

Archaeology and the debate on the transition from reindeer hunting to pastoralism

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Abstract: The distinctive Sami historical land use concerning reindeer management and settlement of inner Troms, North Norway, is reflected in places with archaeological remains. The insight and knowledge connected with these places can be accessed through oral traditions and place-names where reindeer management is embedded in reindeer knowledge developed over long time spans. Previous distinctions between wild reindeer hunting and pastoral herding can be redefined, since much of the traditional knowledge concerning the wild reindeer (*goddi*) may have been transferred to the domesticated animals (*boazji*). The transition from reindeer hunting to pastoralism is a current research focus and archaeological results from inner Troms indicate that several Sami dwellings with árran (hearths) are related to a transitional period from AD 1300 to 1400. This period is marked by a reorganisation of the inland Sami *siiida* (collective communities), and changes in landscape use wherein seasonal cycles and grazing access began to determine the movements of people and their domestic reindeer herds. This reorganisation was a response to both external political relations and the inner dynamic of the Sami communities. The first use of tamed reindeer was as decoys and draft animals in the hunting economy, only later becoming the mainstay of household food supply in reindeer pastoralism, providing insurance for future uncertainties. The formation of the national border between Norway-Denmark and Sweden in 1751 led to extensive changes in the previously trans-national mobility pattern, leading to fragmentation of the old *siiidas* and to a new stage of nomadic pastoral economy.

Key words: archaeological remains; circumpolar regions; domestic reindeer; hunting wild reindeer; interior Troms; pastoralism; Sami reindeer herding; traditional reindeer knowledge; transition from hunting to herding.

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Introduction

Reindeer herding, which includes various forms of pastoralism and nomadism in space and time, has its own dynamic and practise, its own history, memories, knowledge and way of life. The ways in which culture is expressed through various forms of reindeer herding are unique and must be perceived in the context in which the activity is practised and managed. The history of the effects of reindeer herding, with its distinctive management, is defined and identified in the form of cultural remains and

use of the landscape. According to nowadays Norwegian and Swedish legislation, reindeer herding is ethnically distinctive and tied to Sami culture, and has recently been strengthened through national politics and regulations. Research into reindeer-herding culture with a focus on the older forms of reindeer management, as was the case for my dissertation, is therefore based on an array of historical and cultural suppositions (Sommerseth, 2009a).

When it comes to the question of whether archaeology may assist in approaching the

problems surrounding change and influence within the reindeer-herding culture from a historical perspective, the answer is affirmative. Archaeology has already contributed with a full spectrum of material and immaterial cultural remains as major components to the discussion. The physical cultural remains and local knowledge are essential for how the reindeer landscape both past and present is understood and valued; it is also possible to detail the insight and knowledge that is connected to such places to a certain degree. Reindeer herding traditions encompass important historical information, for example, providing insight into the herder's understanding of the landscape and contributing to a meaningful archaeological comprehension of the cultural landscape. The results of archaeological studies not only contribute to an understanding of the timeline for when changes occurred in the reindeer-herding landscape, but also add to the discussion of social organization and the use of resources.

I have categorized reindeer herding as an "ethnically specific behaviour" as a basic premise for my work.¹ By this I mean that it is possible to see how certain practices and ways of life are ethnically distinctive and therefore stand out as being ethnically defining (Sommerseth, 2009a:3). This also implies that the material culture involved in this way of life is ethnically specific. Therefore, reindeer-herding culture and its cultural remains make up a field of re-

¹ In the Nordic area, keeping reindeer has however also been connected to none-Sami culture, cf. the Norwegian chieftain Ottar's report for the English King Alfred AD 890, the nowadays reindeer companies of southern Norway some with traces back in history, and present reindeer husbandry in Finland. For a long time, domesticated reindeer were as well part of subsistence for some of the none-Sami settled people in the mountain areas and in the north. However, as from the end of the 19th century in Norway merely Sami had the legal rights to this occupation.

search where one, to a large degree, has control over the socio-cultural context. This makes it possible to follow the practise over a long period of time, as with my area of research in inner Troms (Fig. 1). It should be emphasized that reindeer herding is pursued by various peoples and groups today, spread over a large area of the circumpolar regions, where everyone has their own distinctive means of expression (Jordan, 2011). These circumstances make it possible to identify reindeer-herding culture based on archaeological, ethnographic and historical sources throughout the entire Eurasian region going far back in time (Grøn, 2011).

Early research on the transition to reindeer herding

Earlier research within the fields of archaeology, history, ethnology and anthropology has usually concluded that the transition from wild reindeer hunting to reindeer pastoralism has led to considerable changes in Sami society, leading to the more extensive nomadic pastoralism we know today. The origin of reindeer pastoralism is currently debated, and the initial stage is centred around two periods covering several hundred years. According to one line of argument, reindeer pastoralism, also understood as reindeer husbandry, developed between the 14th and 17th centuries (Vorren, 1980; Lundmark, 1982, 2007; Olsen, 1984; Hansen, 1990; Mulk, 1994, 2005; Fjellheim, 1999; Wallerström, 2000; Hansen & Olsen 2004; Sommerseth, 2005, 2009a, 2009b). Other researchers suggests that the Sami kept tame² reindeer as a form of reindeer herding subsistence or reindeer pastoralism in a much earlier phase, during the period between AD 200-1000 (Aronsson, 1991, 2005; Odner,

² There is an important distinction between tame and domesticated animals. Tame means that the animals are accustomed to people. Domesticated means a more profound change through selection on certain traits, e.g. calm temper, shape, colour.



Fig. 1. Interior of Troms county (Inner Troms), areas of archaeological investigation. Illustration: Ingrid Sommerseth and Johan Eilertsen Arntzen.

1992; Storli, 1994; Hedman 2003, 2005; Bergman *et al.* 2008; Andersen 2011).

The causes of these developments have been discussed in different interpretations, and the emphasis has often been placed on a variety of conditions such as trade, taxation, foreign politics and legal decisions, as well as progressive agricultural colonization (Tegengren, 1952; Hultblad, 1968; Vorren, 1980; Lundmark, 1982, 2007; Hansen, 1984, 1990). Some researchers have explained the transition in light of a

decimation and extinction of the wild reindeer population (Vorren, 1980; Lundmark, 1982, 2007; Fjellheim, 1999; Bjørnstad *et al.*, 2011). Other researchers have also focused on the internal changes within Sami reindeer society, and they point to the late Middle Ages as the period in which these changes become visible. Some of the causes may be explained on the basis of the economy and the nature of ownership of reindeer, with a shift from reindeer being a common resource in an egalitarian hunting so-

ciety to private ownership of the domestic animal in a more stratified society (Vorren, 1980; Olsen, 1984; Hansen, 1990). The latter line of argument coincides with a new type of settlement pattern in several inland areas that has been archaeologically investigated and dated to around AD 1400-1500, a pattern more aligned towards the needs for suitable pastures for herded reindeer (Mulk, 1994, 2005; Sommerseth, 2007, 2009a). In addition, the latest research on ancient reindeer DNA reveals major genetic changes, suggesting a wholesale shift in the reindeer population during the transition from wild to domestic reindeer around AD 1400-1500 (Bjørnstad *et al.*, 2011).

Early on, Tim Ingold (1980) developed an oversimplified model for change in the reindeer-herding culture of the circumpolar regions, in which he emphasized both internal social mechanisms and external factors for transformation. In the first phase, which is presumed to have been the society most focused on reindeer hunting and gathering, the wild reindeer were presumably hunted collectively for consumption with common social access to all resources. The second phase entailed, to a certain extent, access to privately owned domesticated reindeer, a pastoral model with collective grazing, and appropriation primarily for the household's own consumption and transport needs. In the third phase, a transition to extensive reindeer herding and ranching took place, integrated within a market economy. This model takes into consideration the fact that Sami reindeer-herding groups are capable of transforming themselves on their own terms, while still taking part in the world around them.

Today we see that this interpretation is too strict when it comes to demarcating and defining the various operational models for change. It is doubtful that all wild reindeer hunting and gathering during the first phase was exclusively for consumption. Enormous chains of pit-fall

systems have been discovered throughout the entire northern Fennoscandian region, indicating surplus production. This hunting method must have demanded an extensive distribution network, involving exchange systems and economic relations far outside the mountain and tundra regions, which were undoubtedly developed within a network of various different groups. Large pit-fall systems for hunting wild reindeer may have been established around 2600 BC. The proposed date can be debated because of methodological problems with pit-fall dating and the scale of analysis. In northern Norway only 24 hunting pits have been radiocarbon dated. The results span several thousand years but the dating suggests two major peaks, one centred between BC 2600 to 2000 and the other during the period BC 1100 to 800, during the Early Metal Period in northern Norway. However, the use of the pitfall systems in wild reindeer hunting in Norway, also covers the rest of the period dating from approximately BC 2600 to AD 1200 (Sommerseth, 2009a:253).

In Ingold's second phase, it is historically known that reindeer owners had grazing lands that were taxed, and individual households commonly had small reindeer herds (Andresen, 1991; Päiviö, 2001). In the mid-16th century, a family had on average about 20 reindeer based on counts made by authorities in 1605 and 1609, and the numbers provide a fairly good indication of the general pattern of ownership of domesticated reindeer (Hultblad, 1968:206; Lundmark, 1982:144, 2007:2). This indicates that the land was not held entirely collectively as Ingold (1980) asserts, and that it was not typical to have large herds of reindeer with subsequent over-grazing during intensive operational periods.

Regardless of the different interpretations of the initial stage of the transition, the first period during the early Iron Age contained important changes in the north which can

be defined as a late stage of the “samification process” in which ethnic identity and social inequality emerged in a wide regional interaction system, later to be marked by an intensification of the fur-trade, taxation, state formation and Christianization. The current debate also reflects that there has been a gradual development from reindeer hunting to herding, and that the transition cannot be understood as a linear development. Instead, we must be sensitive to chronological and geographical variations in the organisation of herding, and how these organisational differences might manifest themselves in archaeological remains in the landscape.

Reindeer knowledge and practices throughout time

In the past 15 years, several researchers with a background in indigenous methodology have looked at the unique way in which reindeer herding has been practiced both in the past and the present. This knowledge is directed, to a larger degree, toward the reindeer-herding culture's own dynamic, where more weight is placed on the traditional knowledge system when looking at changes or traditions, viewed in light of cultural, social and economic circumstances (Oskal, 1995; Fjellheim, 1999; Joks, 2000; Sara, 2001; Sveen, 2003; Nergård, 2006; Jernsletten, 2009; Sommerseth, 2009a). The traditional reindeer knowledge system comprises a broad focus concerning the human experience and basic ontological or phenomenological circumstances in the world, which can be described here as to use our capacity to make sense of things within the reindeer landscape (world). From a theoretical perspective, I have therefore emphasized the uniqueness of the traditional reindeer knowledge system, which has many of the same analytical usage-oriented approaches that are found in phenomenological thinking around the issue of *Being* (Sommerseth, 2009a:31).

Both livelihoods of hunting wild reindeer and keeping tame reindeer in a pastoral herding economy include experience-based knowledge of the reindeer's relationship to the land. In part by introducing the term “*Hunting embedded herding*” (In Norwegian: *fangstbasert reindrif*), I want to explore the organizational space between the dichotomies hunting and herding (Sommerseth, 2009a:35-39). It has therefore been beneficial to move past the dichotomous terms, wild and domesticated animals, and as Tim Ingold (1986:5) claims; *the study of reindeer exploitation requires us to revise orthodox distinctions between the categories of wild and domesticated animals and consequently to take an entirely new view of the nature and causes of animal domestication*”.

The term, “*fangstbasert reindrif*” was first discussed by Fjellheim (1999:27), based on the concept of reindeer herding as a contextual knowledge where individual aspects are viewed in relation to each other and where reindeer management is embedded in reindeer knowledge developed over a long time (Fjellheim, 2005:24-29). Because of this, it cannot be seen as an isolated historical phenomenon emptied of knowledge. Both forms of reindeer management supplement nature-provided prerequisites with essential technical equipment for the purposes of managing the herd (Olsen, 1987). One example from current reindeer herding is the use of corrals to separate, distribute and slaughter animals according to ownership, which exhibit the same organizational forms as the *vuopman* / funnel-shaped fence systems with an enclosure, known to have been used in hunting wild reindeer and perhaps to acquire reindeer as decoys and for transportation. The oldest evidence of such prehistoric constructions and practice is nine figures of corrals and lead fences in the rock art in Alta dated around BC 5200-4200 (Helskog, 2011). In order to manage these complex constructions in relation to the migration patterns of the wild

reindeer, a precise terminology and knowledge of the reindeer's ecological cycles and land use had to be established and much of this knowledge has been transferred into modern reindeer herding.

Examples of cultural terms for hunting, in particular, can be found in the Sami language and place names. Knowledge of the landscape, weather, climate and animals' way of life has been preserved and there is precise terminology referring to how one relates to nature. The majority of Sami place names along the historically known migration routes often include information about land formations, cosmology, ritual practice and past events (Sommersteth, 2009b:158). Sami place names from inner Troms often appear to be topographical tools, such that the names could be used for visualization purposes, to prepare travellers for long distances where the mountains are, for example, steep, accessible, full of vegetation or wind-blown (Mathisen, 1997:125).

Along the migration routes there are various characteristic mountain and stone formations that have stories connected to them. This in itself represents evidence of how people have moved across the land, and the stories tied to these places can be characterised as living narratives; the basic myths of the Sami world (Nergaard, 1997:69). For example, *Dáččabákti*³ (Bumansberg), which lies at the watershed a few kilometers from the border between Norway and Sweden in *Dieváidvággi* (Dividalen), has such a story: "According to legend an old woman supposedly led ancient Čuds or, according to another report, Norwegian farmers who had come to plunder, over the mountain with the help of a birch-bark-torch" (Qvigstad, 1935:97). The name and course of events associated with this mountain can be tied to an old legend (*tsjudesagnene*), which refers to

³ Sami terms and place names are given in the North Sami language according to current orthography and are written in italics.

plundering by strangers, a living collection of narratives that originated from events that occurred during the late Iron Age or early Middle Ages (Hansen & Olsen, 2004:158-159). Not far from *Dáččabákti* is the forested mountain valley called *Devddesvuopmi*, where there are archaeological remains of the wild reindeer's cultural landscape. Two large pitfall systems have been registered here, situated alongside a small mountain with the Sami name *God-djit*, which can be translated as "wild reindeer summit" (Sommersteth, 2009a:248). This illustrates an interesting phenomenon whereby place names that have their origins from the hunting society are still in use in the reindeer landscape even though the events and activities surrounding the original use have ceased.

There are also examples of ancient hunting expressions that are no longer in use, where the word has taken on a different meaning tied to a new practise (Sammallahti, 1982:103-104). For example, the old hunting method, *bearttuš*, which was previously known as wild reindeer hunting with snares, and the term, *ordu*, which describes hunting that was specifically carried out at the tree line during late autumn under conditions of black frost. In some places nowadays, both words are associated with the rustling of domestic reindeer. Another old term is the word *vuopman* (gen.vuobman) which, according to Nielsen (1920:19, 1945:135), means: "extensively connected funnel-shaped fencing used as an enclosure, into which wild reindeer are chased and subsequently trapped". The definition of this word can be traced to the prefix *vuoma*, meaning "funnel-shaped". In the place name *Vuomavágge* in inner Troms, for example, the topographical meaning of the word refers to a valley in the shape of a funnel. The word *vuopman* is no longer used in today's reindeer-herding culture, nor has its meaning been adapted. Therefore, *vuopman* as a term has maintained its original meaning and is still tied to wild reindeer hunting.

The word can be found in many place names today, such as *Vuobmanvárri* in eastern Finnmark, where many pitfall and funnel-shaped fence systems have been documented, as well as *Vuomavágge*, *Vuomajávri*, *Vuomavárre* and *Devddesvuoppmi* (previously recorded as *D(i)eutesvuobme* (Dødesskogen) in inner Troms (Nielsen 1945:136), where pitfall systems have also been discovered.

The continuation of reindeer knowledge

The knowledge of hunting wild reindeer and domesticating wild reindeer among the Sami is known in the ethnographic sources. In order to manage the complex hunting-pit systems in relation to the migration patterns of the wild reindeer, a precise terminology and knowledge of the reindeer's cycles and land use had to be established. Wild reindeer hunting is most likely a type of activity that was controlled by the community. This is demonstrated by the fact that much work was put into the organization and maintenance of the hunting-pit systems. Even so, knowledge of reindeer has not pertained exclusively to wild reindeer.

Several researchers have also drawn attention to the continuity of Sami knowledge in using both wild and domestic reindeer, given that the Sami hunting and gathering societies also kept domestic reindeer on a smaller scale (Hansen & Olsen 2004:204; Mulk 2005:38), for example, keeping tame reindeer as an affordance in hunting, possibly as early as AD 800-1000, as described in Norwegian chieftain Ottar's account from AD 890.

Throughout northern Eurasia it was usual to employ tame reindeer as decoys and for transport (Ingold, 1986:6). The technology of hunting wild reindeer with tame decoys was, for instance, known among the Nganasan people in Taymyr, Siberia during the 1930s (Popov, 1966). The hunting method consisted of the use of a 300 m long rope, which can be compared to the Sami *suohpan* (lasso). Use of

a similar method was also known by the Sami when hunting wild reindeer on alpine snow patches (Ryd, 2011). Today, the *suohpan* is the most common tool used in the sorting corrals when capturing a herded reindeer.

Another method is to take newborn calves from their mothers in spring and introduce them into a small herd of domestic reindeer with áldu (3 year old does with newborn calves). According to historical sources these calves went from being called *goddi* (wild reindeer) to being called *boazu* (domestic reindeer) (J. Tornæi, 1905 [1673] and E. Demant Hatt, 1913 in G. Hatt, 1964 [1919]:112-113). Thereafter, the calves were individually earmarked and it was said that when a wild reindeer had been accustomed to the household and the ear had been cut with the owner's mark, the reindeer became tamer. Older Sami have explained that the wild blood simply ran out of the animal (Ryd, 2011).

According to oral accounts, it is common knowledge that taming wild reindeer calves provided insurance against inbreeding among the domestic herd. The domestic reindeer were allowed to mix with wild reindeer for purposes of breeding, and were later herded in again (Hatt, 1964 [1919], Ingold, 1980:95). The various practices represent traditions that served to control the domestic reindeer herd and its reproduction. Another important factor in domestication and control is to keep the domestic reindeer away from the wild reindeer, especially the does away from the natural reproductive environment, and to further determine the herd size through controlled slaughter. According to Hansen & Olsen (2004:204) it is only when reindeer herds are kept under control to balance the distribution of food supply that pastoralism can be portrayed as domestication in the real sense. With pastoralism, changes were introduced in both the relations between animals and people, and the social relations among people themselves (In-

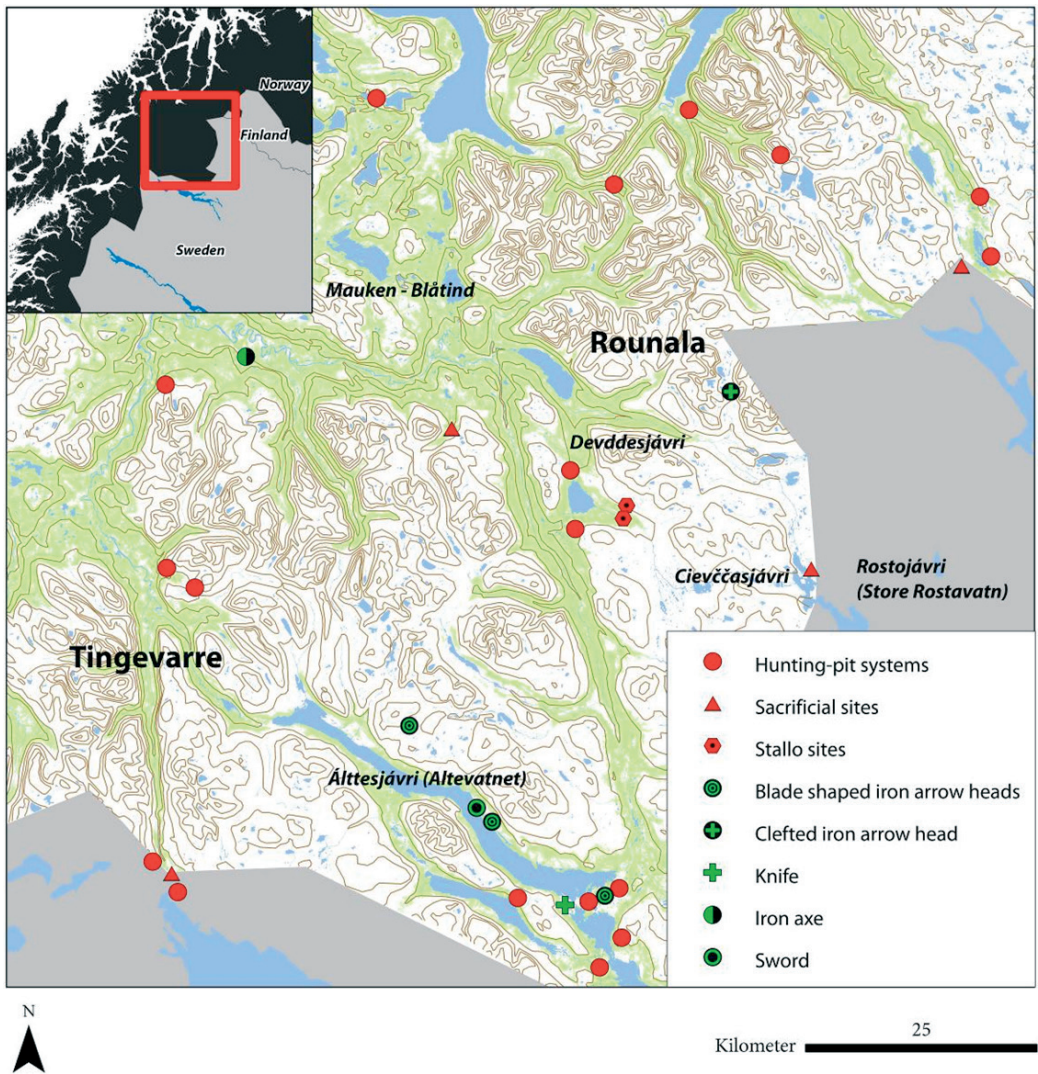


Fig. 2. Interior of Troms; marked with archaeological finds from the Merovingian period, the the Viking Age and early Medieval times (about AD 600 to 1300), as well as pitfall systems in the interior, some of which are dated to the period between 3500 BC to AD 1600 (Klaussen, 2008:39, 47). Illustration: Ingrid Sommerseth and Johan Eilertsen Arntzen.

gold, 1980, 1986). One of the most important consequences was the fact that reindeer came to be viewed as individual property, no longer representing a joint resource for all members of the community. Social status, to a considerable degree, became a product of the number of reindeer one owned (Olsen, 1984).

Other researchers have also drawn attention to the continuity between wild and domestic

reindeer as an accumulation of knowledge that resulted from the fact that the Sami hunting and gathering societies also kept tame reindeer on a smaller scale. Keeping tame reindeer during the Iron Age was probably the precursor to managing the complexity of wild reindeer hunting, especially with the use of decoy animals and probably tame reindeer for transport of hunting products (Mulk, 2005:38). The

pastoral skills were probably of another kind than those known today, but still entailed a human – animal relation which contained reindeer knowledge still in use today.

The archaeological contribution

How are the changes during the transition from wild reindeer hunting to reindeer pastoralism demonstrated through archaeological sources? First of all, there are many archaeological remains in the interior of Troms and Sweden that indicate a hunting and gathering practice, such as hunting-pit systems, sacred places and ancient offering sites with deposited metal objects, for example arrowheads, coins and pendants from late Iron Age and early Medieval times (about AD 600-1400). Dispersed iron arrowheads from the Viking Age have also been found in the high mountain areas (Fig. 2). These artefacts depict a hunting method that can be tied to high mountain plateaus and alpine snow patch hunting, where the wild reindeer would naturally gather on patches of snow during the summer to avoid insects (bot flies, tabanids, and mosquitoes), making it easy to spot and hunt them. Recent excavations at Juvfonna in the central interior southern Norway, are full of snow patch finds (Finstad *et al.*, 2011). The iron arrow types used for wild reindeer hunting are similar to those found in the interior of Troms. This demonstrates that the interior as a whole has been of vital importance for wild reindeer resource management during the Iron Age and most probably much longer back in history.

Today we know of 20 individual hunting arrows from the late Iron Age in the archaeological collections of the Tromsø Museum, found from 1930 until today. These arrowheads are found on sites in the interior where snow patches have melted away because of today's warmer climate. Typologically, the high mountain finds from interior Finnmark (the mountain plateau on the border between Finnmark

and Troms county) and interior Troms (Bardu and Målselv municipalities, can be dated to the period between AD 600 to 1100.

As well as the iron arrowheads there are also settlement sites in the interior identified from archaeological surveys, which are dated both to the early Iron Age and the periods after AD 1300. In my Ph.d work in interior Balsfjord and Målselv municipalities, I have carried out research based on 35 archaeologically excavated dwellings with *árran* (hearths) and four *stallo* sites⁴; the dating suggests two major peaks, one centered on AD 600-1000, and the other on AD 1350-1920 (Sommerseth, 2009a:124-237). All datings belonging to the Viking Age were taken from one *árran* (R25 K4) and four *stallo* sites (R26, R27 K1, R27 K2, R27 K3), which also prove to be the first documented Iron Age settlements in interior Troms. These localities are located in Devddesvuopmi, where there is also documented other types of archaeological remains such as Stone Age finds near-by lake Devddesjávri, hunting-pits and several dwellings, many of them excavated and dated to later periods. The whole mountain valley seems to have been an important resource for both the hunter – gatherers and the later nomadic pastoralists.

The spatial arrangement of the *stallo* sites and the Iron Age *árran* is characteristic because they are arranged in groups of two to six in a row. This regularity has been connected to the kinship-housed social structure and the size of the local Sami band during the Iron Age (Mulk, 1994; Storli, 1994; Bergman, 2008). But a recurring discussion among archaeolo-

⁴ Stallo sites; houses characterised by sunken floors, surrounded by circular embankment, situated in the high mountain region along the border between Norway and Sweden. Their distribution area stretches from Lake Devddesjávri in the north to Namdalen and Frostviken in the south. Their main period of use was AD 800 to 1000 AD, the Viking Age.

gists is whether the *stallo* sites relate to an early phase of reindeer herding and pastoralism (Storli, 1994; Aronsson, 1991, 2005; Bergman *et al.* 2008), or to a late phase of wild reindeer hunting in a hunter-gather society (Manker, 1960; Mulk, 1994; Hansen & Olsen 2004; Sommerseth, 2009a).

To be brief, I have interpreted the *stallo* sites as seasonal camps inhabited during the late summer and autumn in connection with the wild reindeer hunt in a Sami hunter-gather society. I have proposed that they used the sites in the late summer and early autumn when the wild reindeer herd migrated from the summer pastures along the coast to winter pastures in the interior (Sommerseth, 2009a:247-274). There has been a discussion on whether the *stallo* sites have been used as a seasonal camp during the summer in a pastoral society that kept tame reindeer for milking (Storli, 1994). Others consider, on the background of contemporary dating of houses at the site that they represent a village community that correspond to the historical pastoral winter villages in the boreal forest area in the central Sweden (Bergman *et al.*, 2008:105).

An overall discussion of datings from the *stallo* sites in Norway and Sweden has outlined a main period of use from AD 800 to 1000 (Liedgren *et al.*, 2007). My own dating from Devdtesvuopmi corresponds to the main period but I have one *stallo* site that may have been used as early as the late Merovingian period around AD 700 (Sommerseth, 2009a:230). I believe that the early Iron Age is a vital period for the inland Sami and the intensification of inland use. This is a period where the wild reindeer hunt as well as having tame reindeer for decoys and transport can be interpreted as a Sami skill. Sami hunting products were valuable to the Norse chieftains along the coast in their external trade, and together with the maintenance of social contacts with the coastal settlements we can better approach a discus-

sion of the degree of complexity of the social organization in the Iron Age Sami society (Olsen, 2003; Sommerseth, 2009a:263).

I agree with other archaeologists that many questions remain to be answered, especially concerning settlement patterns and the structural layout of sites during succeeding periods (Bergman *et al.*, 2008:108). Especially the period between AD 1000 and 1350 in the interior has few dated settlements. The *stallo* sites disappear during the early Middle Ages and the deposition of Norwegian coins at the Sami sacrificial places ceases in the beginning of the 1200s (Zachrisson, 1984). This indicates that some type of change took place in Sami society during the Middle Ages. Some of the decisive effects came from changed circumstances in trading relations- shifting from the west to the east, taxation from different states, and the impact of Christianization on the Sami society (Hansen, 1990; Wallerström, 2000; Hansen & Olsen, 2004).

This change can also be seen in my material from interior Troms. By the end of the 14th century a new type of settlement pattern appears in the interior. This pattern can be considered as a shift away from collective communities located on a few places near lakes and rivers to smaller individual settlements that are spread in more varied types of terrain, including at the tree line (*orda*), and in the high hills between the rivers and the large valleys. Hunter – gatherer societies moved between settlements in varied hunting, fishing and gathering areas within a given territory, whereas the new type of settlement is based on the need for herding domesticated reindeer close to good pastures during the summer and the autumn. The new settlements appear to have been initially established furthest inland, in Devdtesvuopmi, but throughout the 15th and 16th centuries new settlements were spread all over from Mauken and Blåtind further west toward the coast (Fig. 1). Similar surveys in other regions, such as

Hamarøy in northern Nordland county show that a shift in settlement pattern, with *árran* and other remains such as bone deposits and milking places (*gieddi*) that relate to reindeer pastoralism, can be dated much earlier, between Iron Age and Middle Ages (Andersen, 2011:11). Both studies from interior Troms and northern Nordland show evidence of a transition from a hunter – gatherer society to pastoralism with similar settlement changes but the timing of the initial stages differs. Studies in nearby regions on the Swedish side of the national border also supports both studies, showing a similar transition between the late Iron Age and early 1400s (Mulk, 2005:50; Andersen, 2011:8). This situation illustrates that there are unsolved questions concerning the chronological and geographical variations in the organisation of herding and how these organisational differences might manifest themselves in archaeological remains in different landscape zones.

In my own data from interior Troms, all of the so-called new settlements lie in varied terrain but most can be related to the *orda* (the tree line), which is a topographical-ecological zone important for the flexible organisation of reindeer husbandry when considering grazing pastures. In total, as many as 445 Sami cultural remains have been registered in the research areas of Mauken, Blåtind and Devddevuopmi, all of which can be tied to the tree line and the reindeer economy where more than 258 of the remains documented constitute an *árran* (hearth) (Sommerseth, 2009a:20). In addition to the *árran*, other types of cultural remains that relate to reindeer pastoralism are also documented, such as *gieddi* (milking places) and *borra* (food-storage pits). *Árran* always occupy a central place in the dwelling, as in *lavvu* and *bealljegoahti* (two types of tents) and *goathi* (turf huts), and in the research areas they often appear to be open *árran* (hearths), with a stone frame. The *árran* clearly belongs

to categories of dwellings that are well-suited to the migration pattern between spring, summer and autumn locations. A total of 35 *árran* were archaeologically excavated in Mauken, Blåtind and Devddevuopmi, and as many as 41 radiocarbon datings from *árran* in the interior indicate a period of use from AD 1350 to 1920 (Sommerseth, 2009a:353-366). The oldest *árran* in Devddevuopmi, dated to the beginning of 1300s is interpreted as indicating a new form of subsistence related to tame reindeer rather than the hunter - gatherer economy. Although it is located close to a hunting-pit system, its isolated location suggests it was not associated with the pits which I relate to a much earlier period of use during the Iron Age (Sommerseth, 2009a:252).

As a whole, all the studies show that the location of pastoral herding sites are determined to a greater degree by the reindeer's need for seasonal and varied pastures. This led to a greater degree of similarity in settlement patterns as seen by the location of *árran* but also indicated a spread of settlements to new locations in reindeer pastures over much larger regions. The new mobility pattern of the reindeer herders therefore fits with the general definition of pastoralism, where a flexible and seasonal migration is regulated by the need for grazing pastures based on the need to share the resources of the various regions (Mulk, 1994:25; Olsen, 1984:224-231). This is the situation for the post Iron-Age settlement pattern in inner Troms, where the Sami families of Mauken, Blåtind and Devddevuopmi established themselves on new places, which from a reindeer knowledge viewpoint, are considered good spring, summer and autumn pastures.

Reindeer management through the uncertain years

What triggered the reorganisation of the settlement patterns during the Middle Ages? It was not only the impact of political relations that

played a role in the transition process but also the inner dynamic of the Sami communities. Even though small herds of tame reindeer were used for transport and as decoys in the hunting society, the major purpose of the tame reindeer was still tied to the values of the collective society which was based on an economy of hunting and gathering (Hansen, 1990; Mulk, 1994, 2005; Hansen & Olsen, 2004; Lundmark, 2007; Sommerseth, 2009a). Tame reindeer, however, were also an internal resource for the household food supply, and therefore could be viewed as insurance for the future during times of uncertainty. Over time, this may have led to conscious domestication, with breeding of domestic animals that would be a vital part of the private household economy, leading to further development toward proprietor relationships to the reindeer herds, something which eventually led to the fragmentation of the *siida* (cooperative community) in the direction of smaller, self-sufficient household units (Ingold, 1980:95,111).

I have highlighted some explanations for the changes during the Middle Ages but another epic event could have played a role in the initial stages of the transition to reindeer pastoralism in the late 14th century in interior Troms. The Black Death is one of the largest crises of the 14th century in Europe and Scandinavia. The Plague lasted from 1349-1351 in Norway, where at least 60 per cent of the population died in a short period of time (Benedictow, 2004:383). Following the epidemics, a prolonged period of farm desertion is documented on Vestvågøy in Nordland, where just 26 of 131 named farms appear to have survived the Black Death, and it is assumed that at least 50% of the population in the North died in a very short time (Nielsen in Storli, 1994:127). This dramatic decrease in the number of people and communities in the second half of the 14th century must have affected the coastal and inland Sami populations. However, it is uncer-

tain whether the sparsely populated mountain Sami were hit equally hard by the epidemics as the more densely populated areas along the coast. Experience from other indigenous groups in the world has nevertheless shown that external contact and colonization have introduced foreign diseases that have had fatal consequences in relation to short-term changes in population, and long-term changes in culture and conditions of life (Brøgger, 2002). Sami communities could therefore have undergone similar population crises as those of the northern Norwegian communities, a cautious assumption that is supported by the fact that eastern metal and silver jewelry deposits found at Sami sacrificial sites, acquired through commerce and fur trade, cease after the middle of the 14th century (Zachrisson, 1984).

It is also significant that the centralized medieval kingdoms and western coastal communities of the 14th century and onward were seriously weakened for a long period, though there are signs that hunting products were still an important exchange resource for the Sami. Customs records from the beginning of the 14th century in eastern England show that skin products made from tanned reindeer and bear skin, in addition to squirrel and ermine skin, had been imported from Scandinavia (Fjellström, 1962). While the reindeer and bear skins seem to come from the coastal Sami regions of the North, the majority of the squirrel skins apparently came from the Baltic Sea by ship (Hansen & Olsen, 2004:155). This means that some form of wild reindeer hunting continued throughout the Middle Ages, and it is not certain that the transition to reindeer herding was due to a scarcity of wild reindeer, as the classic theories hold. Anyway, this is a speculation that should be evaluated with respect to climate changes and their ecological impacts during the entire Middle Ages. But it is experienced even today it is difficult to keep herds of domesticated reindeer intact when big

herds of wild reindeer are roaming the grazing land (Finstad *et al.*, 2002). In Russia, a rapid increase in the wild reindeer number has been a challenge to the Nnagasan reindeer herders of the Taymyr area (Association of World Reindeer Herders, 2008).

In the period from about AD 950 to 1250 there was a time of warm climate in the North Atlantic region (Medieval Warm Period, MWP). In the following period, the climate changed dramatically and the coldest temperatures are observed over the interval AD 1400 to 1700, termed the Little Ice Age (Mann *et al.*, 2009). Climatic changes are likely to have impact on the grazing situation, and could a warmer climate in the early Middle Ages have affected the herd size of wild reindeer? Today we know that winter precipitation is expected to increase and that milder temperatures will be more common resulting in heavy, wet snow and ice which will make winter grazing more difficult. Studies have shown that more difficult grazing conditions at this time of year have a negative impact on herd recruitment. Summer temperatures are expected to rise, which could intensify the parasite problem. Furthermore, glaciers and snowdrifts used by the reindeer to avoid insects may melt (Directorate for Nature Management, Report 2007-2b). A similar situation in the early Middle Ages may hypothetically have led to a gradual decrease in the wild reindeer population.

When the mountain Sami faced crises in the late Middle Ages, after 1350, this probably led to a disproportion between hunting supply and demand, as well as between technology and available personnel. The large hunting pit systems were presumably standing idle, while some parts of the society adjusted to new ways of using its reindeer knowledge and others relied more on small game hunting and fishing. The transition from a large scale wild reindeer hunting to pastoralism was not necessarily intended as a break from the hunting technol-

ogy and wild reindeer knowledge; perhaps small herds of domestic reindeer were kept as a temporary solution until the crises had passed (Wallerström, 2000:10-12). Nevertheless, the crises may have triggered a final transformation from a collective hunter – gather economy to a pastoral economy as a result of the decrease in population for a period of time. Perhaps domesticated reindeer were directed more toward household consumption as a subsistence source, and there is also reason to believe that the amount and selection of commercial products changed. Skins from both large and small game were more highly coveted than reindeer skins, something that is reflected in the Swedish tax records from the first half of the 16th century (Fjellström, 1962:265). At the same time, it appears that a large-scale wild reindeer hunt was going on in other Sami regions, such as Varanger in eastern Finnmark, while such activity had ceased in the inland regions of Troms (Olsen, 1984).

With the initial stage of pastoral economy coupled with increased small game hunt, the landscape was put to use in a new way, in which seasonal cycles and grazing access began to determine the migration of the domestic reindeer herds. The economy was supplemented by small game and fowl hunting as well as lake fishing, and it was common for the entire family to participate (Solem, 1933:60). The changes consisted of building up an appropriately large herd, which increased the degree of domestication and the social dynamic within the herd (Ruong, 1982:65). The sizes of the domesticated herd vary in the written sources but a family had on average about 20 reindeer from counts made by authorities in 1605 and 1609 (Lundmark, 2007:2). As a parallel to today's reindeer herding practice, strengthening the herd was dependent upon good winter pastures in order to establish a herd in good condition, and good summer pastures to improve the herd's reproduction (Sara, 2001). The changes also

consisted of personal ownership of individual domestic animals with ownership marks on the ears, which would later ensure proper inheritance within the family (Ruong, 1982:64). Early in the 19th century a series of earmarks for domestic reindeer was already documented in Varanger (Vorren, 1977:31). These earmarks can be traced through many generations, and the marks were considered to be the property of the family. According to ancient practice an earmark could be inherited upon death and, under certain circumstances according to common law, they have been treated as an asset to be bought and sold (Solem, 1933).

Effects of the modern nation state on inner Troms' reindeer husbandry

During the early Iron Age and the early Middle Ages, inner Troms was probably an important area for wild reindeer hunting and gathering, and early in the 15th century these same areas were adapted to domestic reindeer grazing pastures. Localities of the Sami communities are not random and have a certain temporal continuity, and differences in settlement location permit determination of whether it was related to reindeer herding or was more adapted to a prehistoric hunting and gathering economy. The transition from hunting and gathering to pastoralism took place in a landscape that was not separated by national borders, and the regional inland areas were divided into *siidas*, where Customary Laws and the conditions for Sami traditional livelihoods were agreed upon within the Sami community (Ruong, 1937; Åhrèn, 2004).

A change in the old and well-established *siida* system of the Sami region (Sápmi) was not seen before well into the 17th century, when transformations occurred as a result of expansive missionary activity and the establishment of churches and market places. It can thus be said that until the 17th century the distribution of resources and use of land within the inland

siidas followed a Customary Law that had been established in the Iron Age. The establishment of the border between Denmark-Norway and Sweden-Finland in 1751 and the later closing between Finland and Norway in 1852 affected the reindeer herders' access to pasture lands on both sides of the border. The reindeer herding families had to choose a national affiliation and thereby a land of taxation, which resulted in customary land use being changed in many regions.

Throughout the 19th century, the northernmost Sami communities ("samebyer") in Sweden were involved in border disputes and thus turned into objects of conflict and negotiation. As a result of the intense Norwegian colonization of inner Troms throughout the 19th century there was a surge in conflicts between permanent farming settlers and reindeer pastoralists from the Swedish side of the border. The conflicts revolved primarily around access to summer pastures and land use in the region (Sommerseth, 2007). After the turn of the century, with the dissolution of the Swedish-Norwegian personal union in 1905, there was a series of unfortunate decisions. The Swedish-Norwegian agreement at the Reindeer Herding Convention in 1919 limited the rights of reindeer herders residing on the Swedish side of the border to graze their reindeer on the Norwegian side. As a consequence of this, and despite several subsequent Reindeer Herding Acts, to this day the reindeer grazing controversy between Norway and Sweden in inner Troms has not yet been resolved (Åhrèn *et al.*, 2007:21).

Bringing Sami culture and history to light in the North has caused a great deal of controversy and debate. In part as a result of "Norwegianization" policies in the past, people do not feel connected to their cultural memories. As a result, Sami history has been forgotten through the years, despite the massive amount of archaeological remains and the imprints of

Sami history and culture that trace their steps throughout inner Troms.

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Arkeologisk bidrag til debatten om overgangen fra jakt og fangst til tamreindrift

Abstract in Norwegian / Sammendrag: Endringene fra jakt og fangst på villrein til overgang til tamreindrift er en stor debatt i forskningen i dag. Ved bruk av arkeologiske kilder har jeg forsøkt å komme nærmere denne problemstillingen ved å se på kontinuitet og endring i forholdet mellom menneske, rein og reinbeiteland i indre Troms og dermed lagt grunnlag for ny kunnskap om samisk bosetting og ressursbruk i nord. Hvordan kan endringene påvises og beskrives i et diakront perspektiv, med utgangspunkt i et arkeologisk materiale? Boplassene, hellige steder og offersteder er sett i sammenheng med reindriftslandskapet som gir landskapet innhold og helhet. Det empiriske materialet består av 445 samiske kulturminner som ble registrert i indre Troms i områdene Mauken, Blåtind og Dividalen. Av disse er 31 teltboplasser og fire stalletufter arkeologisk undersøkt. Det ble for første gang avdekket samiske tufter fra vikingtid som avspeiler en jakt og fangstbosetting med basis i villreinøkonomi, og teltboplasser fra 1400-tallet og frem i tid som avspeiler en tamreinnomadisk økonomi. De arkeologiske undersøkelsene viser at det er mulig å knytte boplassene til ulike former for reindrift og endringene denne har gjennomgått.

