxuslistan* (tax list), Thunmark-Nylén (1983b:120) calculates the number of farmers to 1 500 in the 14th century or earlier. The *taxuslist* is a list of, among other things, the amount each payer of tithes paid in 39 parishes, which she argues is equal to the number of farmers. She suggests that the list reflects the situation in the 14th century or earlier, which is very uncertain. Gustaf Lindström, who dates it to the later part of the 14th century, which is after the decline (Lindström 1978:19). This is also the opinion of Yrwing and Blomkvist (2010:84). Since it is crucial to be able to establish if the number of farms/farmers refers to the period before or after the decline and the events in the mid 14th century, this figure is not useful for any estimate of the number of farms/farmers in the High Middle Ages, prior the medieval agrarian crises.

Exactly how Gotland was affected by the submission to the Vitalian Brotherhood and the events of war during these decades is unknown, but the whole picture, from the middle of the 14th century and onwards does not suggest any 2 300 farmers in 1413, compared to some 2 250 around the turn of the century 1700. If Gotland also had a decline of some 30-50% after the crises, which I find reasonable, 2 300 farms in 1413 would mean some 3 500-4 600 farms/farmers before the crises, which sounds unreasonably many. There are however traces of abandoned farms, of which many probably were deserted during this crisis.

The complex issue of deserted farms

The issue of abandoned farms, most often referred to as deserted farms has not yet been properly addressed or analysed in any deeper way in the present work. I have only briefly discussed some individual cases in the analysis of the historical maps. Indications and traces of deserted farms are regarded as testimonies of periods of decline and crises, mainly the medieval agrarian crises. When identifying deserted farms several different sources can be used, which can be divided into two categories. The first consists of accounts or cadastres clearly stating that a farm is deserted; the other is different types of remains, both physical remains in the landscape or in writing, indicating that a farm has existed at a certain place and/or in a specific period. There are problems and source critical aspects of both types, since many different types of desertion exist.

In Germany, which has a long tradition of research concerning deserted farms and settlement, two main categories are distinguished: *Ortswüstung*, meaning desertion of the settlement site and the buildings and *Flurwüstung*, meaning reduction of the cultivated acreage. Both categories can be subdivided in total or partial and according to whether the desertion is temporary or permanent (Brunius 1975:48). When studying settlement and landscapes, as in the present work, the deserted farms that are of most interest are often those that were permanently deserted, physically or at least for a longer period, and ceased to exist as an independent farm unit.

In Swedish, the term is *öde* (deserted) and is a problematic term, since it can denote different types of desertion, and is used differently during different periods in Swedish written sources. From the 16th century, the term was not only used when a farm was physically abandoned by its inhabitants and was not cultivated. The term *öde* could after this point in time also mean that it was *skatteöde*, (tax deserted), meaning that the farmer could not pay the taxes to the crown or lease to the landlord. The use of this terminology/expression appears from the 1560s in cadastres, and can be hard to distinguish from physical desertion. The farm was still settled and cultivated, but the farmer lacked the resources to pay taxes and was in financial distress. In the Middle Ages, the term *öde* only denoted the physical state of abandonment and that it was not cultivated (Brunius 1975:51f). This is one of

the complexities of the problem, which makes it a non-trivial issue to study.

For Gotland, Per-Göran Ersson is the only researcher who has penetrated the problem in any depth until recently; his study was made in 1974, some 40 years ago, with a minor update in 1985. In 2010, Malin Eriksson made a new examination of the available sources; her work has just recently been made available in the form of a geodatabase, with the location and sources for the identified deserted farms, but no interpretations of when the farm was abandoned. The empirical material that Ersson collected is thus used by most researchers dealing with this issue. In the present work, however, Eriksson's material is used.

As discussed earlier, written sources for the period before the later part of the 16th century are scarce for Gotland. Ersson used a variety of different sources. These consist of *Ivar Axelsson Tott räkenskapsbok* (book of account) from 1485/86 & 1487 and *Sören Norrbys räkenskapsbok* from 1523-24, the *Husarbetsbok* from 1557/60 (which he dates to the 1570s) and the different later non-geometrical cadastres from the 17th century. There is also a Danish list of 214 deserted farms from the 1580s, called *ödegårdslistan* (list of deserted farms) normally dated to the year 1585 and often labelled ÖL1585 (Ersson 1974:18). He also used the GM1700 maps with the text descriptions that contain the names of all individual parcels of land, which can be counted to several tens of thousands. Here it is important to emphasize that Ersson worked with the original documents and maps in which the text can be very hard to read and the work is thus extremely time-consuming. Ersson has also used published catalogues of runic inscriptions, tombstones, etc. Further, he used modern maps and in some cases, he did different kinds of fieldwork.

Based on these sources Ersson identified around 380 deserted farms. He estimates that only approximately 10% of the farms were permanently abandoned during the Middle Ages (Ersson 1974:97). Of the 200 farms in the sources older than 1523, about 11% cannot be identified in later sources (Ersson 1974:89). He also identifies another period of crises on Gotland with a high degree of desertion, which is the last third of the 16th century when around 7% of the farms were deserted (Ersson 1974:97). Some 60% of the farms that were deserted in this period were re-established within a few decades (Ersson 1974:90). Ersson, however, appreciates the difficulties of establishing the number of deserted farms at any given time and of determining for how long time a farm was deserted (Ersson 1974:97).

The period of decline and abandonment of farms in the latter period is supported by letters of written complaints and reports from Gotland at the time (Ersson 1974:90). This latter desertion follows a general trend for a larger area. The same pattern can be seen in southern and western Sweden. Myrdal has, based on the figures from *Ödegårdsprojektet* (deserted farms project), created a curve (fig. 8.4) over the recovery and establishment of new farms, for southern and western Sweden, showing a small dip at this point of time (Myrdal 1996b:126).

Parallel with Ersson's work in the 1970s, a large Scandinavian project, *Ödegårdsprojektet*, concerning desertion and colonisation in 1300-1600, started in the late 1960s early 70s. One great drawback was that the scholars from the different countries could not agree on the methods, so different methodologies were used in the different countries, which led to very dramatic differences and non-comparable results. In Norway, the maximum of potentially deserted farms was used, which led to very high numbers, in some areas up to ⅔ of the farms were deserted. In Sweden only farms established as deserted with a high degree of certainty were used, which led to very low numbers (Harrison 2000:365f), and in Denmark a method somewhere in-between the Swedish and Norwegian was used (Myrdal 2004:172).

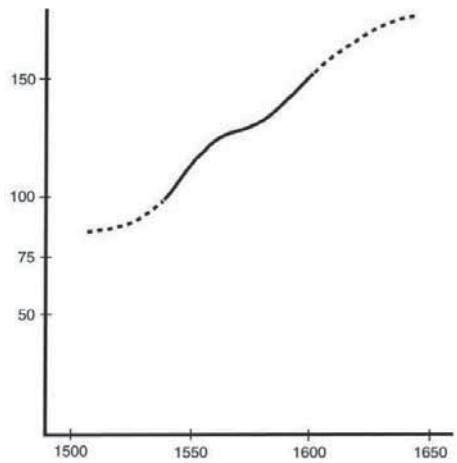


Figure 8.4. A hypothetical curve displaying the increase of farms in southern and western Sweden. The curve is based on data from the Ödegårdsprojekt (From Myrdal 1996b:126).

Ersson's estimation of 10% for the medieval agrarian crisis is quite different from the more recent 30-50% presented above for other areas, so there is reason to believe that Ersson underestimated the degree of desertion. Without knowing it for certain, I suspect that the reason behind Ersson's low numbers probably is that he used a method similar to the Swedish one in the *Ödegårdsprojekt*, and thus made an underestimation. Source criticism is essential, but if it is taken too far one will not be able to say anything about the past, maybe the middle way is the best.

Based on her own material, Östergren argues that Ersson has underestimated the number of deserted farms and she calculates with a major decline in the Middle Ages and 16th century with up to 575 deserted farms (Östergren 1989:232). This is more in line with recent estimates for other parts of Sweden.

As mentioned above, in 2010, Malin Eriksson did a new survey of the written sources and maps in search of abandoned farms. She was not confined to use only the original sources, since she had access to modern reprints of most of them, made by experts. She also used GIS-technology, which made it possible to have a much broader approach, and enabled the use of other sources. These were primarily Arrhenius' map of the phosphate[3] content of many of the fields on Gotland, as well as FMIS. The knowledge concerning deserted farms has also advanced, which provided more criteria in her search for deserted farms. Her work resulted in 932 potential deserted farms (Eriksson 2010b), classified in different categories.

All of these 932 sites identified by Eriksson are probably not deserted farms and this large material is yet to be analysed, which is far beyond the scope of this work. The data exists today in a GIS database, with extensive descriptions and references; most of the sites are registered in FMIS and publicly accessible. In the present work, Eriksson's data has been used, but only for local studies, and no wider conclusions will be attempted. Some of the categories that Eriksson has identified are almost certainly not farms deserted during the Middle Ages, but during other periods.

I will give some examples of some other categories that are problematic, and require further research One of Eriksson's categories already discussed, is parcels of land with variations of the name *Stavgård;* these most certainly bear upon Iron Age stone house foundations, as already mentioned. This category seems to consist of around 50 sites.

There are some one hundred sites with the farm-indicating name ending on *–arve*, which have to be scrutinized, as briefly discussed earlier in chapter 5.

Parcels of land with names containing the elements *tomt* (toft) or *forngård* (old farm/toft) or *hus* (house), do not necessarily have to indicate the toft of a deserted farm. These names can also indicate the location of some other type of settlement than a farm. As discussed above, the Guta law mentions people who have houses, but no land and that everybody who does not own

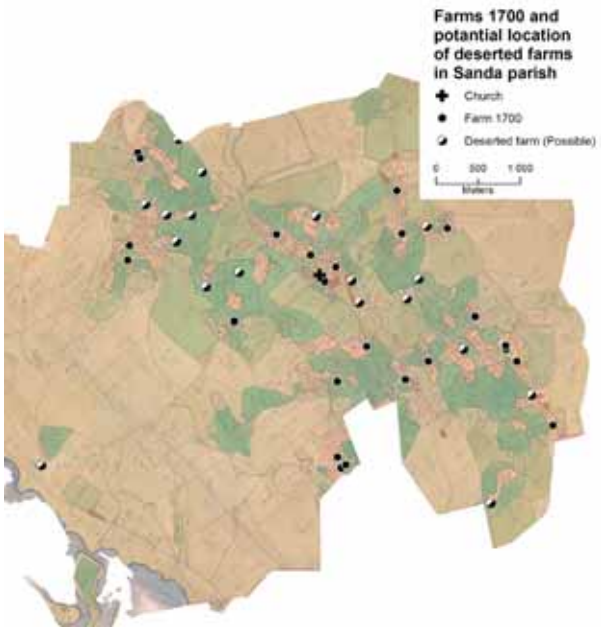


Figure 8.5. Potential deserted farms in the parish of Sanda superimposed on the GM1700 from 1752 (LSA, H71-1:2). (© Lantmäteriet, published with permission I2012/921)

land has to contribute with labour at harvest times (GL chap. 48, 55, 56a). Blomkvist discusses this matter and argues that there must have been plenty of people not owning land who had different functions in the countryside of Gotland in the Middle Ages (Blomkvist 2010:97). All these people had to live somewhere and some of these names may indicate the places of their houses.

The names might also refer to a toft of a moved farm. The most famous example of this is probably Ammor in the parish of Västergarn. This chain of movement is recorded by the surveyor since it probably is an extreme case, in-

3. On commission of Sockeraktiebolaget (the sugar company), Svante Arrhenius in 1929-36, made an extensive phosphate mapping of some 65 000 ha of fields, which is published on a map in the scale of 1:100 000.

volving four moves. The land surveyor of 1701 describes it as follows (Ronsten 2011b: Ammor in Västergarn):

> *'Amor ½ är ⅓ skattehemman $^{1}/_{16}$ abalienerat (överfört till kronan [författarens kommentar]), är flyttat 4 gånger först har det stått uti Runnaqwier i Sanda socken sedan uti Castell högården öster för Västergarns kyrka, för det tredje uti Snowalls gård i Västergarn, och sist hos Per och Hans Amor genom dom Anno 1695 denna tomt dit den sedan flytte ifrån Snowalls…'*
>
> (*Amor ½ is ⅓ freehold $^{1}/_{16}$ transferred (to the crown [authors comment]), is moved 4 times. First it stood by Runnaqwier in Sanda parish then in Castell meadow east of Västergarn church, thirdly in Snowalls farm in Västergarn and finally by Per and Hans Amor by verdict anno 1695 this toft is moved from Snowalls…*)

This farm has thus moved four times and probably left traces at all places, which can be interpreted as a deserted farm. In this case there is a meadow called Tomtängen (toft meadow) and Tomtåker (toft field) at the farm Runne, which probably is associated with Runneqwier in Sanda parish, and the question is if this is the old toft for Ammor or some other deserted farm. Ammor's old toft site in Castell meadow has been excavated by Dan Carlsson, and an abandoned farm was found, dated to the High Middle Ages, which must be the previous location of the farm Ammor, in line with the surveyor's description (Carlsson 2011:100ff). If we did not have access to the description by the surveyor in 1701, the interpretation of these two abandoned sites would most likely have been of two deserted farms, when it fact it is none but one farm that has moved. Other cases, which are known since they occurred close to the time of the first mapping, are the farms Stora and Lilla Libbenarve in the parish of Havdhem, which moved around 450 metres after a fire in 1706, and one part of the farm Bosarve in the parish of När, which moved closer to its field, some 2 km away.

Siltberg suggests another type of cases that can leave traces similar to deserted farms. If there were no direct heirs, the inheritance rules in the Guta law could lead to farms being split up and divided among many and thus ceasing to exist (Siltberg 2013:206). If correct, such a process could lead to traces, which are not possible to distinguish from a farm deserted in times of decline. Östergren also points out that some of the potential farm names found on parcels of land might originate from a farm that changed its name and do not represent a deserted farm (Östergren 1989:223).

It is hard to say how frequent these kinds of moves or other events were without a thorough analysis, but they illuminate a source critical aspect in research concerning deserted farms. An example of what the situation might look like before any analysis is seen in fig 8.5, which shows sites of potentially deserted farms in the parish of Sanda, identified by Eriksson (2010). It can be seen already at this stage that the deserted sites many times are located in the centre of the populated and tilled areas and not in the periphery.

There are thus source critical aspects and angles of Eriksson's material, which need to be analysed and discussed before the extent of the disaster on Gotland in the mid 14th century can be estimated, based on this data. This scrutinizing with proper and up-to-date methodology will probably yield a very different result than Ersson's and it is hoped such work soon will be conducted.

The recovery during the early modern times

From at least the latter half of 16th century and onwards, some fairly good data from different sources are available, but as stated already several times, the first more precise number of farms cannot be established until the first Swedish cadastres in the mid 17th century. The first fairly complete record is the *Husarbetsbok* from 1557/60, which lists the names of all farmers/farms, who were obliged to do labour in lieu of taxes at the State demesne. Some of the farmers/farms are believed to be missing, however, since they most probably were freed from the duty, which makes the exact number uncertain, and several estimations of the exact numbers have been done. I will not account for all the different calculations made for these years, but the variation is not great, only some tens of farms. Siltberg uses the figure 1 541 farmers on 1 508 farms for the middle of the 16th century (1557/60), of which a few dozen thus have more than one part (Siltberg 2011a:236).

From the late 15th century and the first decades of the 16th century, some accounts and re-

cords on paid taxes have been preserved, which were used by Siltberg (2005, 2011a) to calculate the number of farms, prior to the time of the *Husarbetsbok*. The taxes on Gotland were fixed amounts per Thing, regardless of the number of farms in each Thing at a given point in time, with one exception, the winter-*mantal*. This was personal for each farmer and might thus reflect the number of farmers at each point in time. It was calculated as the value of four days of labour per farmer. In the *Husarbetsbok* 1557/60, the value of each day of labour is noted for each farmer and the total sum of tax for the winter-*mantal* was just over 960 marks. In *Ivar Axelsson Totts räkenskapsbok* (book of accounts) from 1485/86 and 1487 (henceforth referred to as the 1480s), only the sum of taxes delivered from each Thing is noted in the book of accounts. Neither the number of farmers nor the value of the labour is noted, so the number of farmers is unknown in the 1480s, but lower sums were paid in tax, 836 or 837 marks per year.

By lowering the value of one day of labour, Siltberg (2007, 2011) calculates that the lower tax sums in the 1480s represent the same number of farms as in the *Husarbetsbok*. The support for the idea that a day of labour was less worth in the 1480s is weak; according to Knud Fabricius several figures are mentioned in the sources of what one day of labour was worth, which are both lower and higher than the value in 1557/60 (Fabricius 1905:58). Even if it is not inconceivable, there is no support for the surmise that the tax sum followed the price of one day of labour at the time it was paid. If one instead assumes the same price for a day of labour in the 1480s as in 1557/60, which is as likely, there would be fewer farmers in the 1480s than in 1557/60. The fact is that by altering the price of one day of labour one could get any number of farms to fit any curve of development.

For the year 1539/50, the winter-*mantal* sum had risen to 929 marks, which Siltberg explains with a raise in the value of one day of labour. In 1570, the tax sum was fixed to 978 marks and was no longer linked to the duty of doing labour in lieu of taxes. The raise of the tax amount of 17 marks between the *Husarbetsbok* in 1557/60 and 1570, Siltberg explains this with an increase in the number of farmers to around 1 595 (Siltberg 2005:17f, 2011a:238ff), not a different price for a day's labour.

The sources are also full of the concepts we today only have a vague idea of what they once meant. In the Danish sources concerning Gotland, there are concepts of *indester* (no translation possible) and *husmän* (housemen), which we really do not know what they mean, but they were often liable to pay these extra taxes (Siltberg 2000:108). The meaning of the Danish term *indester*, varies locally. On Jylland in Denmark, there is more or less consensus that the term refers to people who had a share in the farm, or to the prior owner, who remained on the farm with a contract of support with his successor. On Själland the term also included other individuals (Siltberg 1986:193): '*folk i fast tjänsteställning eller social ringa ställda (änkor, invalider, gamla)*'. (*servants and work-men/women with a permanent position or socially marginalised people [widows, invalids, elderly]*). On Gotland, it is unclear what it signifies, but according to Siltberg, it most certainly includes farmers. On farms with more than one part, only one was listed as a farmer and the rest as *indester*. It is unclear if it included any unmarried brothers or farm hands. The rest probably comprised workers and artisans, etc with a dwelling house of their own (Siltberg 1986:193). These *indester* and *husmän* are in some sources, like the register of population from 1614 and onwards, listed in the same fashion as the farmers with first name and farm name (Siltberg 1990b:135).

There are several other receipts for delivered tax sums of various extra taxes, during the 16th century. The problems with these are that they only mention a sum, and we have no knowledge of who was liable to pay the taxes, if it is the whole sum etc, etc. The source material is very thin and open for many interpretations, since it is often unknown what these tax sums really represent. Another complication is that farms paid different sums, depending on if they were classified as whole farms or half-farms, and since we do not know how many of each kind there were, additional uncertainty is added.

From older notes, it is thus very hard to say anything about how many of each category there have been. Based on the tax sums of the extra taxes in the years 1557, 1559 and 1560, Siltberg exemplifies the outcome of different ways of calculating the number of farms and *indester/husmän* (Siltberg 2000:109), which render very different numbers of farms/farmers; it can be questioned if such calculations even are meaningful. The problem is the same here as with the winter-*mantal* in the 1480s. Depending on how many whole- and half farms, and *indester*, *husmän* etc, you use in your calculations, you can get any number of farms you want, to support any development.

The point with these few examples is to show how difficult, even impossible, it is to do any more detailed calculations of the number of farmers or farms for periods prior to 1653, based on these sources. The result of the calculations largely depends on your assumptions and general view of the development on Gotland, since you must always do assessments and extrapolate from some more or less well known point in time. All uncertainties involved with this type of calculations, makes them very problematic to use as any exact numbers, and it is perhaps just better to only establish the general trend, and rougher estimations of farms.

Based on the total tax sums, a likely trend is of a constant rise in the number of days of labour in lieu of taxes and thus the number of farmers and farms from 1485-87 up until 1570. To my mind, this is more reasonable than seeing the development as stable and it also corresponds better with Myrdal's curve (see fig 8.4) and the general development in Scandinavia, as discussed above.

Ersson (1974:138ff) has also made calculations of the number of farms that might have existed during different times on the island. For different points in time he estimates the following number of farms; in AD 1000 some 765[4], in 1250 some 1 519 farms, in 1450 some 1 529 farms, in 1570 some 1 656 farms and in 1653 some 1 531 farms. His calculations are quite complex, they are not transparent and are thus hard to follow. As previously discussed, they are also impaired by a number of methodological flaws and problems concerning the dates of the establishment and the duration of farms. The problem with dating the establishment of a farm on Gotland by using the farm name, which was Ersson's main method, is criticised by several others and was discussed in chapter 2.2. Besides this method, Ersson attempts to date the establishment and duration of farm sites by measuring the amount of phosphate on the farm tofts (Ersson 1974:84f), which also is rather dubious. There are so many factors influencing the phosphate content at a certain location, which means that using it to date the length of time a site has been in use, is impossible and lacks validity. His time sequence for the establishment of the farms in the parish of Anga is therefore not credible. Because both his main methods for dating the establishment of farms are afflicted with flaws and great uncertainty, Ersson's detailed dating of the colonisation of Gotland during the Middle Ages is clearly unreliable. There is no doubt of an expansion and colonisation during the Viking Age, continuing until the agrarian crises of the High Middle Ages, but Ersson's time sequence for it is most probably invalid. In addition, as discussed above, much new data is available concerning deserted farms, which affects his work and makes many of his calculations obsolete.

One thing worth noticing, however, is that he sees the last decades of the 16th century, which is a period with more reliable data, as a harsh period when many farms were abandoned (Ersson 1974:89f). This corresponds to Myrdal's curve for the mainland, which demonstrates that there are short-term variations as well as long term.

After 1653, the development is quite clear, since good data is available. In Rev1653 there were around 1 520 fiscal farms with some 1 720-40 parts/farmers and some 30+ other types of properties, mainly *tomt*. At the end of Rev1653, the property belonging to the church was also listed, such as vicarages with annex churches. Many of the other types of properties, like free soils and floating soils are in Rev1653 not registered as a separate unit, but listed and cultivated as a part of another farm. In the digital database used in the present work, they are not included as a record of their own, so there are probably more of them, than what is accounted for here. In the GM1700 more or less the same number of fiscal farms is seen, divided into around 2 250 parts/farmers and a good 50 other types of properties, mainly *tomt*, plus 96 vicarages and annex churches. In the following centuries, the division of fiscal farms into more and more farm parts increased rapidly.

It is probably safe to state that since the early part of the 16th century, the general trend has been an increase in the number of farmers and farms/farm parts. There have most certainly been fluctuations and shorter periods of minor decline along the way, but the curve has been pointing upwards since the late 16th century.

4. He also mentions the figure 258 farms during the Viking Age in one of his tables, but it is not stated what this figure signifies or how it is calculated

Chapter 9

Landscape Dynamics

-Summary of the results and the main conclusions

In this the final chapter, which will not be long, the results and my conclusions will be recapitulated; it will thus act as a summary. The main research question was to identify and analyse, what I call generic villages on Gotland, to explain their origin and why the regulated and/or fiscal village never emerged on Gotland. The hypothesis was that the answer to this question mainly could be explained by factors within the Gotlandic society, but also by Gotland's relationships to the surrounding world. The second aim was to present a new view of the development of the settlement structure and of fluctuations in the number of farms/households for a longer period. The studied period was from c. AD 200 up until 1700.

The development on Gotland during this period is most often described as a society with very little changes in political and demographic respects or other aspects. Based on new data from the mainland, it was shown that this stable development with little variations is not correct. Even if the development on Gotland has many unique features and follows its own path in certain aspects, this does not mean it is separated from the development in a larger region.

The source material used to answer the research questions consisted of physical remains, mainly different types noted in the Swedish national Archaeological Sites Information System, FMIS, but also of the first large scale historical maps from the decades around the year 1700, referred to as the GM1700, as well as other written sources. For the first period that was studied, the locations of some 2 000 houses are known, since they were constructed with sturdy stone walls and are thus preserved and identifiable in today's landscape, or in historical maps. The source material for the following periods was scarcer, but some hundred Viking Age sites were identified, mainly by the find places of silver hoards, which in many cases are to be found on settlement sites of the time. Mostly by retrogressive analyses of historical maps, but also other written sources and physical remains, the later periods were analysed.

All available data was gathered in geodatabases, which enabled both comprehensive spatial and statistical analyses for the whole island and more detailed case studies. It must be stressed that the concepts of farmer, household, farm, village and *bygd* (neighbourhood community) are hard to separate in much of the used source material. Furthermore, individual scholars use these concepts in different ways.

From the conducted analyses, it is clear that villages have existed on Gotland, during all of the analysed periods. The villages on Gotland, like in most other places, were originally formed on the basis of kinship. On Gotland, they had a role as a means to organise production and exchange or trade.

The mid millennium

For the first studied period, c. AD 200 – 600, here called the mid millennium, the majority of the preserved Iron Age stone house foundations are found to be situated in what can be defined as villages. Some 60% are situated in small villages of between 2-5 farms. There is of course an uncertainty as to these numbers, due to the recent removal of Iron Age stone house foundations. Since the number of removed house foundations most probably is large, a calculation was done to estimate the number of vanished mid millennium farms. It was based on so called prediction modelling, to establish the most likely settlement areas of the mid millennium. The method

Opposite side: The cross commemorating the battle between the Gotlanders and the Danish invasion army on 27 July 1361. At the site, around 1 800 Gotlanders were buried in mass graves.

for this was by analysing different variables with Logistic regression analysis, which resulted in a prediction map of the most likely areas. The estimation suggests that around 4 000 house foundations once existed, making up approximately 2 000 farms, which means that a little bit more than half have been removed. There are indications that not all Iron Age stone house foundations were in use at the same time, and some 1 800-1 900 coeval farms/households might have existed at the peak of settlement in the mid millennium. There are uncertainties in the analyses, which make these results approximate.

In the GM1700, large areas of meadows are to be found, which are divided into smaller pieces of land; these were owned by many farms in the surrounding area. Sometimes, nearly every farm in a parish owns at least one parcel of land in such an area. These areas of meadows are probably traces of an older form of organisation, sometimes on a higher structural level than the village, which could be referred to as a *bygd* (neighbourhood community), and sometimes traces of an older village organisation. In some parts, these large areas of meadows seem to coincide with the mid millennium settlement structure, on both the village- and neighbourhood community levels. The areas might originally have been utilised in a collective manner, maybe as a common, and divided between the different farms later in history. On the southern part of Gotland, commons are still seen in many areas in the first historical maps from around 1700.

It is unclear how these prehistoric villages and neighbourhood communities were organised during the mid millennium. Largely inspired by the work of Cassel, the interpretation is that the relationship between the different organisation levels was based on some kind of kinship, and that many kinship groups existed on Gotland. The villages, and larger farms, were different types of centres for leadership, including various types of production and exchange for these groups.

The abandonment of the Iron Age stone house foundations is an issue much debated. The key question is if there was a real decline or if just a shift in settlement sites occurred, involving the construction of a new type of house that did not leave any traces above ground. Today, new data from large-scale excavations on the Swedish mainland confirm the earlier indications based on analyses of graves and pollen diagrams, of a major decline over most parts of Sweden and Scandinavia. The causes brought forward through the decades are numerous, involving large-scale migration, war and unrest, plagues, natural disaster, climatic changes, but also the relationship to the Roman Empire and events on the European continent.

In this work, the relationship to the Roman Empire is pointed out as the main reason, but climatic changes and other causes most probably contributed to the great decline that can be seen in the archaeological records. The estimated decline is around 30-50%. A tentative estimation is that some 1 000 to 1 200 farms/households existed at the lowest point of the crisis on Gotland.

The late Iron Age after the decline

In the Vendel period, the first signs of a Gotlandic trade around the Baltic are seen after the decline. This is the start of an economic boom and increase in population and settlements lasting until the High Middle Ages. Compared with the mid millennium, the source material concerning settlement studies on Gotland for the period are much scarcer. For the Vendel period, only a few confirmed settlements with remains of houses are known, which mostly are found when excavation or surveying is carried out on Iron Age stone house foundations and Viking Age sites. This makes the material somewhat biased, and not much can be said about the period.

The analyses for the Viking Age are based on 109 possible settlement sites, mainly identified by finds of silver hoards. A settlement structure with villages is indicated, similar to the mid millennium, many times obviously centred on artisan production and possibly on trade. A shift in the location of many settlements is noticeable, but many also remained at the same location as the Iron Age stone house foundations. The tendency is that compared with the location of the mid millennium farms, the Viking Age sites are located closer to the historical farms.

The Middle Ages and early modern times

During the early Middle Ages, the majority of the existing farms/villages moved to the location seen in the GM1700 historical maps, drawn around the year 1700, but exceptions exist. This

does not mean that all farms seen in the maps are from this time or that all farms from the Middle Ages still existed in 1700. The analysis is based on 122 medieval stone houses with known locations, more or less all of these are found on or very near the historic farm sites.

Based on retrogressive analyses of the GM1700 in 51 parishes, which is a bit more than 50% of all, some 188 generic villages were identified. These consisted of 511 farms, which is fully 50% of all farms in the analysed parishes. The analyses were mainly based on how the land parcels of the different farms in a generic village are mixed and scattered over an often clearly delimited and well-defined village territory. Also during this period, the villages were mostly of a smaller size. Most of these generic villages probably existed during the Middle Ages, perhaps to some degree already in the Viking Age. However, there is an uncertainty also for this period in the number and the sizes of the once existing villages, due to later processes, which in many cases have wiped out any identifiable traces of some villages.

The interpretation is that this follows the same pattern as seen in the previous periods; villages were based on kinship, probably an extended family type of organisation, and this would have been a means to organise the trade. The villages were flexible in their structure, and the number of farms/households could vary based on the needs and number of members in the family.

The concept of extended families does not necessarily mean that all members lived together in one household; they may have lived apart in smaller family constellations, which were self-contained in some aspects and cooperated with the others in other respects. It was more a unit for production than consumption, and could be regarded both as a multi household farm and as a village. Different systems of extended families are known from other areas in Sweden where trade was extensive, like Jämtland, and in the upper strata of the society.

No landed gentry or nobility, who based their wealth, power and social position on the possession and control of land, arose on Gotland and no larger estates are visible in the sources. The elaborated medieval stone houses, which must have been costly to build, however, point to a stratified and socio economically divided society. The differences were not based on possession of land, but were based on control of the trade. Probably, most landowners were involved in the trade in some way, but in the sources from the Viking Age, signs are visible that the control of the trade was concentrated on fewer hands, which led to the stratification.

Estimations on a European level, point to a rapid increase in population from the Viking Age up until the medieval agrarian crises in the High Middle Ages in the mid 14th century. The driving factors behind this increase are urbanisation, trade and specialised economy, which are also key factors in the development on Gotland. This makes it probable that the population on the island was very large at the peak of the affluent period. There was a need for specialists, workers, artisans and others, who all had to live somewhere. The Guta law has paragraphs concerning the rights and obligations of landless people living in the countryside. In addition, there are sources mentioning that the Gotlandic farms had guest houses. This makes it plausible that many settlements, which were not farms, also existed on the countryside of Gotland at the time.

The decline of the trade of the merchants on the countryside of Gotland, most probably began already in the beginning of the 14th century, due to competition from others. Nevertheless, the medieval agrarian crisis in the middle of the 14th century, with the Black Death, the invasion of the Danes and the following decades of unrest, was the real blow, not only to the trade economy, but also to the whole society and must be seen as a watershed in the history of Gotland.

When the heydays of Gotland were over, the rich countryside merchants ran out of resources since they did not have any possessions of real property to fall back on, and they were impoverished. This scenario explains the more egalitarian peasant society, seen in historical times.

All the events in the mid 14th century and onwards, not only meant that most of the trade ceased, but also that a great many were killed, there was probably a large reduction in the population, and thus in farms/households. The consequences of the medieval agrarian crises are much researched throughout Europe and in Sweden. New estimates, point to a reduction in the population of 30-50% for many areas in Sweden, but it had different impacts in different areas. With the vast external contacts and probably dense population, there is no reason to believe the consequences not being severe on Gotland. The few written sources from the island point to the severity of the situation, but also all traces of abandoned farms, *ödegårdar.* However, this was not analysed in any depth in this work.

The lowest level of the crisis most probably occurred during the mid 15th century, after which a recovery started, which led to an increase in population and the number of farms. The revival varied in strength and there were some minor setbacks. This lasted until the industrial epoch when urbanisation processes reduced the countryside population in the 20th century. The long-term development consists of periods of great expansions and deep depressions.

The peaks during the studied periods are the mid millennium and the High Middle Ages, when the population reached numbers which probably were nor surpassed until quite late in history, and for the Middle Ages, probably very late.

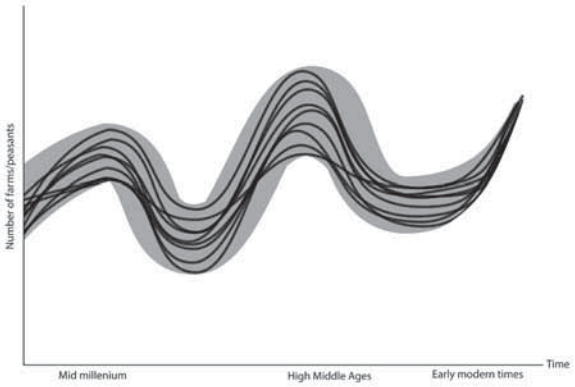


Figure 9.1. A schematic view and general trend of the frequency of farms/farmers on Gotland in the studied period. Since the extension of these vicissitudes is uncertain, the development is depicted as several possibilities.

Continuity and discontinuity

The village structures of the mid millennium and the historical period were also compared, and similarities as well as differences were found. Looking at the whole island the amount of farms in villages is about the same in both periods, but if the individual parishes are studied there is no correlation at all, as a matter of fact, there is a negative correlation. This is also confirmed when the map is studied, where there is a tendency for the villages of the two periods to have different locations. Part of this is probably due to the recent removal of Iron Age stone house foundations, but it is probably not the only explanation. Even if there is a degree of continuity between the two time horizons, there is also a discontinuity in some respects, most probably due to the great fluctuations in the development and the shifts in the locations of the village/farm tofts.

A comparative analysis for the whole island was made between the predicted and known settlement areas of the mid millennium and the cultural landscape and farm tofts seen in the historical maps. The bulk of the utilised landscape is the same, but many clear differences between the two periods can be noted. These differences can most probably be attributed mainly to different soil types, and an increased utilisation of the coastal areas. In the mid millennium, the lower parts of the landscape on moraine soils were preferred, but the historic farm tofts are to a higher degree situated on sandy soils, where such exist. Moraine soils dominate the island and in areas with very little sandy soils, no larger differences were noted, but in areas with both soil types, there was a clearly notable shift of the location of the tofts and fields to the sandy sections. For example on the smaller island of Fårö, this led to a major shift of most of the farms from one end of the island to another. Some areas on Gotland, dominated by sandy soils, seem to have been settled very sparsely during the mid millennium, and most probably became fully colonised during some later period. Examples are the parishes of När, Hamra and Bunge.

Other differences are that many of the small mid millennium settlements, which now are located in forested wastelands, were not settled in 1700. It is unknown when they were abandoned, but some might have lived on after the mid millennium decline, in the 6th and 7th centuries. In addition, the coastal areas were not utilised during the mid millennium and the farms were all but a few, situated at a distance from the coast. In 1700, the coast was heavily utilised where possible, with many fields, meadows, and settlements. This expansion towards the coast, most probably started no later than the early Viking Age.

On the Swedish mainland, the regulated village was introduced by a strong royal power, the landed gentry and a strong church; all with estates built up of farms in the villages and farmed by tenants, often living side by side with the freeholders. The regulation was probably performed in the early Middle Ages, possibly even earlier, as a means to control property rights and control the peasants and incomes. This control and the taxation purposes also introduced written cadastres, establishing the villages as fiscal units. This feudal society, with new types of social bonds and loyalties never emerges on Gotland,

where the loyalties of kinship remain the backbone of the society. No landed gentry was established, the bishop had no land or large influence and no royal power had any major influence on the local life, so no cadastres that we know of were kept. This means that the villages never became regulated or fixed as fiscal units, as on the Swedish mainland, but many of the villages on Gotland lived on into later times as different forms of cooperation and social institutions.

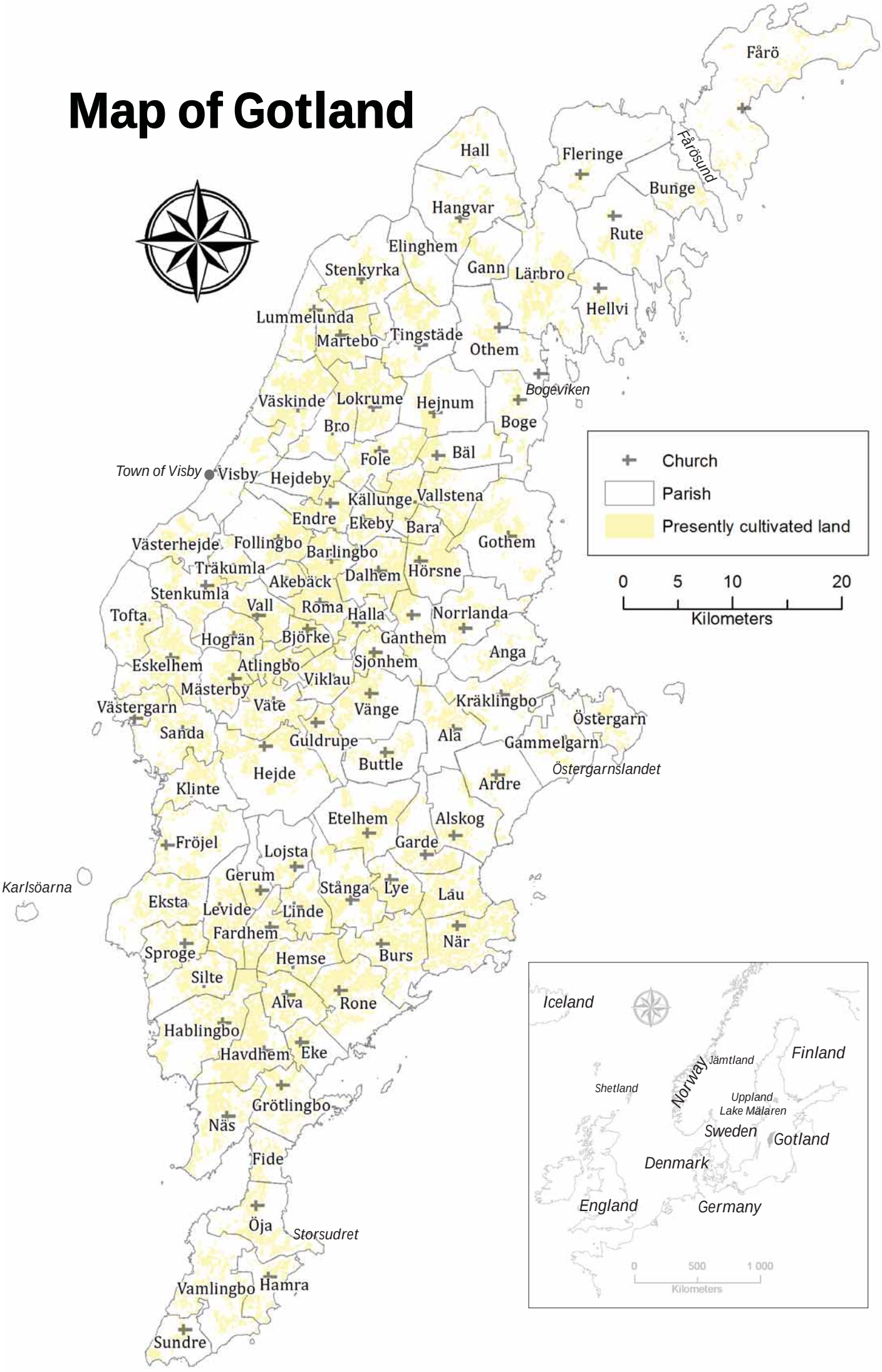
The village as a settlement structure and its main features seem to have deep roots, at least dating back to the mid millennium, probably further. There have however been changes and fluctuation along the way, which have altered the landscape and its structure, sometimes severely. The villages, and the *bygd*, neighbourhood community, have been important levels of the Gotlandic society, from the beginning based on kinship. Up until the High Middle Ages, most of the villages still served as flexible centres for extended families, as a means to organise trade and production. After the 14th century watershed, the village as a family based form of organisation slowly dissolved. As the extensive and lucrative transit trade ceased and the importance of kinship weakened, the role of the villages also diminished, and since they were not fixed in cadastres, or other types of fiscal documents, the village organisation slowly changed and became a more flexible means to cooperate within the local community. Villages in the form of *byalag*, (cooperation in village communities) were noted by the land surveyors in the GM1700 maps. Later, they were also recorded as different groups of farms and different forms of collaboration in ethnographical records and other sources.

Final words

In this thesis, the existence of villages on Gotland has been shown and a picture has been painted of great changes and fluctuation in the development on Gotland from the later part of the Early Iron Age, which I call the mid millennium, and up until 1700. I have stated that I will paint my picture of the development on Gotland. A couple of years ago, I would probably have said that I wanted to tell my story, but it seems a bit outdated today. Being a man who loves maps, painting feels more appealing. The picture I have painted here contrasts in many respects to the one painted by others, but I believe it to be credible. It shows the development of settlements on Gotland as unique in many senses, but also to follow the same paths as the rest of Scandinavia in its main features.

We cannot fully reach out and understand most aspects of past societies, since the people's true thoughts and intentions are buried in the compost of events, but this thesis is my contribution to a greater understanding of some parts of past societies.

Map of Gotland



Explanation of concepts

These terms can be found in different written sources; some are still used and some are outdated and their full original meaning is lost. Most often, there are many dimensions and subtleties to these terms. Here, however, the general explanations will be mentioned.

Allmänning. Common land

Alltinget. The Thing assembly for the all of Gotland, and highest authority on the island, under the presidency of the landsdomare (Siltberg 1991:188).

Angalistan. Runes written on a wall in the church of Anga, listing the 14 farmers who defrayed the cost of building the church. The list is dated to the late 13th century (maybe 1286), and is most often interpreted as mentioning all farms in the parish at the time. The unique point is that this is the only record of farms and freeholders from before the medieval agrarian crisis.

Bebyggelseregistret. BeBR (Data Base of Built Heritage) is a national registry holding information about historic buildings. The represented data ranges from traditional log cabins and old industrial quarters to modern city buildings. As of October 2011 there are approximately 80 000 searchable building records, around 13000 of these are listed as National Monuments, Historical Buildings and Church Monuments. Updates and new entries are made continually (Bebyggelseregistret 2013).

Bidlag. Gotlandic concept. A number of farms forming a group, which were obliged to invite and help each other to different events like weddings, baptism or other functions. It could also include helping each other with haymaking, roofing etc (Lithberg 1915).

Bol. Place of residence.

Bruk. A self-contained part of a farm in a Norway. More or less the same as a Gotlandic *part* and a Swedish *hemman*.

Byalag. Cooperate in a village community

Byalagsbalk. A section in the old medieval laws, with paragraphs regarding certain aspects of villages and cooperation among the inhabitants.

Byamål. A medieval system for valuation of land, signifying an owners share in a village.

Bybildning. Formation/establishment of villages and hamlets

Bygd. The concept of *bygd*, is well established in the Swedish language and it is frequently used, both colloquially and in Swedish historiography; it is not easily translated into English. The direct translation to English is district, but the meaning in the Scandinavian languages is more complex. It is hard to make any formal definition of *bygd*, but a more general description is an area in which people live and have a feeling of affinity amongst themselves; a sense of belonging together. This can be manifested in many ways, in collaboration and social bonds, in ways of dressing or building houses etc. A *bygd* is often delimited by natural features and topography covering a wider or a more limited area.

Byordning. A legal document regulating certain aspects of work in a village, mostly regarding cattle and fencing. The formal *byordning* is of a quite late date.

Bördsrätt. The members in the ätt (family, clan) had far-reaching rights and say in transactions with landed property, this is called *bördsrätt* (birthright). (Winberg 1985:10-29).

Dagsverke or dagsverksskyldighet. Work in lieu of taxes. A form of tax or rent paid by a specified number of days of work with or without draft animals. On Gotland, the Corvée consisted of labour at the Visborg castle from the early 15th century; after the reformation, the former Roma monastery, which had been turned into a State demesne, was also included in the system

Daler. Monetary unit. Swedish Thaler.

Fimbulvinter. In Norse mythology, the Fimbulwinter is a harsh winter preceding the Ragnarök, in which the world submerges, after which it resurfaces, and is repopulated.

Fjärding. Administrative division. It is a fourth part (quarter) of a hundred district. On Gotland, a hundred is equal to a Thing. Some Things on Gotland are divided into two *Hälft* (halves) instead. A *fjärding* is almost the same size as a parish, but there are more parishes than there are *fjärding.* Most farms are situated in the same *fjärding* and parish, but sometimes not. The origin and nature of the *fjärding* is much discussed, as is the question concerning which is the oldest division; the parish or the *fjärding*.

Flurwüstung. German term for desertion and reduction of the cultivated acreage.

Flytande jord. Literally it means floating soil, and is a type of property, which most often only consists of a smaller piece of land, and is owned by a full farm, or sometimes a city dweller in Visby. The origin of this kind of property is debated.

FMIS. Archaeological Sites Information System (*Fornminnesinformationssystem*) The Swedish GIS-database for archaeological sites and monuments, which is publicly accessible at www.raa.se (*Fornsök)*; for professionals, it is downloadable as GIS-layers. Contains information about around 1.7 million remains at 600 000 locations, but is growing.

FMR. Abbreviation of the old, analogue F*ornminnesregistret*.

Forngård. Literality it means ancient farm/toft and appears in names of land parcels. It is interpreted as an indication of an old settlement site.

Fornminnesregistret. The analogue forerunner to *FMIS*, which was kept in notebooks and on paper maps at the County Administration Boards, *Länsstyrelse.*

Fornsök. The on-line version of FMIS, which is publicly available at www.fmis.raa.se.

Frijord. Literally it means free soil, and is in character not possible to distinguish from *flytande jord.*

Frälsejord. See *Jordnatur*.

Fäbod. See *fäboddrift*.

Fäboddrift. The practice of transhumance or shieling. In historical times, it most often meant the movement of the cattle to a permanent *fäbod* for summer grazing. At the *fäbod*, processing and manufacturing of various dairy products also took place, which were vital foodstuff in a cattle based economy.

Gotlands landsting, ***Gutnaltinget.*** See *Alltinget*

Grannlag or Grannelag. Gotlandic term for farms in co-operation, village community

Gutasagan. Translates to the Guta Saga. A legendary narrative describing the first settlers and early history of Gotland, before the christanisation. It is a supplement to the B 64 manuscript of the *Gutalag*, which is written down in mid 14th century.

Gutalagen. The old, medieval regional law of Gotland. It is most probably written down in the early 13th century, and was in 1595, replaced by the Skåne law, by the Danish king.

Gård. Farm.

Gårdslag. A term introduced by Sigurd Erixon (1918) meaning a closed *bygd* of sparsely lying Gotlandic farms, with neighbouring infields and common outlying land used for grazing, having some type of common organisation. It seems to be close to Nihlén's (Nihlén & Boëthius 1933) concept of *bygd*.

Götiska förbundet. The Geatish Society, or Gothic League was created in 1811, as a society to recreate the spirit of the old Geats and also to promote research of their old myths and traditions.

Hemman. *Hemman* is another word for a farm; to be classified as a *hemman*, the farms must be large enough to be assigned a *mantal.* If the farm was too small, it was not regarded to be self-contained and was not classified as *hemman*.

Hemmansklyvning. This was when a farm was split into two new independent farms, each with a *mantal* (hide).

Hospitals jord. A smaller type of property owned by the hospital in Visby and leased to farmers.

Husarbetsboken. The *Husarbetsbok* is a list, made by the Danish Governor on Gotland of all farmers who were obliged to perform work on state land in lieu of taxes. Some farmers, like judges, are believed to be lacking, since they were relieved from the duty. The exact year is debated. It varies between 1557/60 up to 1594. In this work, the year 1557/60 is accepted.

Ivar Axelsson Totts Räkenskapsbok. The book of accounts of the Danish governor Ivar Axelsson Tott for the years 1485-87. It mentions many farmers by name, who deliver goods and taxes to the castle Visborg in Visby.

Jordnatur. A direct translation to English would be soil nature. It refers to the ownership of land. In Sweden there have been four basic jordnatur. Here is a simplified explanation:
Skattejord (Freeholder land) which is a farm owned by free peasants who pay tax to the Crown.
Frälsejord (Tax free land, mostly nobility land), which is a farm/land owned by the Nobility and free from tax to the Crown. The owners either managed it themselves or had *landbor* (tenants) who leased the land and paid lease to the nobleman. No *frälsejord* existed on Gotland
Kyrkojord (Church land), before the reformation it was a farm/land owned by the church and work the same way as *frälsejord*. After the reformation, this technically became Crown land.
Kronojord (Crown land) which was a farm/land owned by the Crown and worked by tenants, who paid a lease to the Crown, equivalent to what a freeholder paid in tax.

Kalevala. The *Kalevala* (IPA: ['kɑlɐ̯vɑlɑ]) is a work of epic poetry based on Finnish and Karelian oral folklore and mythology, compiled in the 19th-century by Elias Lönnrot.

Kastal. A *kastal* is a smaller, fortified tower in the countryside, most often situated near the church in some coastal parishes. According to Andrén (2010), there are around 17 still standing.

Kronojord. See *Jordnatur*

Kyrkojord. See *Jordnatur*

Laga skifte. Act of parliament from 1827 concerning redistribution of land among the farmers in order to create farms with less scattered land. This act was far more drastic than the act of *Storskifte*, since it also broke up the villages. Many of the farms had to move from the village toft, to a new farm toft in the centre of its own land. The land belonging to a farm could not be located at more than 3-4 different places. In addition, the wasteland was divided between the farms in the village, which meant that most of the commons vanished. The acts of *skifte*, are related to the English enclosure movement.

Landbo. Tenant farmer/peasant

Landsdomare. He was the highest official and county judge of the island. He chaired the *Alltting*.

Landskap. Normally translated to county in English, but is not exactly the same. In Sweden, the oldest provincial division is the county. There are 25 counties. Prior to the unification of Sweden, the counties were independent with their own regional laws. Since the mid 17th century, when the administrative unit of *län* (the modern administrative county) was introduced, the old counties no longer have an administrative function, but are still important for people's identity in many places. Up until recently, most counties also constituted a *län*, but several exceptions existed.

Ledungen. This was a system set up to organise the free men to do active service to defend the realm or wage offensive war, which probably dates to late Viking Age or early Middle Ages

Linda. A field only used sometimes or a deserted field and other meaning that is unknown to us today. The tax for *linda* was lower than for a regular field.

Manslätt. An old measurement of the yield of meadows. One *manslätt* was what one man could mow in one day.

Mantal. *Mantal* is an assessment of the supporting capacity of a farm where the *mantal* of one is a full farm. it was mostly used to calculate the taxes or rent. In the studied period, the lowest *mantal* was ⅛. It is not a simple unit of area, as it depends on the productivity of the land. It is an approximate figure.

Marklej. It is not fully clarified when the *marklej* became established as a measurement system, but it is mentioned in the Guta Law from the early 13th century as a system used by the Gotlandic farmers to divide the taxes among themselves. It was not a system imposed by any authority, according to Siltberg (2008:111). The system of *marklej* was finer grained than *mantal*, with a maximum value of 32 and a lowest value of 0.5, in 1653. The increment is 0.5. The origin and exact construction of the *marklej* assessment system was lost in the mist of history already in the 17th century. There are three accounts from the years of 1645, 1653 and 1683, of what constituted a *marklej.* There are differences, but

they all include a certain amount of fields and meadow. One *marklej* was most likely equal to 5 *tunnland* of field or 5 *manslätt* of meadow or half of each. In 1653, other recourses like bog fodder, fishery and outlying land were also included; in 1683, the *marklej* consisted of a certain amount of fields, meadows and forest (Siltberg 1986:189ff, 2008:99)..

Matlag. People having their meals together, meal cooperation.

Ortswüstung. German term for desertion meaning desertion of the settlement site and the buildings.

Part, partklyvning. This was when a farm was divided into two separate and independent parts, but was still considered as one unit in a fiscal sense cf. *Hemmansklyvning*

Ragnarök. In Norse mythology, Ragnarök is a series of future events, including great battles between gods, giants and beasts, resulting in the death of most of them, and ends with the world submerging.

Rannsakningar efter antikviteter. A nationwide survey for ancient remains and historical monuments conducted between 1667 and 1693. The survey was performed by the vicars, who sent their reports to Stockholm.

RAÄ. A frequently used abbreviation for *Riksantikvarieämbetet.*

Revideringsinventeringen. The second survey of ancient remains, covering the entire country, except the mountain areas. It was conducted between 1974-2002.

Riksantikvarieämbetet. The Swedish National Heritage Board is the agency of the Swedish government that is responsible for heritage and historic environment issues. The Swedish National Heritage Board, which serves as Sweden's central administrative agency in the area of heritage and the historic environment, is under the auspices of the Ministry of Culture. The Cabinet's objectives for the Board include encouraging: 1. preservation and protection of the historic environment; 2. respect for the heritages of different groups; 3. appreciation of, commitment to, and the assumption of responsibility for one's own heritage.

Rör. Cairn or border mark

Saköreslängd. Roll of fines. Lists of fines for crimes and misdemeanours.

Sambruk. This was when several households or farms owned and/or worked a resource together. This might be a farm, a field etc. It is a term often used in older research.

Skattejord. See *Jordnatur*

Stamfamilj. Stem-family

Stensträng. Stone wall or enclosure wall; the remains of enclosure walls made of stone. They consist of low dry-stone walls that can be several hundred metres in length, made of relatively large stones, often around 0.5 metres in diameter. They are most often interpreted as stone walls, which enclosed the infields, thus preventing the livestock and wild animals from grazing in the fields or meadows (cf. Carlsson 1979). However, some interpret them partly in other terms and see them as also having ritual or cosmological functions (see Cassel 1998 and Nihlén & Boëthius 1933). Many still remain in the landscape and some were most probably partly utilised and rebuilt in later periods, which can be a bit of a problem, when using them in analyses of the Iron Age. They should not be confused with a more modern type of stone walls, called *stengärdsgård*, mostly from the 19th and 20th centuries.

Stenvast. See *Stensträng*

Storskifte. Act of parliament from 1749 and 1757 concerning redistribution of land among the farmers in order to create farms with less scattered land. Only the infields were affected. The purpose was to make farming more efficient. The acts of *skifte* are related to the English enclosure movement.

Storsudret. The most southern tip of Gotland, made up of the parishes of Fide, Öja, Vamlingbo, Hamra and Sundre.

Svear. Name of the peoples living around Lake Mälaren. Central places in the *Svea* realm were, Birka, Sigtuna and Uppsala.

Sämjodelning. A division of a farm and its land, which was not official. It was carried out by the farmers themselves.

Sören Norrbys Räkenskapsbok. The book of accounts of the Danish governor Sören Norrby for the year 1523-24. It mentions many farmers by name, who deliver goods and taxes to the castle Visborg in Visby.

Taxuslistan. This can be translated as tax list. A medieval list, which exists in two copies, listing some of the incomes the bishop of

Linköping was entitled to from the parishes of Gotland. It also lists the number of tithe payers in 39 of Gotland's parishes

Ting. Thing in English. A governing and judicial assembly existing in Germanic societies. All free men had the right to attend. There were normally several levels of Thing, with different administrative functions. Gotland was divided in 20 Thing, on the lowest level. The highest Thing, was the *Allting.*

Tomt. 1. Toft, the place where the farm buildings were located. 2. Term used in old cadastres, denoting small parcels of land property mostly without buildings, which were most often cultivated under another farm. Sometimes they were owned by the user and cultivated by the owner as an independent unit

Tunnland. Measurement used to measure land, mainly fields. It is often translated to acre in English, but is larger than an acre, which is 4 047 square metres and a *tunnland* is 4 936 square metres.

Tpq. Terminus post quem, earliest possible date.

Treding. An administrative division which divided Gotland in three parts; *Sudertredingen*, *Medeltredingen* and *Nordtredingen*.

Vandrende landsbyer. Wandering village. A well-organised type of village, which, except for minor internal adjustments, maintained its structure and placing throughout one to two centuries, whereupon the entire village was relocated to a different place within the larger settlement area (Holst 2004:181).

Vitaliebröder. The Victual Brothers (the Vitalians or Vitalian Brotherhood) were a companionship of privateers who later turned to piracy. They were hired in 1392 by the Dukes of Mecklenburg to fight against Denmark. Between 1394 and 1398, they had Gotland as a base for their piracy in the Baltic. They controlled several hundred ships and thousands of men.

Åbo. Another term for a freeholder or tenant.

Årliga räntan. Also called *Jordeboksräntan*, which was the yearly tax the farmers had to pay for their farm. It did not include any personal taxes.

Ätt. Clan, extended family. In the present work, it is used as the term for an extended family, as mentioned in the regional laws, without any reference to any notion of a clan based society

Ödegård. In Swedish, the term is *öde* (deserted) and is a problematic term, since it can denote different types of desertion; it is used in various ways during different periods in Swedish written sources. From the 16th century, the term is not only used when a farm is physically abandoned by its inhabitants and not cultivated. The term *öde* can after this point in time also mean that it is *skatteöde*, (tax deserted), meaning that the farmer cannot pay the taxes to the crown or lease to the landlord. This use of the terminology/expression appears from the 1560s in cadastres, and can be hard to distinguish from physical desertion. The farm was still settled and cultivated, but the farmer lacked resources to pay the taxes and was in financial distress. In the Middle Ages, the term *öde* only denoted the physical state of abandonment and that it was not cultivated (Brunius 1975:51f).

Ödegårdslistan. Danish list of deserted farms on Gotland from the 1580s

Ödegårdsprojektet. Large Scandinavian project concerning desertion and colonisation 1300-1600, which started in the 1960s and continued until the final publication in 1989.

ÖL1585. Abbrivation of *Ödergårdslistan*

References

Unpublished sources

Maps

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http://historiskakartor.lantmateriet.se/arken/s/advancedsearch.html

09-ALS-2	09-ANG-3	09-GHE-2
09-HAB-3	09-HAV-1a	09-HRL-1
09-LEV-3	09-LIN-3	

LSA, *Lantmäteristyrelsens arkiv* at Lantmäteriverket (the Swedish mapping, cadastral and land registration authority)
http://historiskakartor.lantmateriet.se/arken/s/advancedsearch.html

H3-1:2	H4-10:1	H4-11:1
H4-19:1	H5-1:2	H12-1:2
H13-1:1	H14-1:1	H14-2:2
H16-1:1	H16-2:1	H16-29:1
H21-12:1	H21-17:1	H21-20:1
H21-22:1	H24-1:1	H35-1:1
H37-1:1	H39-1:1	H40-1:1
H42-3:1	H42-5:1	H42-7:1
H42-8:1	H42-9:1	H42-20:1
H42-23:1	H42-25:1	H42-29:1
H42-31:1	H42-32:1	H45-1:1
H55-1:1	H56-11:1	H56-15:1
H59-1:1	H64-1:2	H66-5:1
H66-6:1	H66-11:1	H66-11:2
H66-12:1	H66-12:2	H66-14:1
H66-15:1	H66-16:1	H66-19:1
H71-1:2	H90-1:1	

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