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Main Territories in South Norway in the Mesolithic

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ABSTRACT

The focus of this paper is on regionality, the use of main territories and how they are interlinked in the Mesolithic in south Norway during the culmination of the settlement of the mountain area, 8500–7600 cal BP. The main territories and their boundaries are identified by the distribution of specific lithic raw materials and one artefact type, distribution of ungulates and drainage systems. In the Mesolithic, south Norway corresponds to a language family with four dialectic tribes, each one corresponding to a main territory. Based on ethnographic analogies, the inegalitarian higher latitude boreal hunter-gatherer societies had delayed return. The subsistence strategy may have included the defence of resources which were plentiful, concentrated and predictable, with ownership of resource-rich locations such as salmon runs and quarries, while unreliable resources such as unpredictable ungulates may not have been defended. Storing may have resulted in a sedentary period during the yearly round close to resource-rich areas along rivers and coasts. The presence of a cemetery by the seashore at Hummervikholmen, indicates lineal descent groups, linking territories to funerary behaviour. Territorial lineages may have existed, with formal areas for disposal of the dead at least along resource-rich riversides and seashores. However, these may have been destroyed by erosion and other destruction processes. Lithic markers indicate that foragers from the four main territories maintained a network of links following the drainage systems and crossing the mountain area in the Central Main Territory, which was temporarily settled by people from the other main territories. Here, people from different directions could meet during the warm season hunting reindeer. In the river sources around the water divide areas, people may have had meeting places, exchanging information over large areas of south Norway. The activities at the meeting places were connected to a reindeer culture with long diasporic traditions reaching back to their origin at the lateglacial Continent. Reindeer are proposed to have had a central role in the grouping of the main territories.

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Introduction

Nature and climate influence the cultural characteristics of hunter-gatherers, their movements in the landscape and the size of their land-use area. Hunter-gatherers have a detailed knowledge of the use of resources in their territory, including large areas far outside their seasonal activity rounds (Lee 1979; Brody [1981] 2002a, [2000] 2002b; Kelly 1995; Grøn 2012). Foraging is a way of life, not just a method of subsistence, and peoples' visions of society are in essence economic (Barnard 2002, 2017). The landscape is the fundament in which individual consciousness and social identities are anchored (Tilley 1994). When determining the environmental, economic and social factors for a region, the networks in space, their extent, structure and limits could vary considerably (Madden 1983).


The focus of the paper is on regionality, the use of main territories and how they are interlinked in the Mesolithic in south Norway during the culmination of the settlement of the mountain area, 8500–7600

cal BP and based on radiocarbon dates as a record of the Mesolithic settlement in the mountain area. The proposed concept of main territories is built on lithic material used in the material culture, environmental (economic and topographical) elements, social networks, mobility and organisation of space.

The Geographical Setting

The Weichselian ice cap melted in the mountain area around 10,000 cal BP (Vorren and Mangerud 2007). South Norway has a diverse natural environment, with many islands along the coast. The drainage systems are short in the west and north compared to the east and south, which drain very large areas. The interior is mountainous, with peaks below 2500 metres above sea level and environmental zonation. Vegetation ripens sequentially from the lowland to the mountain area with the seasons and with changes in the fauna. South Norway is located in the boreal vegetation zone,

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dominated by coniferous forest. Four altitudinal zones characterise the vegetation: the coastal forest, the boreal forest, the subalpine forest and the alpine area above the forest limit (Selsing 2016; see also Moen 1998). From the rivers and coastal zone there was access to both terrestrial and marine resources in the Mesolithic. The climate is maritime in the west and more continental in the east. According to thermal vegetation indicators, the climate was stable during the Holocene Thermal Maximum around 10,000–7500 cal BP (Paus 2013; Hanssen-Bauer et al. 2015). Less precipitation and a temperature during the warm season about 1–2°C higher than today (1971–2000) characterised the climate and restricted the treeless mountain area above the forest limit. Later the climate was more unstable, cooler and humid.

The radiocarbon dates were converted to calibrated ages (cal BP) using OxCal programme (v. 4.2) based on the IntCal13 calibration curve (Bronk Ramsey 2009; Reimer et al. 2013). The archaeological chronology used is Early Mesolithic 11,500–10,200 cal BP, Middle Mesolithic 10,200–8400 cal BP and Late Mesolithic 8400–6000 cal BP.

Using Ethnographic Analogies

Ethnographic analogy was used to interpret the archaeological and natural history records and hunter-gatherers' relationship to nature. I have elaborated the statements and generalisations to make them probable and meaningful to support my arguments about south Norway.

The concept of territoriality has been discussed for a long time and several details are important and useful as a background to understanding Mesolithic higher latitude boreal hunter-gatherer societies in south Norway.

Territories

Peterson (1975) discussed a definition and function of territorial behaviour in Australian Aborigines and stated that people are territorial and evolved in societies. As stated by Brody ([1981] 2002a, [2000] 2002b) based on studies of boreal Canadian hunter-gatherers, foragers' attachment to a place does not derive from a formal process.

The discontinuities in the physical environment regulate the distribution of populations and therefore people usually are clustered (Peterson 1975). Dyson-Hudson and Smith (1978) pointed to clustering of individuals because of a sufficient degree of resource unpredictability. Hunter-gatherers form discontinuous, local population aggregates of social groups, which may give rise to communication networks (Newell et al. 1990). People are attached to areas where their requirements are met, and these areas may contain the germ of territorial rights (Peterson 1975). The advantages of adjusting group size to resources is the regulation of population dispersal over an area through the territoriality (Peterson 1975).

A precise anthropological definition of territoriality proposed by Dyson-Hudson and Smith (1978) is that of a local group occupying and defending a particular area, as tested on two cases of North American indigenous people and Karimojong in Uganda.

Layton (1986) emphasised hunter-gatherers' adaptive response to ecological variables as a major factor determining territoriality, even if social mechanisms control and level out the distribution and access to productive resources. The proposed model of spatial organisation focused on resource distribution and economic defendability in case studies on Australian Aboriginal hunter-gatherers. Benefits of territoriality result from exclusive access to critical resources and the cost-benefit ratio of a territorial strategy is dependent on the pattern of resource distribution, predictability and abundance (Layton 1986).

Inegalitarian hunter-gatherer social systems have delayed return, usually in fixed dwellings and with rights over valued assets, among others processed and stored food and improved wild products, but with some restricted immediate-return activity (Woodburn 1982). The record of hunter-gatherers in south Norway has characteristics of Woodburn's (1982) inegalitarian political society and Layton's (2005) delayed return higher latitude groups with predictable and high seasonal variation in resource productivity. These societies are technologically complex and use storage of food to procure temporarily available resources in bulk and preserve them. Layton (1986) stressed the control over land, and its unharvested resources, and especially storage, and sharing. Storage becomes more feasible in higher latitudes because it is both possible in cold climates and desirable, and it occurs in bursts with seasonal availability of food (Binford 1980; Layton 2005).

Simple storage such as drying and smoking requires no resources except for what is already at a settlement site in the Mesolithic of south Scandinavia (Schaller Åhrberg 2007). Other simple types of storage possible in south Norway were depositing in water and freezing in snow and ice, recorded for Canadian and proposed for Late Paleolithic hunter-gatherers (see, e.g. Brody [1981] 2002a; Grønnow [1985] 1987).

Storing was probably widespread in south Norway during the Mesolithic, as in inegalitarian hunter-gatherer social systems with delayed return today. It is, however, difficult to reveal in the archaeological record, with little organic material left. Storing of food has been recorded from the Norwegian Mesolithic; remnants of reindeer in the lowlands transported away from the mountain area (H. Olsen 1976; Bjørgo 1981; Randers 1986; Gustafson 1987, 1988; Hufthammer 1988; Lie 1988) and marine fish in the mountain area interpreted as travelling provisions (Randers 1986).

Natural features, e.g. prominent landforms, often mark territorial boundaries (Tilley 1994). Unlike resource-poor areas, in resource-rich areas the

environment can support a significantly larger population density with smaller and more clearly defined territories and a greater degree of boundary maintenance is practised (Pardoe 1988). This finding was based on studies of prehistoric Aboriginals in south-eastern Australia.

Territorial Ownership by Lineages

Some hunter-gatherers use the presence of ancestors in a cemetery to justify their occupation of a particular area (Goldstein 1981). The Saxe-Goldstein hypothesis is that the presence of a cemetery indicates the presence of a unilineal descent group linking territorial ownership to funerary behaviour of delayed return groups (Saxe 1970; Goldstein 1981; see Rowley-Conwy and Piper 2016). Layton's (2005) higher latitude groups with high seasonal variation in resource productivity included territorial and property ownership by lineal descent as a factor of major importance.

Transposed to the south Norwegian Mesolithic, hunter-gatherers with delayed return they may have had disposal areas of their dead. The bone fragments of five different skeletal (9400–8500 cal BP) at Hummervikholmen on the south coast located in a protected seabed inlet at one metre's depth confirm the existence of a burial tradition (Sellevold and Skar 1999; Skar et al. 2016). The skeletal remains found in refuse heaps in Vistehulen in the coastal south-west and Grønehelleren in the coastal west probably do not represent funerary activities (Lund 1951; Jansen 1972; Lillehammer, Lundström, and Thomsen 1995; Sellevold and Skar 1999).

That a reliable account of a burial is recorded may indicate that lineal claims existed. Perhaps it was a weak and not particularly widespread tradition with low dependence on the ancestors and few group rights to use and legitimise resources. It is likely that the foragers practised another form of handling the dead than what is documented in south Scandinavia (e.g. Albrethsen and Brinch Petersen 1976; Larsson 1989). People may have legitimised territoriality by means other than a cemetery. Non-formal methods of disposal of the dead could have been casual disposal practices leaving no evidence in the archaeological record, for example, places where the dead were left without traces on the surface (e.g. Rasmussen [1932] 1955; Pardoe 1988; Knutsson 1995; Andersen 2016). Material traces, such as axes and ochre, have been used in relation to and as possible markers of the dead, giving the material culture in south Scandinavia and south Norway a communicative role (e.g. Albrethsen and Brinch Petersen 1976; Larsson 1982; Bergsvik 1988; Kannegaard 2016).

The sparseness of recorded burials does not necessarily mean that lineal Mesolithic descent groups did not exist in south Norway. The sea level regression minimum of about minus two metres (Midtbø,

Prøsch-Danielsen, and Helle 2000) at the time of the Hummervikholmen people may indicate that there could have been a preference for depositing the dead close to the seashore. Here, the likelihood of finding the sites is low because of sea level changes around the south Norwegian coasts (e.g. Hafsten 1983; Midtbø, Prøsch-Danielsen, and Helle 2000) which may have caused erosion that destroyed the burial sites.

Pardoe (1988) recorded prehistoric cemeteries only along the rivers in south-eastern Australia and argued that they indicated the presence of territorial lineages. Resident groups with control of the river could claim ownership indicated by cemeteries as handed down from ancestral groups maintained over long periods. Transposed to the Mesolithic in south Norway, it is possible that there may have been a preference for depositing the dead, may-be in cemeteries, at riversides in areas with stable and predictable resources useful for territorial lineage groups. However, possible burials along riversides may have been exposed to erosion and destruction many times through the ages as south Norwegian rivers flood at least once a year (Roald 2013).

It could be that the hunter-gatherers in south Norway, according to the Saxe-Goldstein hypothesis, used the presence of the ancestors to justify their occupation of the landscape to indicate territorial lineages linking territorial ownership to funerary behaviour of delayed return groups at least in resource rich areas. Such an interpretation would be in agreement with Layton (2005): higher latitude groups in areas with high seasonal variation in resource productivity had territorial and property ownership by lineal descent.

This argumentation may be reliable for resource-rich areas in south Norway, both along the coast and along riversides. Disposal of the dead may originally have occurred because of lineal descent groups, which linked territorial ownership to funerary behaviour of delayed return groups.

What is a Main Territory?

Social units express the relationship between land, people and language. Hunter-gatherers group together in a regional community of several tribes, such as the Kulin Group and Kurnai Group of south-east Australia (McBryde 1984). Related intelligible languages and distinct social organisation unite them (McBryde 1984).

Based on this *a main territory is defined by linguistic boundaries and is of a higher level than territories. A main territory corresponds to a dialectal tribe overlapping and occupying several territories. People in a dialectal tribe speak the same dialect* (see Birdsell 1968; McBryde 1984; Newell et al. 1990).

Main territories comprise several territories in a region occupied by a dialectal tribe. Proposals to delimit Mesolithic hunter-gatherers' organisation of

space, territories or smaller groups of territories in south Norway have been presented earlier (Olsen and Alsaker 1984; Mikkelsen 1989; Fuglestad 1998; Falkenström 2003; Skjelstad 2003; Gundersen 2004; Ballin 2007). Lithic raw material distributed across several territories was important to establish territories.

I have chosen three subjects to identify main territories and their boundaries: (1) the distribution of three selected characteristic lithic raw materials and one artefact type, (2) distribution of ungulates and (3) river systems. They are discussed in separate sections below.

I propose that the boundaries of the distribution of these lithic raw materials and the chosen artefact type were a result of people's choices as an important part of the material culture. The lithic raw materials were important to establish the Western and Eastern Main Territories, while the Nøstvet axes established the Southern Main Territory in a later phase.

Ungulates were important regionalised prey. They contribute to the definition of main territories to differentiate the Western Main Territory, with predominantly red deer, and the Central Main Territory, with reindeer.

Communication within the main territories and between lowlands and the mountain area happened primarily along the river systems. The boundaries between the main territories corresponded to water divides. The main water divide in the mountain area includes the sources between large river systems draining in different directions and establish the Central Main Territory.

Based on the distribution of the chosen three subjects, five main territories are identified in south Norway, described in separate sections below. Present-day south Norway may have corresponded to a language family (Newell et al. 1990). The competence in speech, dialectal homogeneity, is a consequence of spatial proximity and density of communication involving frequency, intensity and duration of interaction (Birdsell 1968). The identification and definition of the dialectic tribe includes that they share a common culture and each band forms a part of a larger social universe (Newell et al. 1990).

Language area networks are of structural significance in the organisation of human populations going beyond the local group and they reflect patterns of language similarity and provide for easier shifts across linguistic boundaries (Hill 1978). In this way, dialectic groups will have access to long-distance communication systems for the purpose of, for example, trade and visiting.

The main territorial structures in south Norway are adapted to ecological terms. For the Paiute tribe of the southern Sierra Nevada in the USA, the steep topography with environmental zonation resulted in a diversity of resources. Thus, necessary food could be

obtained within relative short distances (Dyson-Hudson and Smith 1978). This situation corresponds to the south Norwegian zones of alternating resource types. People relied on a food supply, concentrated in the environment and changing with the seasons.

Some resources may have been defended and others not according to the variety of utilisation of different resources with respect to predictability, abundance and mobility (Dyson-Hudson and Smith 1978). As indicated by Layton (1986, 2005; see also Rowley-Conwy and Piper 2016 with reference to Richardson 1982), groups of people may physically defend territories only when the resources they contain are considerable, concentrated and predictable. This means that salmon runs at specific places at the south Norwegian west coast, and quarries (see below), may have been defended and other people may have been denied access to these resources. For the south Norwegian Mesolithic hunter-gatherers this could mean more emphasis on ownership of resource-rich sites and no or little defence of moderate and not easily accessible resources.

Lithic Raw Materials

Aside from charcoal, few organic materials are left in the Mesolithic Norwegian archaeological record. However, lithic raw materials are abundant and probably culturally preferred. Disparate groups of cultures prefer certain general similarities in lithics. Like Sulgostowska (2006b) who suggested for final Palaeolithic Magdalenian hunter-gatherers in Poland that use and distribution of local and exotic flint were important and considered as markers of group mobility and inter-group contacts, I have favoured lithics which are easy to recognise macroscopically with known source area which indicates origin, distribution and connections. Schaller (1984) proposed that for Mesolithic hunter-gatherers in south Norway the choice of lithic was probably both conscious and intentional.

Lithic raw materials and special artefacts are commonly employed as proxies of movement for the south Norwegian Mesolithic hunter-gatherers material culture's communication system and identity, and may have had a central role in separating territories (Sjursøe 1994). Falkenström (2003) maintained that social boundaries reflected through the choice of lithic raw materials in central Scandinavia during the Mesolithic could be attributed to identity and territorial behaviour. The purpose of lithic procurement practices could have been to maintain social networks and define regional differentiation between groups (Falkenström 2003; Nyland 2017).

Because of superior social networks, where individuals move between social units, the material culture used to define the boundaries of a territory is also often found outside this territory (Newell et al. 1990).

Material for high-performance tools may have been utilised over great distances, linked to social status, a statement based on studies of hunter-gatherers in the north Norwegian Mesolithic and the Labrador maritime Archaic (Hood 1995) and in high altitudes in the French Alps (Walsh 2005). By understanding the signs at sites visited by the ancestors, hunter-gatherers could recognise, read and understand previous visits, activities and events.

Opportunistically procured rock types with the hardness of siliceous rocks, often of local and unidentified origin such as quartz, quartzites and rock crystal, are available in many places in south Norway and dominate in the material culture of Mesolithic lithic tools (e.g. Sjurseike 1994; Nyland 2016; Ballin 2018). The considerable typological similarity between tools of quartzite and flint (Indrelid [1986] 1994) shows that the two raw materials were interchangeable.

Flint was a commonly used lithic raw material in south Norway and may have had a special role in Mesolithic societies. There is no autochthonous flint in the Norwegian bedrock. It was collected from unconsolidated deposits along the coast up to more than 200 metres above the present sea level (Sejrup et al. 1998; Berg-Hansen 1999). With this origin, flint artefacts in the mountain area indicate an identity marker of contact between hunter-gatherers who used the coast and the mountain, respectively (e.g. Mikkelsen and Nybruget 1975; Hood 1991; Fuglestedt 1998). Erratic flint may have symbolised the coastal landscapes and portable flint may have mediated coast-inland relations (Hood 1988; Selsing 2012; see also Conkey 1984). This may explain why small amounts of flint are found at nearly all sites in the interior.

Continued use of some quarries signals an important place apparently assigned significance beyond being a source of high-quality rock suited for tool production. Therefore, the distance may have been inconsequential compared to lithic quality, as proposed for central and south-eastern Australian Aborigines and south Norwegian hunter-gatherers in the Mesolithic (e.g. McBryde 1984; Olsen and Alsaker 1984; Gould and Saggars 1985; Nyland 2006). Mechanisms must have existed for the transfer of goods to external territories, as recorded for south-eastern Australian Aborigines (McBryde 1984).

McBryde (1984) pointed to distinct and positive spatial correlations between the artefact distribution in the archaeological record and other aspects of culture documented in the anthropological record. The south-eastern Australian greenstone quarry at Mt. William is important, valued and controlled, with the lithic used as a prestige good in intergroup exchanges and ceremonial gatherings to strengthen social and political bonds and contracts (McBryde 1984). People outside the land-owning group also seem to have had rights to this place and access to its resources because of

different types of relationship that link members of different clans (McBryde 1984). Ethnographically a control of rights, ownership and management of this resource-rich site may indicate control and probably also defence and ownership by lineal descent of the Norwegian quarries during the Mesolithic. They may have been defended, given the concentration and predictability of a valuable resource (see Layton 1986, 2005). Knowledge of the availability and quality of the raw material can yield control, giving the raw material a conservative and preservative role in the society (Sjurseike 1994).

A quarry with specific lithic materials can function as an arena for the transfer of knowledge, social reproduction and identity, integrating the sacred and the profane in the same procurement processes suggested by Sjurseike (1994) for the south Norwegian Mesolithic hunter-gatherers. This may be confirmed by repeated visits and an insistence on using rock from specific places, despite other rock types of equal quality being accessible elsewhere, or traditions of collecting poor quality lithic material from a special source far away (Sjurseike 1994; Nyland 2017). However, in my opinion as regards better or worse quality, it is likely that a good enough quality of silicic rocks was adequate regardless of the distance, but the importance lay in its value as a social marker.

The communicative strength of material culture has an active role in defining group relations (Barth 1969). The Mesolithic areas might have been defended by using rare and exotic materials as social symbol markers to indicate people with contacts in a network (Sjurseike 1994; Falkenström 2003).

The selected lithic materials in this study were procured in specific quarries. They are the Hespriholmen greenstone, the Stakanes diabase and the Skardlia jasper, and one characteristic artefact, the Nøstvet axe (drawing of a Nøstvet axe, see Østmo and Hedeager 2005). Olsen and Alsaker (1984) and Sjurseike (1994) presented distribution maps of the three chosen lithic raw materials. Other lithic raw materials in south Norway that are easy to identify macroscopically are not distributed as widely as the selected ones.

Greenstone from the Hespriholmen quarry is recorded at archaeological sites in the southern part of west Norway, sporadically further south-east and in the mountain area at Hardangervidda (Alsaker [1982], 1987; Olsen and Alsaker 1984; Indrelid [1986] 1994). Further north on west Norwegian coastal sites, Stakanes diabase artefacts are procured in a quarry east of Florø, and occur quite commonly as far north as Trondheimsfjorden and then sporadically even further north (Olsen 1981; Bergsvik 2002b; Bergsvik and Olsen 2003). The quarries were easily accessible from many areas by boat.

In the east, hunter-gatherers had a lithic tradition of procuring a characteristic jasper based on the quarry

north of Trysil, 850 metres above sea level (Sjurseike 1994). The jasper artefacts occur at many Mesolithic sites over a large area.

It has not been possible to identify a specific lithic north and south of the distribution of these three characteristic lithics. Thus, the northern and southern part of south Norway is characterised by the lack of special lithic markers. In the south, the Nøstvet tradition was established before 7900 cal BP with the characteristic Nøstvet axes.

The Drainage System

The drainage systems were chosen to define the main territories because the rivers were important for transportation and as a communication system as well as a water supply, and for fishing and the collection of other resources in the river and at the margins. Canadian hunter-gatherers considered the river systems as the heart of their traditional land use (Brody [1981] 2002a). Hunter-gathers may have seen the total area drained by rivers from the open sea via fjord and river to the watershed as eternal. The drainage systems meet at the watershed with little or no distance between adjacent springs draining in different directions.

Based on studies of Mesolithic people in northern England, Spikins (1996) proposed that watercourses make communication continuous and flexible, and facilitate orientation in the landscape. Rivers acted as a structuring element, concentrated migrations and connected societies, as proposed for the Mesolithic in south-east Norway (Melvold 2006). Drainage systems were probably important migration routes for animals and people and the core area for foragers' use of the landscape, which may define a territory proposed by ethnologists and archaeologists (e.g. Pardoe 1988; Spikins 1996; Siemaszko 1999; Howard et al. 2015).

Hunter-gatherers may have organised their territories around drainage systems, with the boundaries between the drainage systems as proposed for Mesolithic hunter-gatherers in England and Scandinavia (e.g. Falkenström 2003; Lødøen and Mandt [2005] 2010; Evans et al. 2010). An objective reason for this may be that people used the rivers as their main transportation routes. Evenk hunters in Siberia used markers around central sites of the main traffic rivers (Grøn 2005).

The rivers offer a good view. Conversely, dense forests make trips slow and laborious. People may have chosen to follow the river where it was necessary to maintain communication systems, as stated by Rasmussen ([1932] 1955) about northern Canada. Seasonal frozen watercourses make transport on the ice easy. Chains of valleys with river and lake systems in south Norway may have been important communication routes, as confirmed by many recorded Mesolithic sites.

For the final Palaeolithic in Poland, Sulgostowska (2006b) recorded expeditions using such natural routes as river valleys, but also crossing mountains. The motives for these seasonal events with distances of more than thousand kilometres may have been connected with economic necessity and subsistence strategy.

The banks of rivers in south-east Australia were described by Pardoe (1988) as some of the few places with extreme variations in resources over a small area and thus a reliable lifeline for food and water. An alternative to increased work effort in hunting ungulates in south Norway may have been to live more permanently in areas close to rich and predictable year-round resources along rivers that may have stabilised territorial lineages, as also proposed by Peterson (1975) for groups in arid areas of Australia.

The Main Ungulate Prey

The reason for choosing the main ungulate prey for defining the main territories is their regional distribution, with mainly red deer (*Cervus elaphus*) in the west and elk (*Alces alces*) in the south, east and north. This differentiation also existed in the Mesolithic but was probably not as pronounced as today (Langvatn 1980; Olstad and Krafft 1980; Reimers 1980; Lie 1988, 1989). Reindeer (*Rangifer tarandus*) dominated in the mountain area then as today, with elk, and red deer in the forest. Reindeer are easy to exploit because they are gregarious compared to the solitary animals, dispersed throughout the environment (Kelly 1983). The three ungulates meet in the upper valleys, as indicated by archaeological sites (Mikkelsen 1989). It is likely that all three big fleshy ungulates competed for the pastures in this zone where hunter-gatherers had access to them. They required different hunting techniques because of different behaviour (Indrelid 1978; Gustafson 1988; Mikkelsen 1989). Like today, the hunters probably took advantage of the seasonal optimal conditions of meat, hide and fat.

In general, the fauna in the boreal forest is not easily accessible to hunters. The density of the forest may be an important reason for the often, high residential mobility of hunter-gatherers (Winterhalder 1981; Kelly 1983, 1995). Organised, intentional and systematic fire management of the forest may have concentrated resources, making them more predictable and improving accessibility, and thus the outcome of the hunt (Simmons 1975; Mellars 1976; Simmons and Innes 1987; Scherjon et al. 2015; Selsing 2016).

While the Northern Ojibwa living east of Lake Superior in Canada were dependent on highly mobile and therefore relatively unpredictable large game such as reindeer and elk as a major resource, they did not defend territories (Dyson-Hudson and Smith 1978 with reference to the studies of Bishop 1970, 1974).

When the large game disappeared, they were forced to rely on small game, which probably did not yield the same subsistence base as the large game. The small game were less mobile and therefore more predictable and the people began to defend hunting territories. This example of changes in territoriality confirmed the predicted model of Dyson-Hudson and Smith (1978) focusing on economic defendability of a resource area that may develop even when resource abundance declines and when the decline is compensated for by increased predictability of key resources. Transposed to the Norwegian Mesolithic hunter-gatherers, this could mean that large games were little defended because the access to ungulates was difficult.

The highly mobile Paleoindian groups of the Folsom cultural complex in the south-west USA saw decreased family size and increased diet breadth during seasons when large mammals were not the primary resource and the opposite case was also true (Amick 1996). This may also have been the response for the south Norwegian hunter-gatherers in the Mesolithic if ungulates were too few.

The rock art points to the importance of certain animals in the Norwegian Mesolithic (Mikkelsen 1977; Lødøen and Mandt [2005] 2010; Nash and Smiseth 2015; Fuglestad 2018). Rock art may indicate the difficulty in hunting, and the scarcity of large, meaty ungulates which offered more food than marine resources (Simmons 1975; Sognnes 2017). Ungulates dominate in rock art. Compared to northern Norway, very few maritime images are present in south Norway, which indicates the importance of the ungulates for the hunter-gatherers in the south. Rock art may have been the expression of a need to mark boundaries with symbols of significance in terms of identity and social memory (Wrigglesworth 2006; Sognnes 2017). The foragers could hold rights over the rock art, as recorded by Layton (1986) for sacred sites.

Rock art may imply a strong relationship between foragers and big game in the Mesolithic (Fuglestad 2018). Ritual places, such as rock art sites, may have been a key to creating the permission from the animals through the shaman's involvement (Dowson 2009). Hunter-gatherers could have revisited the rock art by using waterways for communication (Helskog 1999) and travel to and from the mountain area. Rock art sites could have contained information that foragers with the same cultural identity could understand (Wrigglesworth 2006), maybe people from the same dialectal tribe.

Data Material of Four Main Territories

My data material is collected literature about the distribution of selected lithic raw materials and one artefact type used in the material culture, main ungulate prey, main drainage systems, selected sites, and the

boundaries between the main territories in south Norway. The main territories are the result of interlinking this material. A main territory includes several drainage systems with boundaries located at the water divide between them. The four main territories stretch from the coast to the fifth Central Main Territory, which comprises the mountain area (Figure 1).

Based on data on settlement patterns, technology and choice of lithic raw materials, Falkenström (2003) described Mesolithic territorial behaviour in Central Scandinavia, which resulted in a pattern of territories with similarities to the pattern of main territories presented here.

The Western Main Territory

The archaeological settlement sites are concentrated along the coast. The occurrence of artefacts of Hespriholmen greenstone and Stakanes diabase characterise the archaeological record in the respective southern and northern areas.

Red deer dominated the ungulates. The drainage systems from the fjords and the rivers with streams and waterfalls are the shortest route between the outer coast and the mountain area. Between the deep fjords are smaller, lower mountain areas close to the coast with few or no settlement sites (Moe, Indrelid, and Kjos-Hanssen 1978). It is likely that the fjords were in many cases a transport route from settlements at the coast and the mountain area, covered by boat (Lillehammer 1970; Mikkelsen 1978; Skar Christiansen 1985; Gustafson 1995; Odgaard 2007). Many fjord valleys are steep and not easily accessible, with few settlement traces. The depositions of axes may have been sacrifices, which transformed fjords into ritual landscapes, to mark the presence of people and contact between coast, fjord and mountain area (Lødøen 1995).

The coastal site Vistehola probably had a year-round permanent settlement (Lund 1951; Degerbøl 1951; Mikkelsen 1978). The animal remains indicate exploitation of marine resources during spring and summer, and forest resources (deer and elk) mainly during autumn and winter. Nøstvet axes indicate contact to the south-east. Other sites in the coastal lowland indicate year-round available resources.

Many settlement sites were located at river and fjord mouths in areas of rich and stable biotopes with good fishing including optimal salmon runs by tidal streams during the autumn (Nygaard 1974; Mikkelsen 1978; Bjørge 1981; Olsen 1992, 1995; Warren 1994; Bergsvik 2002a; Bjerck 2007). The regular migration patterns of salmon that occur around the Norwegian coast optimised the predictability of food supplies, which could result in concentrations of more stable settlement residences, perhaps sedentism and stronger territorial behaviour (Bergsvik 2001). Sedentary settlements may have occurred at places with concentrated

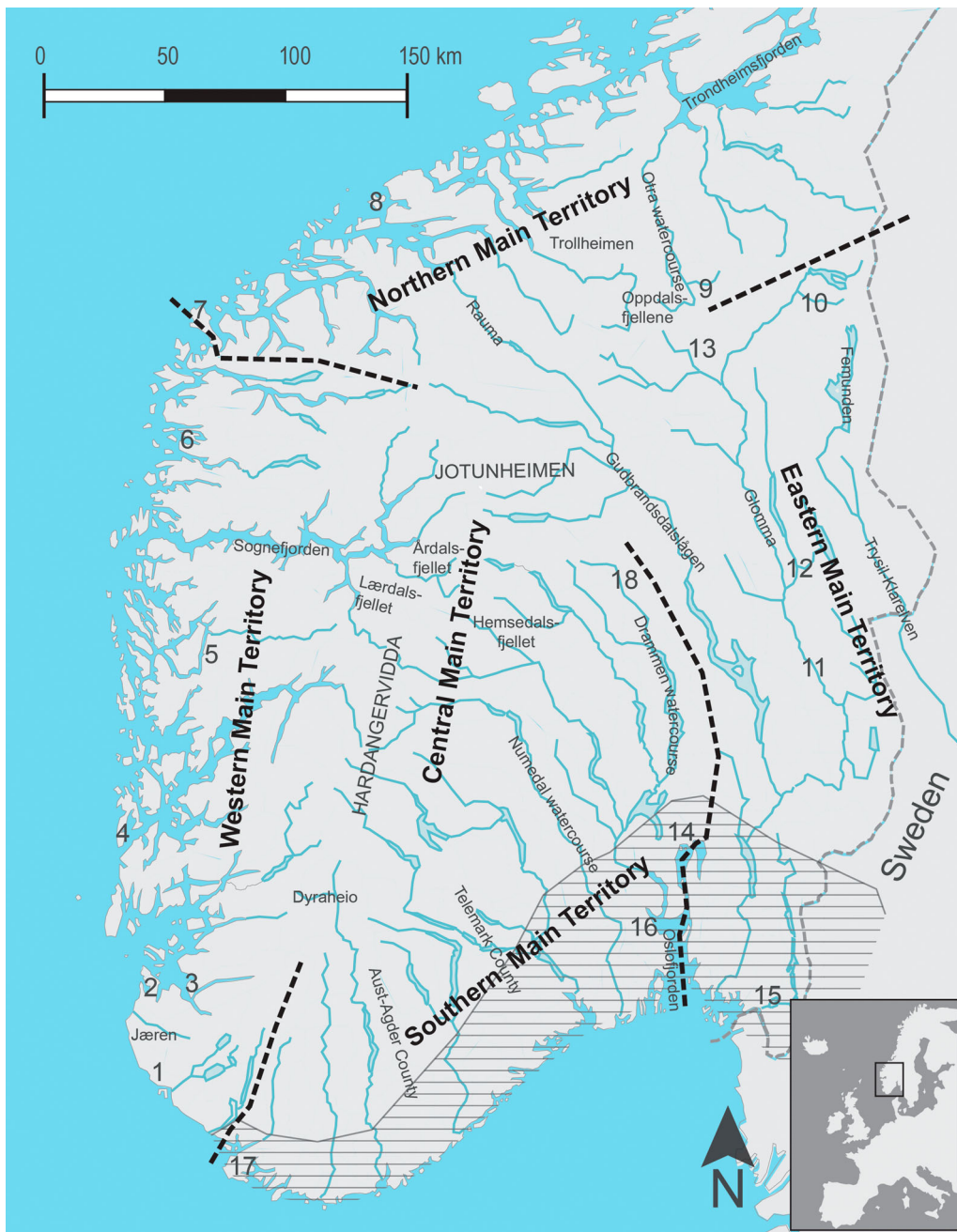


Figure 1. Four main territories and the Central Main Territory: the mountain area. (1) Salthellera, (2) Vistehola, (3) Botne, (4) Bømlo, (5) Skipshellera, (6) Flora, (7) Stad Headland, (8) Aukra, (9) Falningsjøen, (10) Røros, (11) Svevollen, (12) Rena, (13) Savalen, (14) Oslo, (15) Halden, (16) Frebergsvik, (17) Lista, (18) Dokkfløy. Design Martin Blystad.

resources available year round at the coast (Mikkelsen 1978; Bjørge 1981; Åstveit 2008). These special sites with copious, concentrated and predictable resources were probably defended. Originally, disposals of the dead as a result of lineal descent groups with delayed return may have existed, linking territorial ownership to funerary behaviour.

Lower mountain areas such as Dyraheio, Årdalsfjellet and Breheimen may have been transition areas used for seasonal reindeer hunting during transit back and forth between the coastal settlements and the high mountain area of the Central Main Territory further east. Flint indicates contact between west and east, fjord and inland, and local meeting places for people

from several directions (Gustafson 1981, 1982a, 1982b, 1987, 1988; Randers 1986; Bjørge et al. 1992; Indrelid 2009).

The location of the boundaries between the Western and Northern Main Territories is indicated by the northern main distribution of *Stakanes diabase*. A cultural boundary zone was located at Stad Headland marking significant differences in among other the lithic raw material distribution north and south of this peninsula and reflected in the rock art repertoire (Skjelstad 2003; Bergsvik 2006; Sognnes 2017).

Olsen and Alsaker (1984) originally described this main territory as two separate territories. The sporadic occurrence of *Stakanes diabase* far north of the

boundary indicates that there may have been a transition zone between the Western and Northern Main Territories, or at least contact in this direction.

The Northern Main Territory

The topography, with deep fjord and valley systems, is similar to the Western Main Territory. People could travel from the west coast to the south-east coast by following the large watercourse Rauma-Gudbrandsdalslågen through the forest, passing Lesjvatnet at the water divide only 612 metres above sea level. Elk was the main terrestrial prey, although red deer was also hunted, as well as beaver, salmon and marine organisms (Gustafson 1989, 1990; Sognnes 1995, 2017). No special lithic markers characterise this main territory.

The settlement sites were concentrated along the coast. The Late Mesolithic was a stable period at Aukra which was representative of coastal sites. It was dominated by fishing, but people also hunted birds, and marine and terrestrial mammals, perhaps with increasingly sedentary groups with a different type of marine settlement than in the rich tidal current areas further south (Bjerck et al. 2008; Åstveit 2008) in the Western Main Territory. It is possible that disposals of the dead originally existed in resource rich areas representing the ancestors to demonstrate territorial ownership by lineal descent of delayed return groups.

The transition areas in the lower mountains were used for reindeer hunting during the annual travels between the lowland settlements and good reindeer hunting areas in the northern part of the Central Main Territory, a meeting area between groups from the Northern and Eastern Main Territories. These transition areas were, for example, Trollheimen, Oppdalsfjellene and Innerdalen, all with flint rich sites indicating groups with contact towards the coast (Gustafson 1986). Osteological material from elk, beaver and small game is recorded, but reindeer and red deer were also hunted (Gustafson 1987, 1988, 1989, 1990, 1995; Hufthammer 1988). These areas constitute a good base for big game hunting, including the biotopes around Falningsjøen further to the south-east, where remains of reindeer were identified (Gustafson 1988; Hufthammer 1988). Foragers may have migrated between settlements at the coast and the mountain areas as part of an annual round (Gustafson 1988, 1989, 1990; see also Svendsen 2018).

The location of the boundary between the Northern and Eastern Main Territories is set based on the distribution of the lithic marker Skardlia jasper in the Eastern Main Territory. The boundary followed the sources at the water divide between two large river systems. The Orkla watercourse drains north to the Trondheimsfjord, with foragers having connections in this direction (Gustafson 1988). The Glomma watercourse drains south with the sources north of Røros and

Femunden. Many sites were dominated by flint and quartzite using groups to the south of this water divide (Mikkelsen and Nybruget 1975; Gustafson 1988; Sognnes 2017).

The Eastern Main Territory

This main territory is characterised by big long valleys with large rivers, sloping towards the south-east. The largest and longest Norwegian river systems, the Gudbrandsdalslågen and the Glomma, flow together and into the sea south-east of Oslo. Elk dominated the ungulates, but beaver and wild boar were also common prey. Elk was hunted throughout the year (Ekman and Iregren 1984). Jasper is the marker lithic raw material, with the main distribution area around the eastern river system Trysil-Klarelven. The jasper may have been an intentional marker of communication and socio-economic territories (Sjurseike 1994; Falkenström 2003). The total distribution of jasper artefacts implies that this main territory continued into present-day Sweden, also indicated by the dominance of artefacts of local quartzitic rocks (Pettersen 1983; Sjurseike 1994; Sørensen et al. 2013). Early migrating groups originating culturally from north-western Russia adapted to inland resources (Sørensen et al. 2013).

Foragers reused sites located in the north-east, in Savalen, close to the boundary of the Northern Main Territory in the upper Glomma source area, with flint and a dominance of quartz and quartzites. They hunted elk and fur-bearing animals in addition to fishing (Mikkelsen and Nybruget 1975; Hufthammer and Hodgetts 1997; Stene 2010). Winter and spring may have been spent inland as a part of the annual round when large groups of elk migrated, and the rest of the year may have been spent closer to the coast, hunting, fishing and gathering (Mikkelsen and Nybruget 1975). Morphologically and technologically, the area is tied to the Nøstvet tradition in the south, linking the coast and the inland area (Mikkelsen and Nybruget 1975).

Inland foragers inhabited sites like the Svevollen and the settlements at Rødsmoen located along the Glomma river, close to Rena forty-five kilometres further north, as well as the Gråfjell sites further to the north-east (Mikkelsen 1989; Fuglestedt 1995; Boaz 1994, 1999; Narmo 2000; Amundsen 2007; Stene 2010). Refit of jasper between two sites along the tributary river Rena argues strongly for contact and contemporaneity between the sites (González 2014). The hunter-gatherers may have belonged to the same tradition and cultural identity with little coastal contact.

Many settlement sites have been recorded along the resource-rich Glomma river system indicated by many species of fish today and with trout and salmon recorded in the Mesolithic (Linlökken 1990; Stene

2010), but no riverside disposals of the dead are recorded like in south-eastern Australia (Pardoe 1988). Repeated flooding in the Glomma river system may have destroyed much of the archaeological record (Nævestad 2001, 2002; Stene 2010; Roald 2013). It is likely that lineal descent groups with territorial ownership based on funerary behaviour of delayed return groups originally existed at these resource-rich areas.

Nøstvet axes are recorded at the coastally located midden site Skoklefeld south of Oslo. The remnants of terrestrial mammals and the domination of fish and shells indicate spring and summer foraging (Jakslund 2001). The coastal Site 3, Halden, to the south-east of the Oslofjord has remnants of terrestrial mammals. The lithic material is dominated by flint, with the presence of Nøstvet axes. The site was probably settled in spring and summer (Lindblom et al. 1990; Melvold 2006). At the nearby coastal site Tørkop, axes are lacking (Mikkelsen 1975b, 1978; Hufthammer 1991, 2006; Mikkelsen, Ballin, and Hufthammer 1999). Terrestrial animals dominated the osteological material indicating settlement during summer and autumn or longer parts of the year (Mikkelsen 1978).

The regional networks and communication lines are dominated by many traces of quartzite-using groups. Hunter-gatherers had a material culture distinct from people with coastal contact in the south and west (Gustafson 1988). Not all people who spent the year inland might have had contact with the coast. In this way, the Eastern Main Territory stands out as an inland main territory. People may have had a tradition of hunting and trapping terrestrial animals, following their migrations into more easterly areas with contact towards the present Swedish inland as part of their yearly round.

The boundary towards the Southern Main Territory is set from the distribution of Skardlia jasper. It may have been located west of the upper Glomma in the north. Further south it followed the boundary between two separate social groups exploiting different river systems, one of them attached to the Glomma-Gudbrandsdalslågen watercourse, based on flint technology, and the other one attached to the Drammen watercourse, with foragers using both flint and alternative lithic raw materials (Mikkelsen and Nybruget 1975; Sjørseike 1994; Fuglestedt 1998). The boundaries changed when the Nøstvet tradition developed along the coast (Glørstad 2008), reducing the contact between interior and coast.

The Southern Main Territory

The landscape gradually slopes from the northern mountainous areas, with long river systems towards the south to the coast. The main terrestrial prey was elk. Other prey were marine resources and red deer (Mikkelsen 1989; Mjærnum 2018). The area is characterised by the lack of special lithic markers. Flint dominated

in coastal areas, even though the coast of Aust-Agder County was a quartz-using zone (Nielsen et al. 2016). In the south, this changed before 7900 cal BP when the Nøstvet-Lihult tradition established. The main distribution area was around the Oslo area and in south-west Sweden, with production of the Nøstvet axes recorded sporadically to the southern part of the Western Main Territory and north in the Eastern Main Territory (Nordqvist 1995; Glørstad 2008). The Nøstvet axes were procured from different local silicic rocks such as basalt, diabase and hornfels obtained from the unconsolidated sediments available in several places (Mikkelsen 1975a; Boaz 1999). The axes, exchanged over large areas, were presumed to have been both a practical tool, probably for wood preparation, and an exotic prestige object, creating identity (Mikkelsen 1975a, 1978; Jakslund 2005; Glørstad 2008). The settlement was stable, with a stationary population at the coast and inland and family relationships along the large rivers that regulated the transport of raw materials (Glørstad 2008).

The Saghølen site, close to Halden, with many axes and no preserved osteological material was probably inhabited during summer, autumn and maybe winter, or perhaps the whole year (Mikkelsen 1978).

The Frebergsvik site is located on the western side of the Oslofjord at the mouth of the large Drammen watercourse. Nøstvet axes are recorded, flint is the dominant lithic material and the animal remains showed an adaptation to sea hunting of marine mammals (Mikkelsen 1975a, 1975b).

Remains of human skeletons from Hummervikhølen on the resource-rich south coast east of Lista had a $\delta^{13}\text{C}$ value indicating an economic adaptation to marine resources, with an annual round of primarily marine biotopes indicating a coastal population (Sellevold and Skar 1999; Skar et al. 2016). Disposals of the dead indicate lineal descent groups with delayed return and territorial ownership.

Lista is located between two rivers draining the Dyråheio mountain area in the north, which opened up to contact with people from the Western Main Territory, even if they could also meet along the coast by boat. The recorded Nøstvet axes at the Lista sites show connections to the east while rhyolite points to the west with flint as the dominant lithic material (Ballin and Jensen 1995).

The lower transition mountain areas in, for example, Dokkføy, Hemsedalsfjellet and Dyråheio had connections to good reindeer pastures at Hardangervidda and further north in the Central Main Territory. Close contact between six sites around Lake Gurinos in Hemsedalsfjellet, the source area of the Drammen watercourse, was shown by the use of refitting (Schaller 1984). The osteological material showed hunting of reindeer, small game and fishing. Mjærnum (2018) recorded elk hunting at a transition

area in the upper Numedal watercourse at Hardangervidda. The rock art sites at Dokkfloy with elk and beaver were located in the upper Drammen watercourse with quartzites and flint as the main raw materials (Boaz 1994; Fuglestedt 1998; Lødøen and Mandt [2005] 2010). The groups at Dokkfloy and further east at Svevollen were probably two different social groups (Fuglestedt 1998) living in the Southern and Eastern Main Territories, respectively.

The archaeological sites located at lakes and rivers below the forest limit in the long river systems in Telemark County that transected the landscape from the coast to Hardangervidda in the north were important communication routes for adaptation and contact (Mikkelsen 1989).

The location of the boundary between the Southern and the Western Main Territories is set west of Lista. Nøstvet axes, the south-eastern distribution of Hespriholmen greenstone and an overlap between the southern diabase tradition and the western greenstone tradition indicate this boundary (Mikkelsen 1975b; Alsaker [1982] 1987; Olsen and Alsaker 1984; Ballin and Jensen 1995; Jakslund 2005).

The north–south river systems decided the early boundary, which may have been transformed during the coastal Nøstvet tradition, with a boundary parallel to the south and south-east coast changing the boundary conditions (Glørstad 2008, distribution map).

Size and Distances

The boundaries indicate that the differences in size of the main territories are small, averaging about 35,000 km² as best measured by the distribution of jasper in the Eastern Main Territory (see Sjørseike 1994). Based on a map of tribal areas of south-east Australia (McBryde 1984), the Kulin Group area is estimated to be about 98,000 km² and that of the Kurnai Group about 37,000 km². McBride's description of the relationship between land, people and language, suggests that the group areas can be compared to my definition of main territories. This indicates that the main territories in the south Norwegian Mesolithic, with a very different nature to south-east Australia, had a size comparable with the Kurnai Group distribution area.

A dialectic tribe in a main territory consisted of several groups living in territories, i.e. smaller areas than occupied by dialectical tribes. The territories were often located around parts of drainage systems in south Norway (e.g. Skar Christiansen 1985; Mikkelsen 1989; Skjelstad 2003; Gundersen 2004, 2006; Ballin 2007) as well as abroad (Price 1973; Hood 1995; Donahue and Lovis 2006; Sulgostowska 2006a; Odgaard 2009; Evans et al. 2010). This may be confirmed by the variations in the elk images in rock art, which might indicate that there were several smaller groups, each with its own territory (Helskog 1999).

There are numerous examples of hunter-gatherers making long trips to exploit a lithic resource for a short time. McBryde (1984) recorded from south-east Australian Aborigines that greenstone artefacts were dispersed from the Mt. William quarry and probably also re-distributed widely from the source. Even if equivalent raw materials are available in the area lying between distribution areas, nearly one-third of the samples originate from sites more than 300 kilometres from the quarry and the most distant about 700 kilometres as the crow flies.

The Folsom cultural complex in the south-west of the USA with little food storage had a considerable knowledge of specific lithic resources (Amick 1996). Although alternative stone sources were locally available, the pattern of their settlement and mobility required very large territories with transport of lithics more than 500 kilometres. The total annual mobility may have exceeded 1400 kilometres based on the seasonal exploitation pattern (Amick 1996).

Sulgostowska (2006b) studied mobility motives for the final Palaeolithic Magdalenian foragers in Poland. Expeditions were organised to distant sites with a supply of lithic material following reindeer herds on the routes of seasonal migrations with average mobility distances shorter than 200 kilometres. Their motives were usually concerned with travels related to economic necessity and subsistence strategy but were sometimes a result of permanent migrations. Foragers are recorded to have preferred flint for tools transported from outcrops more than 100 kilometres away, with exceptional expeditions up to 400 kilometres, in spite of easy access to good quality flint within shorter distances.

Olsen and Alsaker (1984) recorded the maximum distance of Hespriholmen greenstone and Stakanes diabase distribution to be 600–650 kilometres, which indicates long trips to exploit a lithic resource. The distribution also provides evidence for contact between the west coast and the river valleys in the Eastern Main Territory. Crossing the Central Main Territory was the shortest route between many groups along the coast of south Norway. No mountain area is more than 200 kilometres from the coast, which is a short distance compared to the examples referenced above and also other references about transfer of lithic material during the Younger Dryas and Early Mesolithic in the Baltic and in south-east Finland (Burdukiewicz 2011; Jussila, Kriiska, and Rostedt 2012).

Discussion of the Relationships between Hunter-Gatherers, Main Territories, the Annual Round and Interrelated Contacts

The Origin of Main Territories

The main territories may have represented a long historic tradition from the time of immigration to south

Norway. The immigration in the west and north was probably from the south (Selsing 2012; Günther et al. 2018), in the east from the north, east and south-east (Sørensen et al. 2013; Günther et al. 2018) and in the south-east from present-day Sweden (Schmitt et al. 2006; Glørstad 2016).

The preference for ungulate prey may have developed following the immigration of these animals; reindeer during the lateglacial period from the south to south-west Norway (Lie 1986, 1988, 1990) and dispersed from this area further north (Rankama and Ukkonen 2001). The history of the deglaciation of eastern Norway and central Scandinavia caused a delay in the migration of reindeer from eastern directions, maybe as late as 6000 cal BP (Liljegren and Lagerås 1993; Rankama and Ukkonen 2001; Andersen and Hustad 2004). Elk and red deer immigrated during the early Holocene (Lie 1988, 1990).

The lithic traditions may have been a remnant of people's origins, following their heritage on the Continent (Selsing 2012). In the new landscapes, the hunter-gatherers found lithic materials with the same qualities as those they originally used, primarily flint. Continued voyaging along the coasts and inland followed the immigration. Uniformity was created by high human mobility, which decreased in later periods (Bergsvik 2001; Bjerck 2007; Rowley-Conwy and Piper 2016).

The Annual Round

Annual rounds may have developed very early, when mobility was life. They include elements of security and predictability in terms of the location of food resources since most prey animals migrated (Mellars 1985). Hunter-gatherer mobility is closely related to the structure of resource accessibility in a given environment and commuting time influences the settlement system, mobility and the number of moves per year (Binford 1980; Kelly 1983). Variation corresponding to seasonal patterns of resources may have regulated the movement, as suggested by Amick (1996) for the Folsom cultural complex in south-west USA. Mobility also contributes to maintain social contact, networks and trade (Kelly 1995).

Foragers are specialists in navigating a landscape, visit more remote regions and travel to people outside their territories (Kelly 1983; Brody [2000] 2002b; Davies, Robband, and Ladbrook 2005). Travelling happens through places of significance because by observing their landscape so thoroughly they remember a route they once used, even after decades (Birket-Smith 1943; Brody [2000] 2002b; Aporta 2010).

In south Norway, both marine and terrestrial resources are available all year round even if many of them migrate. Bjerck (2007) proposed that marine resources were more important for subsistence than terrestrial food during the Mesolithic because of a

long-established exploitation system. Hunter-gatherers along the coast of south Norway may have spent the year in a similar way to the Nootka of Vancouver Island (Rowley-Conwy and Piper 2016 with reference to Drucker 1951). Nootkas had an aggregation site for the summer for the entire group, where they were engaged in hunting sea mammals. In autumn, they moved to the salmon fishing camp, for harvesting and storing, and then further to the winter village where many lineages gathered. The Twana were also dependent on the storage of marine resources, practising different subsistence activities, and lived without territories in dispersed campsites for more than half of the year (Rowley-Conwy and Piper 2016 with reference to Elmendorf and Kroeber [1960] 1992). In the autumn the salmon fishing resulted in territorial ownership of fishing places and food was stored in the winter village. Both of these groups had delayed return systems only part of the year (Rowley-Conwy and Piper 2016). Also in the Mesolithic in south Norway, the regular migration pattern of salmon, with the occurrence of seasonal bursts, optimised the predictability, with concentrations at some specific places on the west and north-west coast especially by tidal streams (e.g. Mikkelsen 1978; Olsen 1992, 1995; Bergsvik 2002a; Bjerck 2007).

The Nootka and Twana foragers had ownership of resource-rich locations as opposed to areas of moderate or poor resources. Economic defendability of predictable key resources such as small game, here salmon, to the exclusion of other people may have taken place in south Norway and storage was probably a normal procedure to keep food for longer periods. Storage implies that when a resource is collected it is available. This situation may result in a sedentary period in the yearly round because the food situation was safe, based on studies on the Great Basin Western Shoshoni tribe of southern USA (Dyson-Hudson and Smith 1978 with reference to Stewart 1938). More stable and probably sedentary settlement areas are recorded along the Norwegian west and south coast (Mikkelsen 1978; Bjørge 1981; Bergsvik 2001; Glørstad 2008; Åstveit 2008).

Delayed return higher latitude groups with predictable resources with a high level of seasonal variation had few moves, varying according to area. The yearly round may have encompassed at least two main areas in south Norway, as seasonal subsistence resources are only available during certain times of the year in the ecological zones from the sea to the mountain area (Indrelid 1978; Mikkelsen 1978).

The quarries could be the start and the end point of the annual round, indicating their special position as meeting places between groups with wide contact networks as proposed for Mesolithic foragers (Sjurseike 1994; Nyland 2006). Thus the quarries, with a predictable valuable resource, may represent a special,

important place within a main territory controlled and defended by hunter-gatherers with ownership by lineal descent as per the Mt. William quarry in south-east Australia (McBryde 1984).

The site Hummervikholmen is an example of year-round stay in marine environments along the south coast of Norway (Sellevold and Skar 1999; Skar et al. 2016). An economic adaptation to rich marine resources may have resulted in an annual round of primarily marine biotopes with delayed return groups using the presence of the ancestors to indicate territorial ownership by lineages.

In contrast to the resource-poor boreal forest, rich and stable biotopes exist along the bank of rivers and seashores. With large variations in resources over small areas, these locations may have been preferred for the reliability of food and water. Many settlement sites are recorded located close to places especially in the Southern and Eastern Main Territories with long and large river systems and protected beaches (e.g. Mikkelsen 1978, 1989; Boaz 1994, 1999; Fuglestedt 1995, 1998; Narmo 2000; Amundsen 2007), but also in the west. Here it was possible to live more permanently, with few annual movings, as indicated by the Nøstvet tradition along the southern coast.

The records from three coastal sites in the Eastern Main Territory were interpreted according to season based on refuse fauna. Fish and shells dominated Skoklefeld, but remnants of terrestrial mammals were also found, so it is interpreted as being in use during spring and summer (Jakslund 2001, 19). Site 3, Halden, with remnants of only terrestrial mammals, was interpreted as probably being settled in spring and summer (Lindblom et al. 1990; Melvold 2006). On the other hand, the nearby coastal site of Tørkop, dominated by terrestrial animals, was interpreted as having been settled during summer and autumn, or even longer parts of the year (Mikkelsen 1975b, 1978; Hufthammer 1991, 2006; Mikkelsen, Ballin, and Hufthammer 1999). This indicates that the annual round may have been characterised by a seasonal tradition of spending the warm season at the coast extracting both marine and terrestrial resources while during the cold season the inland areas were preferred (Mikkelsen and Nybruget 1975).

The cold season is the time of greatest stress and usually the most reliable resources are at the coast, characterised by larger groups of people and longer stays proposed for the Mesolithic in Norway and northern England as proposed by Indrelid [1986] 1994 and Spikins 1996. The inland population in the Eastern Main Territory may have used the large water systems during the cold season by fishing, hunting elk and trapping but with coastal contact and also use of the mountain areas (Mikkelsen and Nybruget 1975; Mikkelsen 1978; Indrelid 2009). In this period, large groups of elk migrated. The rest of the year may have been spent close to the coast hunting,

fishing and gathering, indicating two main areas for these groups. Crombé and Beugnier (2013) proposed a Mesolithic winter territory in the uplands of north-west Belgium, where there were exotic raw materials with similarities to the Eastern Main Territory. The site Sagholen on the coast of south-east Norway was proposed by Mikkelsen (1978) to have been inhabited during summer, autumn and maybe winter, or the whole year. Such an interpretation may indicate a connection with both the Eastern and Southern Main Territories which share similar natural characteristics, especially the long and large river systems, and the moderate topography dominated by large dense boreal forests in contrast to the Western and Northern Main Territories which are characterised by steep topography, shorter river systems and more varying forests.

The contradictions in the Eastern Main Territory concerning inland and coastal settlement may have been caused by the original adaptation to inland resources and the spread of the Nøstvet tradition along the coast during the Mesolithic.

The Role of the Central Main Territory

This main territory included the central mountain areas with good reindeer biotopes, the source areas of the watercourses and local silicic raw materials, but also flint and sporadic marker lithics from the other main territories at the archaeological sites. Elk, red deer and reindeer could all be hunted in the upper valley forests stretching towards the mountain area. The highly gregarious reindeer are easier to hunt than elk and red deer. They follow predictable routes between summer and winter ranges, and their groups reach their maximum size in July after calving and in October during the migration and rut (Ran-kama and Ukkonen 2001).

Hardangervidda, northern Europe's largest mountain plateau, with many archaeological settlement sites tied to watercourses (Indrelid 1975; [1986] 1994), crosses the main water divide. Most mountain sites are small, and relate to visits primarily during the warm season, while larger settlement sites indicate repeated visits or that people lived there for longer periods (Indrelid [1986] 1994). Identified house remains and processed lithic material may indicate traces of central meeting places that combined both sacral and profane activities (Martens and Hagen 1961; Indrelid [1986] 1994; Selsing 2012). Settlement sites close to the watershed between watercourses draining in different directions imply that people may have had routes crossing the water divide to other drainage systems (Selsing 2012). The activities did not leave much in the way of accumulated cultural layers and other physical material. A relative lack of material culture traces does not exclude the possibility of gatherings of many people.

When hunter-gatherers originally settled the mountain area, flint was carried from the coast. The total amount of flint at the mountain sites is very small but at the same time it is recorded at nearly all collections of artefacts (e.g. Indrelid [1986] 1994; Mikkelsen 1989). The reason may be the good quality for tool production, but probably flint was also a symbol of the cultural affinity to the area of the hunter-gatherers origin at the Continent, a domestic world of the familiar (Selsing 2012). The flint at Hardangervidda and in Telemark is described as non-homogeneous, with variations at every Mesolithic site (Indrelid [1986] 1994; Mikkelsen 1989).

The distribution of valued goods and the existence of other lithic identity markers in the other main territories reveal contact between the mountain area and the lowlands (Alsaker [1982] 1987; Olsen and Alsaker 1984; Indrelid [1986] 1994; Mikkelsen 1989; Ballin and Jensen 1995). The two recordings of the storing of food indicate transport of resources (Bjørge 1981; Randers 1986) and confirm the relationship between coast and mountain area. Some artefact types also indicate that foragers may have crossed the mountain area (Lødøen and Mandt [2005] 2010). The record of a Nøstvet axe in Jotunheimen, a northern part of the Central Main Territory, indicates contact towards the south-east (Lødøen 2003), as it may have been produced in the Southern Main Territory according to the tradition. It is possible that the axe was carried here by the same people who created rock art in Dokkfloy (Lødøen and Mandt [2005] 2010).

The artefact types recorded in the mountain area are also found in the lowlands, while some artefact types in the lowlands, such as axes and ceramics, are absent or very scarce in the mountain area, probably caused by differences in activities rather than cultural differences (Indrelid 2009).

Contrary to what has been maintained (e.g. Johansen 1978; Bang-Andersen 2008), very few radiocarbon-dated sites were located above the Mesolithic forest limit (Selsing 2010). They were from the mountain area Lærdalsfjellet, which had a good reindeer herd and regular reuse of many sites (Johansen 1978). The predictable and valuable quartzite from the quarry Kjølleskarvet dominated the lithic material and flint is also found at nearly all sites. Groups of hunter-gatherers likely controlled and defended this quarry, with ownership by lineal descent as at the Mt. William quarry in south-east Australia (McBryde 1984). Manufacturing of raw materials could feasibly have been an integrated part of annual intergroup gatherings (Olsen and Alsaker 1984). People with relationships that linked members of different groups may have had access to the quarry and the quartzite may have been used as a prestige good in inter-group exchanges and ceremonial gatherings to strengthen contacts. The settlement in Lærdalsfjellet was a seasonal part of the

annual round, with coastal sites connected to the north, north-west and south (Johansen 1978; Gundersen 2004). Foragers may have crossed the water divide between west and east and used the sources of the long river systems to get to large and easily accessible mountain areas such as the northern parts of Hardangervidda, possibly following the drainage system further towards the coast in the south-east (Johansen 1978).

Hunter-gatherers who used adjacent springs from different directions could have contact with each other and repeatedly shared special meeting places. Mesolithic groups could meet each other when people from eastern and western regions exploited the same mountain areas (Mikkelsen 1978) using tracks linking west and east (Moe, Indrelid, and Kjos-Hanssen 1978). This is in agreement with Tanner (1979) and Spikins (1996) who for Quebec Mistassini Cree hunters and Mesolithic hunter-gatherers in northern England, respectively, proposed that the location of travel routes along upland watersheds might have been important for social interaction.

The hunter-gatherers in the Central Main Territory were dependent on the highly mobile reindeer. Migrations of reindeer are not restricted by territorial boundaries and territorial ownership probably did not exist. People may not have defended the area and did not have exclusive rights to resources. Daugherty (1992) described a similar situation with territories among the Salishan language group of the north-west of the USA. The group owned fishing sites, while the hunting grounds in the mountain area were shared with other groups. Here they met people from the other side of the mountains for trading. The boundaries between the Central Main Territory and the other four main territories may have been open to free communication. This main territory could have perceived shared facilities, as a kind of no man's land or common land (in Norwegian *allmenning*) with free access for people from large areas as an expression of the importance of a Mesolithic reindeer culture. As in Norway, common land has survived best in mountainous areas where the land is too poor to be worth fencing and dividing (Layton 2005).

Smaller and lower mountain areas between the forest and the Central Main Territory may have worked as transition areas for foragers on seasonal migrations between the coast and the mountain area (see Indrelid 1977; Gustafson 1981, 1982a, 1982b; Randers 1986; Mikkelsen 1989).

People from the other main territories used the Central Main Territory seasonally and it was not home to its own dialectic tribe. This may have been an intertribal buffer zone where territories and main territories were suspended, reflecting the importance of the mountain area for the people. Inter-group contact in mountain areas may have been an integral part of social life for Mesolithic people in areas of eastern

Europe, as proposed by Sulgostowska (2006a). This main territory may have played a main role in maintaining contact between groups of the south Norwegian language family.

There are other examples of foragers living at the coast and spending longer or shorter periods in mountain areas. Hunter-gatherers in west Greenland lived on the coast for most of the year, travelling to a summer mountain camp for reindeer hunting (Grønnow, Meldgaard, and Nielsen 1983; Odgaard 2009). A large Early Mesolithic territory in north-eastern Italy, extending from the mountains to the sea, was based on seasonal activities exploiting different ecological niches (Grimaldi and Flor 2009). People who lived most of the year on the coast during the Mesolithic may have used the uplands of England as temporary hunting areas (Jacobi 1979; Gendel 1984).

Celebrating the Reindeer Diasporic Culture

The practice of the reindeer hunt during summer and autumn is indicated by Mesolithic sites in the mountain area connected to the reindeer migration tracks (Indrelid [1986] 1994; Gustafson 1988). An important reason why the reindeer hunt may have culminated during summer and autumn was that the groups of gregarious reindeer reached their maximum size at this time and that people probably took advantage of the seasonal optimal conditions of meat, hide and fat content.

Seen from a subsistence perspective, there are no rational reasons to hunt reindeer in the mountain area, when people could hunt big ungulates in lower areas where all demands could be met within short distances (Gustafson 1988; Bergsvik 2002b; Gundersen 2004). Fuglestedt ([2005] 2017, 2009) introduced a sociodemographic model of reindeer clans for the Early Mesolithic in the lowlands of south-west Norway. Selsing (2012) argued that hunter-gatherers with a diasporic reindeer culture originated from the Continent during the lateglacial time with flint as the important lithic raw material representing the area of origin. Thus the flint may have had a double function: as a religious marker for the origin myth and a good raw material for tools. Reindeer hunting in the south Norwegian mountains may have satisfied a desire to keep old, traditional arctic adaptation alive (Gustafson 1986). The close interactions between people and reindeer that have resulted in the much later domestication of the animals reaching back to the Ice Age or even longer (Røed 2007; Røed et al. 2008). It may have been important to amalgamate the mountain area and the coast as symbols of the mobile lifestyle. The reindeer culture may have been celebrated with reindeer as moving and flint as portable relics originating at the coast (Selsing 2012). In this way, flint may

have been important independent of quantity and quality.

The reindeer culture may have developed as networks of identity-forming cultural activities. For groups of hunter-gatherers, coming together from different directions to hunt reindeer may have been essential as a continuous confirmation of the reindeer culture. The Central Main Territory may have had a special role as the foragers' seasonal meeting place for coordinated activities as a basic traditional institution. Olsen and Alsaker (1984) proposed regular annual and institutionalised aggregations of people as a necessity for foragers in the Mesolithic in south Norway. Groups from many places may have met, with rituals tied to the cosmology of the diasporic tradition (Selsing 2012). The reindeer culture may have been an important reason why the mountain area was a part of the annual round, representing both a religious base and an economic resource.

As long as a reindeer culture existed, it was important to be together with the animals regularly. Therefore, the hunter-gatherers had to return to good reindeer areas. To reach these biotopes around and above the forest limit, postulated to be the main areas for celebrating the reindeer culture, people passed transition areas for shorter stays. Reindeer remains in the lowlands (H. Olsen 1976; Bjørgø 1981) may confirm their value as an identity marker.

A reindeer diaspora did not necessarily exist in all groups of foragers in south Norway. The early immigration of reindeer to the south-western part of the country migrating north and to mountain areas may imply that the reindeer diaspora primarily existed in this area and may have dispersed to the other main territories. It is likely that the people in the Eastern Main Territory did not develop the same historic reindeer diasporic characteristics because reindeer immigrated late to this area. However, this did not exclude a subsistence reindeer hunt. The Western and Northern Main Territories in particular had essential connections to the Central Main Territory based on the reindeer diaspora.

The Mesolithic foragers who spent the warm season in the mountain area may have pursued activities observed in more recent groups of hunter-gatherers. In Canada, boreal foragers used the summer slack for relaxing during gatherings, with social communication, building of networks, alliances and exchanging of mates to strengthen relations among families (Brody [1981] 2002a, [2000] 2002b). Australian Aborigines had ceremonial gatherings of all or parts of a group, which spent time temporarily outside their territory (Peterson 1975). The importance of this part of the year is evident from boreal Canadian hunter-gatherers, where the summer sites were focal points in drawings of land-use maps (Brody [1981] 2002a).

Changes in the Annual Round and Reduced Importance of the Central Main Territory

A disagreement over the boundaries between the Eastern and Southern Main Territories may have a complex explanation.

An increase in the inland settlement from 8900 cal BP led to a maximum around 8100 cal BP (Boaz 1999; Sørensen et al. 2013; Persson 2018) and the culmination of the settlement in the mountain area around 8500–7600 cal BP (Selsing 2010).

The large north–south and north-west-south-east going river systems may originally have been superior to lithic markers, defining weak boundaries between the Eastern and Southern Main Territories 8900 cal BP, with a successful mobile adaptation utilising both coastal and interior resources in east Norway until more specialised adaptations prior to 7900 cal BP (Boaz 1999). During this period, the territorial behaviour may have been characterised by an increase in the utilisation of the interior and mountain areas using different raw materials, before the Late Mesolithic Nøstvet tradition became established and stabilised along the coast (Boaz 1999). The boundary conditions around the Oslofjord changed, as indicated by the lithic material culture (Jakslund 2001). The geographic distribution implies that early Middle Mesolithic groups with different material cultures and traditions related to the use of tools utilised the same boundary area on the east side of the Oslofjord (Jakslund 2001). The early boundary, which was decided by the river systems, may gradually have been changed to a boundary parallel to the coast during the Late Mesolithic coastal Nøstvet tradition.

A possible reason may have been that the Eastern Main Territory was originally culturally influenced from easterly directions and people were adapted to inland resources and familiar with the inland landscape (Sørensen et al. 2013). An additional reason may be that a lithic tradition based on the jasper quarry concentrated at a specific site may in practice have been culturally weaker than a Nøstvet tradition based on silicic stones from more easily available unconsolidated sediments probably found in many places. A culturally based lithic tradition may gradually have replaced the old boundaries based on the river systems. The occurrence of flint at the archaeological sites in spite of good local quartzites far north of the Eastern Main Territory indicates continued contact between the coast and inland area, which may have survived the introduction of the Nøstvet tradition that spread along the coast.

The boundary change may have been a part of larger changes in the south Norwegian settlement systems. Boaz (1999) proposed that a divergence in terms of tradition between coastal and interior settlements resulted in a decline in the settlement of the mountain area. Reduced seasonal mobility was replaced by a more

stable settlement pattern and separate coastal and inland groups arose. This divergence, at least in the Eastern and Southern Main Territories, resulted in the more specialised adaptation before 7900 cal BP, a cultural change that led to the development of the Nøstvet adaptation in coastal areas (Boaz 1999).

At this time, coastal and interior groups may have been established in the Southern and Eastern Main Territories. Some groups abandoned seasonal movements to the interior areas, while other groups eliminated long-distance movements to the coast (Boaz 1999). The reduced mobility that developed into a stronger attachment to certain areas and a more sedentary lifestyle is indicated by larger coastal settlements, reflecting an increase in population and the reorganisation of patterns of labour. One consequence was a specialised, consolidated Nøstvet tradition, with groups who lived in the same area during greater parts of the year (Boaz 1998, 1999; Jakslund 2005). Thus a new main territory grew up along the coastal areas of the Eastern and Southern Main Territories. This presupposes a stable base of marine resources, as well as gathering and the hunting of terrestrial mammals. At the same time, the interior areas developed as an inland main territory, may be stretching farther west than the original boundary of the Eastern Main Territory and based on inland resources with little or no contact with the sea.

Sea-level changes and a warm sea with high biological productivity during the Holocene Thermal Maximum are recorded by many authors (Hafsten 1983; Anundsen 1985; Christensen 1995; Jakslund 2005; Prøsch-Danielsen 2006; Paus 2013). These natural changes are possible reasons for the changes in the hunter-gatherers' societies.

Summary and Conclusions

The subsistence strategies of higher latitude south Norwegian hunter-gatherer societies emphasised the response to ecological variables as an important factor determining territoriality during the Mesolithic.

Based on ethnographic analogies, the inegalitarian societies in south Norway were technologically complex with delayed return and rights over valued assets. Some hunter-gatherers occupied and defended a particular economic area and other people were denied access to selected resources. The unharvested resources may have been controlled and physically defended when they were copious, concentrated and predictable and emphasis was on ownership of valuable resource-rich sites like salmon runs and quarries. Not all resources were defended. Unreliable resources such as elk and red deer may have been little defended or not defended at all because of difficult access to these unpredictable ungulates. Temporarily available

resources in bulk were harvested, processed and stored to preserve them. This situation may have resulted in a sedentary period in the yearly round, living more permanently close to resource-rich rivers and coasts. It is likely that in some areas there may have been hunter-gatherer groups that favoured terrestrial resources ('inland people') and some that favoured marine resources ('coastal people').

The main territorial structure was adapted to seasonal variation in resource productivity and pattern, defined by the distribution of selected specific lithic raw materials and one artefact type, distribution of ungulates and river systems.

South Norway corresponds to a language family of four dialectal tribes, each one in a main territory, and the Central Main Territory which was temporarily settled by people from the other main territories, primarily during warm season migrations. Hunter-gatherers may have built up their territories around prominent drainage systems and maintained a network of links across the Central Main Territory crossing the water divide to other main territories.

The presence of the cemetery at Hummervikholmen at the seashore indicates a lineal descent group to justify occupation of a particular area of landscape, linking territorial and property ownership to funerary behaviour of delayed return groups. Territorial lineages probably existed in south Norway close to settlement sites in areas with stable and predictable resources where the hunter-gatherers may have had formal disposal areas for their dead. The sparseness of recorded burial grounds does not necessarily mean that formal disposal areas for the dead were rare in south Norway during the Mesolithic. They may have existed at least along resource-rich riversides and seashores in areas with stable and predictable resources useful for and indicating the presence of territorial lineage groups. However, the possible burials may have been destroyed by erosion due to seasonal flooding along rivers and sea-level changes along the coast.

The groups who met in the river source areas around the water divide of the Central Main Territory may have had gatherings of people originating from the different main territories. This may have been an important system for information exchange over large areas of south Norway, as indicated by the distribution of specific lithic markers. The meeting places were characterised by special traditions and gathering activities connected to a reindeer culture with long diasporic traditions going back to the origins of hunter-gatherer ancestors at the Continent, who settled south Norway after deglaciation with flint as portable and reindeer as moving relics. Thus, reindeer are proposed to have had a central role for the grouping of the main territories.

This proposal applies to the period when the culmination of settlement in the mountain area when most

hunter-gatherers used the mountain area, the Central Main Territory, based on radiocarbon dates as a record of the Stone Age settlement in the mountain area. However, the application may apply to larger parts of the Mesolithic, as the settlement and subsistence patterns appear to have remained relatively unchanged in large areas throughout this period. The reindeer culture declined around 7600 cal BP after the culmination of the settlement in the mountain area.

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