

Soil Studies and Historical Archaeology

A Discussion on Forest Saami Settlements

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This paper focuses on the historical Forest Saami culture in northern Sweden. Since the time period in question is of historical date, it is possible to acquire information about the Forest Saami culture and way of life from both historical and ethnological records as well as archaeological records. The main purpose of this paper is to discuss how these different types of source material and different methods can be combined in order to study different aspects of Forest Saami settlements. The possibilities in studying decayed constructions and activity areas at Forest Saami settlements by means of soil chemical analysis are also discussed and exemplified.

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INTRODUCTION

The Saami reindeer herders in northern Sweden are usually depicted today as herders with large reindeer herds, which move across long distances between the forest and the mountain area. This description agrees with the reindeer herding of the Mountain Saamis (Manker 1947:73f). The mountain reindeer herding is, however, not the only type of Saami reindeer herding that occurs in these areas. Forest reindeer herding is another type of reindeer herding, which in many ways differs from the mountain type. Today the Forest Saami areas are restricted to the boreal areas of the province of Norrbotten, and parts of the province of Västerbotten. However, the forest reindeer herding was much more widespread during earlier periods, and it is often considered to be the oldest form of reindeer herding (Aronsson 1995:53). In late historical times, forest reindeer herding in Sweden was practised in an area that extended from the Finnish border in the north, to the forest areas of middle Sweden (Aronsson 1991:4).

Archaeological studies of settlements with hearths in the Forest Saami area have shown that hearths from the Late Iron Age and all through late historical times are located in the same areas and show a similar morphology. This indicates

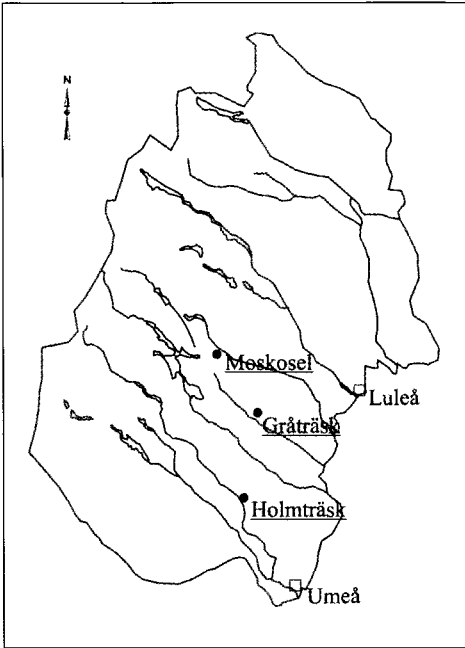


Fig. 1. Map showing the provinces of Norrbotten and Västerbotten, with places that are mentioned in the text. (Moskosele is the village that is situated closest to the settlement of Nilasvallen at the Nilasjokk forest reserve.)

that these dwelling sites have had a similar organisation and morphology during a considerably long period of time. The bone material connected with these hearths also indicates that the importance of the reindeer as a resource increased during the Late Iron Age compared to earlier periods (Hedman 2003:217, 190ff). Vegetation changes caused by activities at these settlements have been studied through pollen analysis. The studies indicate that the Forest Saami tradition of gathering reindeer in special pens has caused specific changes

to the vegetation at the settlements in question. The specific changes in vegetation have been recorded at settlements from historical as well as Iron Age times (Aronsson 1991:98f). There is, however, no unambiguous evidence of when reindeer herding first developed, and there has been an extensive debate amongst both historians and archaeologists regarding the matter (Aronsson 1991:111ff; Fjellström 1985: 68ff; Hedman 2003: 230; Lundmark 1982:171f; Mulk 1994:247f; Storli 1994:77ff etc).

This paper focuses on the historical Forest Saami culture. The main purpose is to discuss how a variety of source materials and methods can be used to study different aspects of Forest Saami settlements. Since the time period of interest is of historical date, there are both historical and ethnological data that can supplement the archaeological record. It is also possible to reveal other aspects of Forest Saami life by using sources that are mainly connected with other sciences, such as soil science. In order to discuss the possibilities for combining these varied source materials, a short description of the Forest Saami culture is necessary.

FOREST SAAMI CULTURE AND TRADITIONAL FOREST SAAMI SUBSISTENCE

The term "Forest Saami" is used to describe Saami populations that live in the forest area throughout the year. The traditional reindeer herding that was carried out by the Forest Saamis was based on reindeer milking. The reindeer herds were small in comparison to the herds of the Mountain Saamis, and the reindeer were relatively tame. Reindeer herding was not the only means of subsistence for the Forest Saamis, and it was supplemented to a variable degree by hunting, fishing,



Fig. 2. A restored Forest Saami timbered hut (Sw. *timmerkåta*) with a timbered milking pen (Sw. *mjölkningsgärde*). The picture is taken at the settlement of Nilasvallen, Nilasjokk forest reserve, in the province of Norrbotten. Photo by the author.

gathering and in some cases also cultivation (Hultblad 1944:103ff, Ullenius 1937:124). Nowadays, the reindeer herding that is practised by the Forest Saamis is more like the mountain reindeer herding. The reindeer herding is focused on meat production, and no milking is practised; the herds are larger and the animals are no longer domesticated to the same extent as earlier (Hultblad 1944:115f). The grazing lands are, however, still located in the same areas as previously, which means that the reindeer stay the entire year within the boreal zone.

The traditional buildings and the organisation of the settlements of the Forest Saami population during historical times deviate in many ways from those of other Saami groups. The main reasons for this are the practice of reindeer-milking and the extensive supply of trees for building material in the forest area. Buildings that were characteristic of the Forest Saami culture during historical times comprise timbered huts (Sw. *timmerkåtor*) and milking pens for the reindeer, made of timbered logs (Sw. *mjölkningsgården*). Different constructions for storage (Saa. *njalla*, *aite*) were also common at these dwelling sites (Manker 1968:184ff; Ruong 1982:105ff). This type of constructions mainly occurred at settlements that were used during the period from spring to autumn. During the winter the Forest Saamis usually lived in mobile tents (Sw. *tältkåtor*) or lodging rooms at farms in the area (Aronsson 1995:54).

When the colonisation of the northern parts of Sweden intensified after the

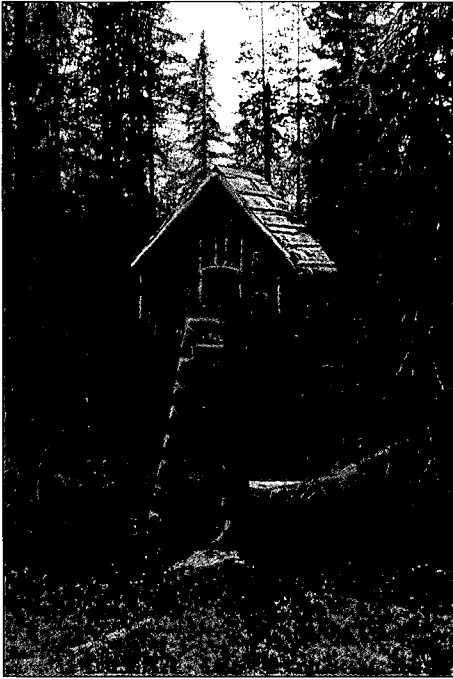


Fig. 3. A newly erected building for storage (*Saa. njalla*), located at Nilasvallen, Nilasjokk forest reserve, in the province of Norrbotten. Photo by the author.

end of the eighteenth century, a competitive situation arose between the settlers and the Forest Saamis concerning the resource areas. This competition was one of the dominant causes that led to the end of the milking-economy and the transition of many Saamis from reindeer herders to settlers (Hultblad 1944:116). In the Forest Saami area the tradition of reindeer-milking ceased during the 1930s (Manker 1968:32).

Although the older type of forest reindeer herding did occur in some parts of the forest area as late as the first decades of the twentieth century, there are few traces left from these activities today. The remnants of Forest Saami settlements usu-

ally consist of parts of timbered constructions, like huts (Sw. *kåtor*) and milking pens. The activities at these settlements have also left traces in trees and caused changes to the vegetation. In trees the traces of Saami activities can be seen, for example, as blazes for marking trails and borders, and as scars from bark-peeling for food. Wedges (Sw. *tråkilar*) are also often found in trees inside the former reindeer pens. The wedges were cut into the trees in order to attach milking vessels on while the milking of the reindeer took place (Zackrisson *et al.* 2000:99ff; Östlund *et al.* 2003: 78ff). The reindeer droppings and urine have also caused manuring of the soil in the reindeer pen, which can often be seen in deviant vegetation inside the pen (Aronsson 1991:27f). These traces are all of transient nature. The wooden constructions decay rather quickly, and the trees that originally stood at the settlement die and moulder. Often, even at rather late Forest Saami settlements, there are no distinct traces of larger constructions. Usually the only thing that is preserved is the stone-constructed hearth that was originally located inside the hut.

Another factor that has diminished the possibilities for preservation of the remnants of Forest Saami culture is the intensive forest exploitation and management that has taken place in the forest area for over a century (Ericsson 2001:3). The forestry has removed trees and vegetation that give evidence of former Saami activity and has caused damage to constructions at the settlements.

When talking about Saami culture and subsistence it is, however, important to remember that not all of the Saami population are reindeer herders. Today only

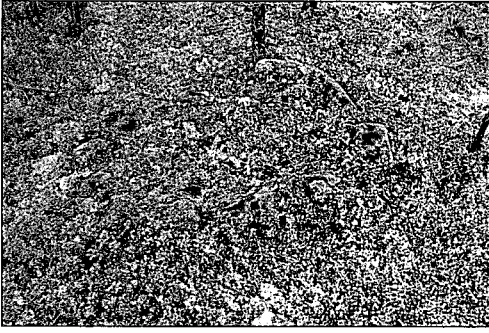


Fig. 4. A typical hearth found at settlements in Forest Saami areas. The picture shows a hearth at a dwelling site located outside the village of Gråträsk in the province of Norrbotten. Photo by Birgitta Fossum, Dept. of Archaeology and Saami Studies, University of Umeå.

about 14 % of the Saami population in Sweden are reindeer herders (Gustavsson 1989:10). Variety in the means of subsistence has probably occurred amongst the Saami population also during earlier periods, and the extent of reindeer herding may have varied in time as well as place. This means that it is not possible to assume that the transition from an economy based on hunting, gathering and fishing to an economy based on reindeer herding, occurred in a linear process that was the same for the entire Saami area (Saa. *Sápmi*). The process might instead have differed considerably between different periods in time as well as between different geographical areas.

DIFFERENT PERSPECTIVES ON FOREST SAAMI CULTURE

In an archaeological perspective, the Forest Saami settlements provide limited information about Forest Saami culture, subsistence and settlement patterns. Different type of objects that can be found within the hearth and in the surrounding areas can indicate the age of the settlement and the ethnic context. Bone material from the hearth can also give some information about the means of subsistence of the people who inhabited the settlement (Hedman 2003:96ff, 160, 190ff). The seasonality can in exceptional cases also be traced through the bone material from the hearth. The archaeological material usually cannot contribute more detailed information about how the settlement was used and organised. There are also very few finds of archaeological artefacts, from both prehistorical and historical times, that are indicative of reindeer herding (Aronsson 1991:2). The archaeological material found on these dwelling sites is in most cases rather scarce, which limits the possibilities for archaeological interpretation. Ritual aspects and aspects of gender are also difficult to illuminate, since these parts of the Saami culture seldom can be connected with archaeological finds or constructions that are preserved on the dwelling sites (Mebius 1968:41ff; Mulk 1994:218). No evident graves have been found in connection with these dwelling sites, and the knowledge about older burial customs in the boreal area of northern Sweden is very limited. There are, however, some finds that indicate that the graves might consist of sub surface cremations, without any obvious markers above the soil surface (Hedman 2003:231).

Historical and ethnological studies can supplement the archaeological data concerning the Forest Saamis during historical and modern times. Written material that can be used to study different aspects of Forest Saami life during and after

the sixteenth century consists mainly of different types of government documents such as taxation records and records from the district courts (Sköld 1993:18ff). Taxation records can give information about the tax payments, for example the amount and type of payment that was made. Records from different years can reveal changes in the taxation practices that were made over time. These documents can also provide information about different Saami taxation areas that were used for resource exploitation (Sw. *lapps katteland*, *fisketräsk*) and about the tax that was connected with these. This can, for example, give insight into how the rights to practise fishing in specific lakes were divided between different Saami villages (Sw. *samebyar*) and which resources and resource areas were the most important. The taxation records can even provide information about individual persons, such as the residence for individual Saamis and the inheritance of different taxation areas.

Documents concerning juridical proceedings can illuminate different disputes, such as those between Saamis and settlers or amongst the Saamis themselves (Hultblad 1968:37ff; Sköld 1992:3f and 1993:64f). They can also give indications of which resources and resource areas were the most important to the Saamis, as well as provide information on the division of land and the different boundaries of different taxation areas. Juridical documents that concern cases of witchcraft can also contribute information on how this type of crime was looked upon by the Swedish judiciary, and give some insight into the practice of Saami religion during historical times (Rydving 1995:62f).

Additional data on the Saamis and the Saami territory (Saa. *Sápmi*) are found in documents written by people who for one reason or another lived or travelled in these areas (Kvenangen 1996:15). Many of the people who travelled in areas inhabited by the Saamis had no or only limited knowledge of Saami language and culture. These were important factors, which probably led to misunderstandings between the visitors and the Saami population.

The clergy that lived in Lapland in order to spread Christianity among the Saami have also contributed information about the old Saami religion as well as other aspects of Saami life (Rydving 2000:17ff; Lundmark 1982:34; "Berättelser om..." 1983:VIff, etc.). This information is, however, rather variable both in scope and reliability, and there is a variety of source-critical problems with many of these documents. The first clergymen that came to Sápmi probably had restricted knowledge of the Saami language. It was, however, legislated already in 1723 that all clergymen that worked in the Saami area should know and speak the Saami language (Kvenangen 1996:80). The accounts of the clergy are, however, problematic to interpret for other reasons. These documents are all secondary sources; the clergymen did not actually participate in or witness Saami religious practice. The accounts are also largely based on each other. This leads to problems with the interpretations because of the considerable differences in Saami religion that existed between different areas and different Saami groups (Rydving 2000:29).

The people of the Saami population who are represented in these documents

are also mostly men. Information about other parts of the population, such as females and children, is scarce in the written sources. Another aspect that is important to bear in mind when reading these types of documents is that they were all produced for a certain purpose. Accordingly, the descriptions may not always have coincided with the real situation, but instead present a modified version that better fitted the special purposes of the writer. The Saamis themselves also limited and controlled the information that the clergy and the travellers received and they could leave out aspects of the information that they did not want to reveal.

The ethnological studies that have been carried out on the Saamis illuminate other aspects of Saami life and culture than the historical studies. They give detailed information about everyday activities and the material culture for daily use. These studies can provide information about other parts of the population than the men and give insight into aspects such as gender-based tasks or differences in religious practice between men and women (Manker 1968:24ff; Drake 1918:3ff). The studies consist of interpretations of observations made by the researcher and of information given by the Saami population. Like the writers of the historical material, the researchers have in most cases been men, which probably have led to a focus on the male conditions in the Saami society. Written sources are also an important part of ethnological studies, as well as for historical studies. This means that similar source-critical problems arise within both ethnological and historical research.

The information about the Saamis that historical and ethnological data can give is also limited in time. The oldest written documents that mention the Saamis can be traced back to before the tenth century AD, but it is not until after the 1550s that there is more extensive documentation about the Saamis (Sköld 1992:2). The ethnological studies are limited to the last centuries, and deal with Saami societies that have radically changed through the influence of the Swedish government authorities.

NEW PERSPECTIVES ON FOREST SAAMI CULTURE – THE USE OF A VARIETY OF DIFFERENT METHODS AND SOURCES

If the historical, ethnological and archaeological sources are combined, some of the source-critical problems can be managed. The archaeological material from historical times can complement and fill in the gaps in the other two materials. It can also be used to verify and test the information about the Saamis that is given in historical documentation or in ethnological data. The archaeological data are, however, limited to aspects of Saami culture and life that can be ocularly observed in the landscape or the soil today. Since the constructions and the material culture of the Forest Saami population have left few traces, even from historical times, it is difficult to draw any far-reaching conclusions from the archaeological remains found on the Saami settlements. There are, however, other ways to study the activities that do not leave apparent traces in the soil or above the soil surface, as well as to locate remnants from decayed constructions. One way to do this is by

using soil chemical analysis (Engelmark & Linderholm 1996:315f). Different activities that take place on the soil surface cause diverse types of changes in the chemical and physical composition and structure of the soil. These changes can be preserved in the soil even after constructions and other traces of human activities have decomposed or been removed from the site for some reason or another. By using different soil chemical analyses these changes can be traced and interpreted. Spatial analysis can locate different areas of activities over the whole settlement area. This means that soil chemical surveys can cover areas beyond the hearth and the original floor of the hut. By adjusting the soil sampling according to the purpose of the survey, it can give information about activities on different levels. A wider sampling can give information about various activities that have been performed within a larger area, such as an entire settlement. If the sampling is instead done more densely, it can contribute more detailed information about different activities that have occurred within certain areas, such as different functional units within houses.

The soil chemical analysis detects soil changes and creates a picture of the soil situation in an area. The results, however, include both changes caused by natural processes, for example weathering and natural soil formation, and changes caused by human activity. The human influence on soil can also be seen on different levels. Human influence on a regional level can consist of more general phenomena, such as acid rain that affects the soil pH. On a more local level, changes can be caused by specific human activities that have been performed within a delimited area. In order to distinguish changes caused by human activities from those caused by other factors, it is important to consider different factors in the study area that can provide information about the natural environment and the effect of the environment on the soil. Important factors to consider, for example, are topography, hydrology, geology and vegetation and to clarify whether colluviation or erosion occurred in the area (Rapp & Hill 1998:18). It is also important to distinguish modern or more recent land use that can have affected the soil after the time of interest. The soil chemical analysis can also give indications of soil disturbance. If these factors are considered, it is possible to minimize problems with recent disturbance and complex soil conditions already when choosing the area of investigation.

Besides more modern, human land use it is also important to trace earlier human activities in the study area. This can be done by identification of visible cultural remains, artefacts and vegetation changes caused by specific human activities. When studying historical times, relevant sources, such as different types of documents and maps as well as oral traditions and place-names, can give valuable information concerning earlier land use.

Different types of human activities affect the soil in different ways. This means that various types of soil change can be traced to a specific activity on a local level. Earlier settlements can be pinpointed through deviations in the soil chemical composition and physical conditions between the settlement area and the sur-

rounding area. The extent and level of the soil changes indicates the intensity and permanence of the settlement in the same way as the archaeological material does (Bergman 1995:79 etc). Specific activity areas can also be distinguished through variations within the settlement. Burning activities cause oxidation of iron in the soil, which affects the magnetic properties of the soil (Brady & Weil 2002:277f; Limbrey 1975:325). These changes can be detected through measurements of magnetic susceptibility (Thompson & Oldfield 1986:49). Different types of agriculture also cause changes in the soil, which can be studied through analysis of soil organic matter and phosphate (Engelmark & Linderholm 1996:315ff).

Activities connected with the Forest Saami settlements have affected the environment and the soil. The gathering of the reindeer in the milking pens had a manuring effect on the soil. This can still be seen at many abandoned settlements as a distinct difference in the vegetation between the area within the original milking pen and the surrounding area. The same type of vegetation can also be traced through analysis of pollen from older settlements (Aronsson 1991:37, 98f). Trees within milking pens are often much bigger than those in the surrounding area, and they are usually also overgrown with lichens. The conditions in the pen also promote the growth of other plants, mainly grasses and herbs. The special environment that exists in the pens has been caused by the opening up of the forest in the pen and the manuring, trampling and grazing of the reindeer (Aronsson 1991:35f). The nutritious conditions at the pen have also made agriculture possible on a minor scale. Cultivation of potatoes and turnips were common, at least from the seventeenth century. There are even some examples of cultivation of cereal at pens located in favourable locations, but this was rather uncommon (Hultblad 1944:108). Many of these settlements were eventually transformed into farms during the last centuries (Hultblad 1968:151ff).

Studies of Forest Saami settlements through soil chemical analysis also involve some source problems that need to be considered. These settlements seem to have been used for a considerably long period of time, probably for different purposes and in connection with different means of subsistence. Many of the Forest Saami settlements and huts were in use even after their primary function within the traditional forest reindeer herding economy had ceased (Aro 1997:12). It was not unusual that abandoned timbered huts were used in other contexts, such as shelter for woodsmen who worked in the area or by other Forest Saamis who practised the more modern form of reindeer herding. Some of these settlements were also turned in to crofts or farmsteads when the majority of the Forest Saami population during the twentieth century abandoned reindeer herding and became settlers. The later use of these settlements was, at least in most cases, not particularly intensive, and there are several abandoned Forest Saami settlements that have not been used to a great extent for later activities. This means that it is possible to find and study settlements where recent activities have had an insignificant influence on the soil and caused no considerable disturbance to it.

Different activities connected with the traditional milking-economy may have had greater effects on the soil within the settlements. Changes in the organisation of the settlements during earlier periods have probably had more impact on the soil than different recent activities. Reorganisation of both timbered huts as well as milking pens is mentioned both in historical and ethnological sources. It was also common to move different constructions for storage between different dwelling sites (Manker 1968:181; Westerdahl 2002:186f, etc). Older hearths and huts do not seem to have been reused to a great extent. Instead, new huts were often built in the vicinity of old decaying huts. This means that the place for the inhabited huts probably moved over the settlement during time. In order to avoid different reindeer diseases, the milking pens could also have been moved over the dwelling area, or a varied use of several milking pens within one settlement could have been practised (Ullenius 1937:115ff). The milking pens could also have been gradually rebuilt in different ways. There are also examples of older milking pens that have been used to gather the reindeer in more modern times. This reorganisation of the settlements has probably affected the soil in different ways, and the most likely results are probably soil disturbance and less distinguishable activity areas. The possibility of these types of reorganisations makes it crucial to record any traces of older hearths and other types of past human activities, when investigating Forest Saami settlements.

Historical as well as ethnological records can reveal different changes in the organisation of the settlements that took place during the later historical periods. The conditions during older historical and prehistorical periods are more problematic to study. There is a lack of written material from these periods that describes the organisation of the settlements. Information about older settlements can therefore only be acquired from the remaining traces of the settlements in the modern landscape. The Forest Saami settlements often show continuity from prehistorical/early historical periods to late historical periods (Hedman 2003:159). The continuity implies that the settlements probably have been reorganised several times and may have been used for different purposes, within different systems of subsistence. The morphology of the hearths has been similar during the whole period, which makes it difficult to estimate different phases of the settlement solely on the basis of archaeological surveying (Hedman 2003:213). The similarities in the construction of the hearths as well as in settlement localisation might, however, indicate that already in prehistoric time, a similar use of the settlement area was brought about by an economy no different from the forest reindeer herding economy that was practised during historical times.

If soil chemical analysis is carried out and interpreted on the basis of the historical, ethnological and archaeological records it is possible to diminish some of the problems and put different soil chemical phenomena in a cultural context. Features at the settlements, such as the milking pens as well as the floor area of the hut, can be studied through soil chemical analysis.

Soil chemical surveys that have been performed at Forest Saami settlements

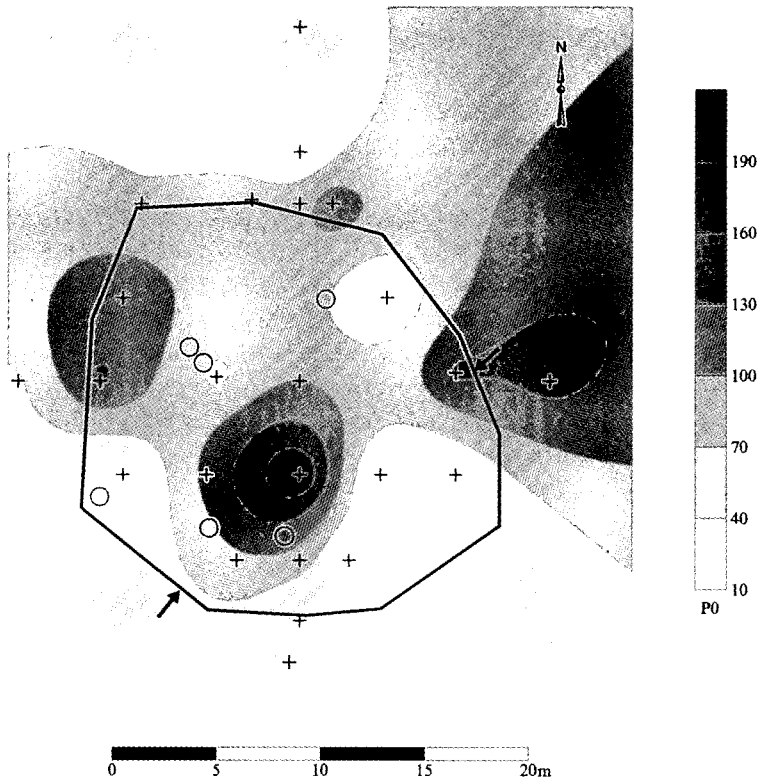


Fig 5. Enrichment of soil phosphate (P^0) inside the milking pen at Nilasvallen, Nilasjokk forest reserve, in the province of Norrbotten (Karlsson 2002:13). The figure shows older trees that grow inside the pen today (marked with circles). Some of these trees have remnants of wedges (Sw. *träkilar*) that were used during the milking of the reindeer. The entrances to the pen as well as the sampling points are also marked in the figure (marked with arrows and crosses, respectively).

indicate that the activities within the milking pens have not caused soil changes that are homogeneous over the entire enclosed area (Karlsson 2002:12f & 2003a:8f). Instead, limited areas within the pens show phosphate enrichment and enhanced magnetic susceptibility, while a distinct area with phosphate enrichment often can be seen outside the pen. There also seems to be some connection between trees with wedges (Sw. *träkilar*) and soil changes inside the milking pen. This might reflect that only a small number of reindeer were taken into the pen for milking, while the other animals in the herd were left grazing just outside the pen.

Soil chemical analysis can also reveal both the outer delimitation of the hut and the different activity areas inside the hut. The original location of the walls of various types of dwellings can in some cases be shown by enrichment in both phosphates and soil organic matter, due to material deposited inside the dwelling. In dwellings that have regularly been cleaned out, it is rather common that some of the deposited material remains on the floor area close to the walls, where it

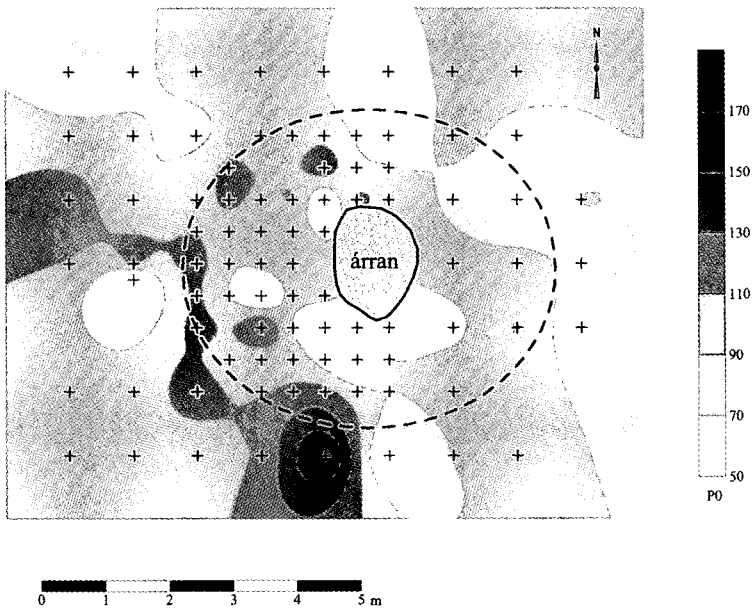


Fig. 6. Enrichment of soil phosphate (P^0) around a hearth located at Holmträsk, in the province of Västerbotten (Karlsson 2003b:14). Note the accumulation of phosphate on the left side of the hearth (Saa. árran), indicating the former wall of the hut (Sw. kåta). The same pattern cannot be seen on the other side of the hearth. This is probably due to the wider sampling in this area. An approximation of the outer limit of the hut has been made on the basis of the soil chemical conditions (marked with a broken line). Both the hearth and the sampling points are marked in the figure.

breaks down and accumulates in the soil. This causes clearly defined enrichments, mainly in soil organic matter and phosphate. In some soil chemical surveys it has been possible to detect enrichments in soil organic matter and phosphate that can be connected with the outer parts of the floor of the hut (Karlsson 2003b: 14, Mulk 1985:40). This is extremely valuable, since remnants that show the outer limitations or the location of the walls of the hut seldom are preserved.

The soil chemical data from the area around the hearth can be interpreted from different historical and ethnological data, with regard to the inner organisation of the hut and the cosmic conception that was connected with the hearth and the dwelling (Roung 1982:105ff; Rydving 1995: 144ff; Ränk 1949:87ff, etc).

The floor in the Saami hut was divided into different areas that were associated with both gender and religion as well as different types of housework. Differences in these divisions can be found among different geographical areas, but there are certain descriptions that generally seem to apply to most of the Saami area (Saa. *Sápmi*). The functional and the cosmic divisions of the hut were largely connected. Descriptions of the Swedish parts of Sápmi show that the hut was usually divided into different units. The hearth (Saa. *árran*) constituted one unit. In connection with the hearth, there were two areas for housework, both at the entrance and in

the back of the hut. The areas alongside the hearth (Saa. *luojddo*) were places for the household members. The housework area that was located at the entrance of the hut (Saa. *uksa*) was used for storage of equipment and fuel, amongst other things. Activities in this area were mainly performed by females, and they consisted for instance of the care of fuel and hay for the shoes. The area at the back of the hearth (Saa. *boassjo*) in the hut was used for cooking and preparing meat and fish. This place was considered to be sacred, and females were not allowed to enter this area. The area that made up the *boassjo* in the hearth was often marked in the hearth by larger stones. Here, hunting equipment, food and scraps could be stored, and the area was connected with the sacrifice that was practised by the men (Rydving 1995: 148f). There even occurred smaller entrances in the back of the hut, at the *boassjo*, so that the meat and fish could be taken in to the hut without passing the female area at the entrance of the hut.

The division of the hut also had a religious aspect. In Saami pre-Christian religion the hut was considered to be the room for the female goddesses *Máttaráhkká*, *Sáráhkká*, *Uksáhkká* and *Juoksáhkká* (Fossum & Karlsson 2003a:8; Mebius 1968:74, 146f). The different goddesses had different roles in the Saami religion, and they also had different places in the hut. Inside the hut, sacrifices were made to these goddesses in particular places. The sacrifices usually consisted of beverages like milk, coffee or alcohol that were poured over the hearth and on the surrounding floor.

The different activities that took place inside the hut are possible to study through soil chemical analysis. Earlier archaeological studies have shown that there are few finds from excavations of floor areas in former Saami huts that reveal anything about the inner division (Mulk 1995:220). In order to study features inside the former hut it is necessary to perform a dense sampling from the area around the hearth. Soil chemical surveys of floor areas have shown that samples must be taken at least every half metre in order to detect the outer delimitation of the hut. Sampling every metre or half metre can also reveal some indications of the inner organisation of the hut. Soil chemical surveys that have been carried out show that an enrichment in both phosphates and soil organic matter can be

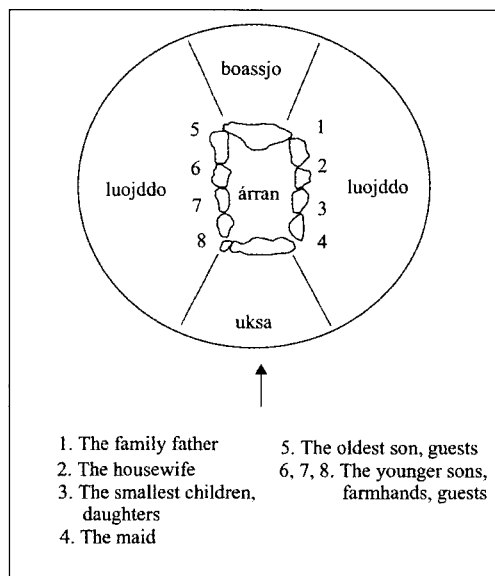


Fig. 7. The inner organisation of a hut (Sw. *kåta*) from Jokkmokk parish. The figure shows an example of how the space could be divided among members of the household (based on Ränk 1949:107).

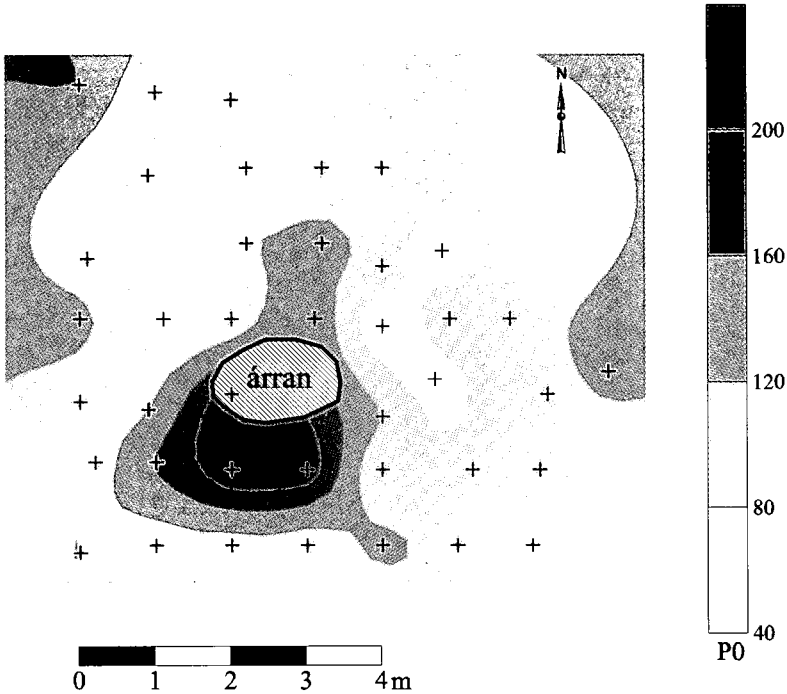


Fig 8. Enrichments in soil phosphates in the area around a hearth located outside the village of Gråträsk in the province of Norrbotten (Fossum & Karlsson 2003b:24). The enrichment in the southwestern parts of the hearth might be interpreted as the *boassjo* of the hut, where, for example, food was prepared.

connected with the hearth and surrounding areas (Huggert & Karlsson 2002:25, 29; Karlsson 2003b:14, etc). It is not uncommon that the soil surveys reveal a delimited area at one side of the hearth that is deviant from the surrounding area. This area often correlates with the side of the hearths that can be interpreted as the *boassjo*, because of the occurrence of larger stones. The handling of food in this area may have caused the distinct enrichments in both soil phosphates and soil organic matter.

CONCLUSIONS

The traces of Forest Saami culture that can be seen in the landscape today are not particularly significant and can in many cases only be seen by a trained eye. In spite of this, there are different types of source material that can give evidence of Forest Saami culture and ways of life during prehistorical as well as historical times. The Forest Saamis have been studied by historians, ethnologists as well as by archaeologists. Constructions and activities that are not evident above the present soil surface can also be studied through soil chemical analysis. These different fields of study are, however, limited when they are considered separately. If instead they are combined, it is possible to overcome some of the problems that

arise within the different fields of study and to broaden the discussion of different phenomena connected with the Forest Saami culture.

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