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## History of animal husbandry in CHARTER study area. 2.3 Finland

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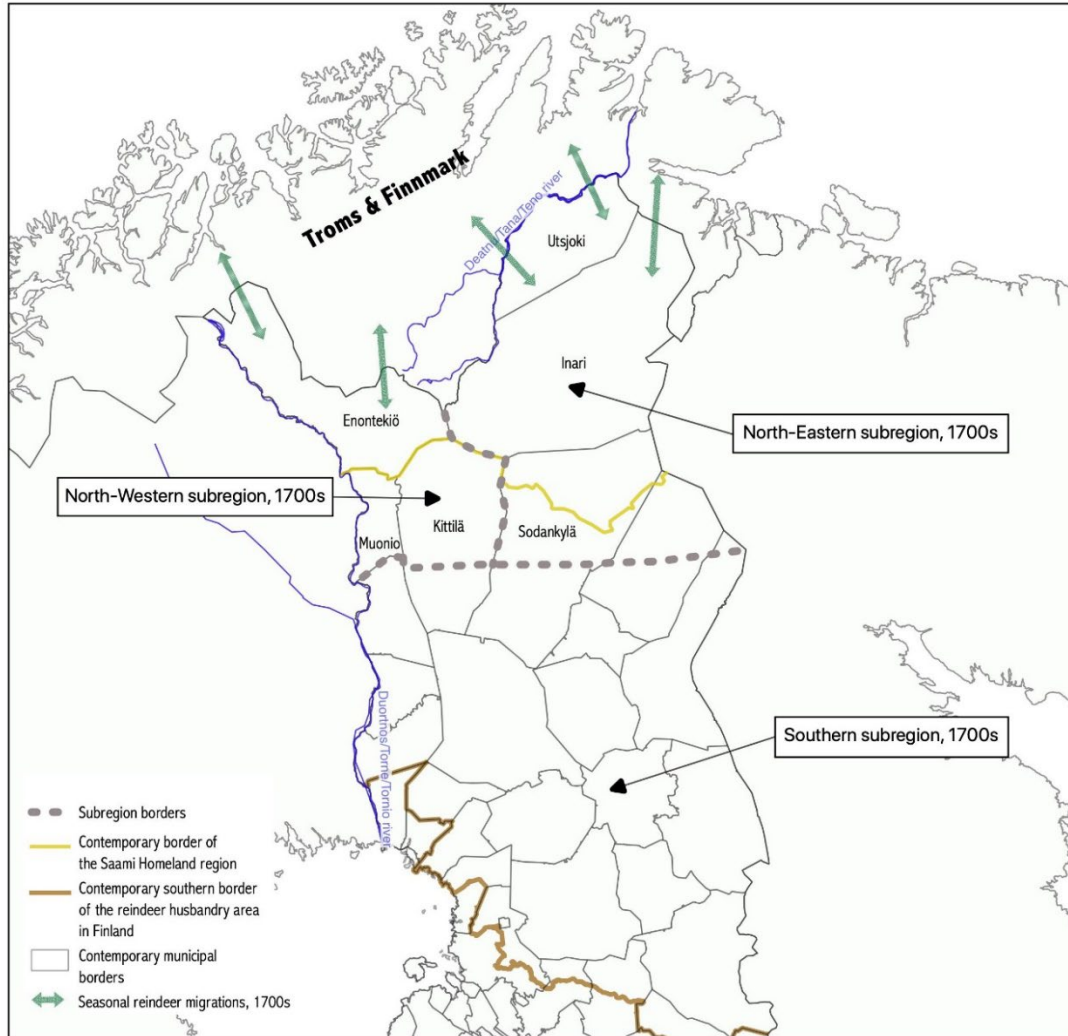
### 2.3 FINLAND

(T. Valtonen, T. Komu, M.A. Manninen, S. Rasmus, J.T. Eronen & B. Forbes)

The wood- and peatland dominated Finnish Lapland is part of the northern boreal vegetation zone, except for patches of alpine tundra in the altitudinally highest lying areas close to the Norwegian and Swedish borders in the north, and the southwestern corner of the area that belongs to the middle boreal vegetation zone (Elmhagen et al. 2015: Fig. 4). The Finnish Reindeer husbandry area covers the Lapland region and parts of the Kainuu and Pohjois-Pohjanmaa regions, that is, roughly 40% of Finland. Subsistence activities in this area during the 18<sup>th</sup> to 20<sup>th</sup> centuries consisted of hunting, gathering, fishing, animal husbandry (reindeer, cattle, goat, sheep) (Itkonen 1948) and small-scale cultivation (especially in the south) (Massa 1983). In the northern part of the area, a wider range of food sources seems to have provided a better buffer against bad years caused by annual climatic variation, compared to the southern agricultural areas (Helle & Helama 2007).

#### *Animal husbandry in the 18<sup>th</sup> century*

In terms of 18<sup>th</sup> century animal husbandry, the area can be divided into three major subregions: two to the north of a line drawn through the present-day municipalities of Sodankylä and Kittilä, and one to the south. In the southern subregion cattle dairy-farming utilizing natural flood meadows and bogs was the main subsistence strategy, supplemented with minor sheep and goat husbandry, fishing, and hunting. In the western and eastern halves of the northern region (including most of Kittilä and Sodankylä) reindeer husbandry was the most important form of animal husbandry.



**Figure 4.** The contemporary reindeer husbandry area in Finland and some relevant places and borders mentioned in the text. Historical Kemi Lapland included all contemporary municipalities in northern and central Finnish Lapland except for Enontekiö, Utsjoki and the municipalities adjacent to the Torne River. (Design: T. Valtonen, T. Komu, M.A. Manninenm P. Burgess)

Reindeer husbandry in the North-Eastern subregion mostly followed a form of reindeer husbandry characterized by the keeping of only a few reindeer (as year-round draft animals and as decoys for wild reindeer hunting), as well as some sheep



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for wool, milk, and meat. The main sustenance nevertheless derived from hunting, fishing, and gathering. In the mid-18<sup>th</sup> century small numbers of cattle-herding settlers started to move to the largest river mouths even in the northernmost areas and thus started a new way of life in the area, that grew in importance over time (Itkonen 1948; Schnitler 1742–1745).

In the North-Western subregion, the Saami adopted large-scale nomadic reindeer pastoralism, a cluster of innovations that spread to the area already in the early 17<sup>th</sup> century. One owner could have tens, sometimes hundreds of reindeer, and reindeer husbandry became the main economic strategy. Reindeer were herded year-round, and they were milked. The herding and migration followed well-established seasonal routes oriented between summer pastures at the coast of the present-day Troms and Finnmark county and winter pastures located in coniferous forests in the present-day municipalities of Enontekiö, Muonio, Kittilä, Inari, and Utsjoki in Finland. These winter woodland lichen pastures were often overlapping with areas settled by dairy-farmers (Itkonen 1948; Schnitler 1742–1745). In the Torne River Valley, along the Swedish border, migrating Saami pastoralists and more locally based Saami groups tended the local farmers' reindeer in exchange for compensation (Kortesalmi 2008).

The earliest mentions of non-Saami reindeer owners, that used reindeer for example as draft animals, go back to the 14<sup>th</sup> century. In the southern subregion reindeer herding was beginning to be practiced also by Finns and other non-Saami ethnic groups (e.g., Karelians) at the end of the 17<sup>th</sup> century. Incoming agriculture, demographic changes, and cultural exchange caused the groups to gradually adapt their subsistence strategies to the changing situation. By the late 18<sup>th</sup> century, a new form of reindeer husbandry was well established in the southern parts of historical Kemi Lapland and regions south of it. It was practiced alongside sedentary farming and mixed economies regardless of the ethnicity of its practitioners. The herding



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techniques were adapted based on the local indigenous reindeer herding adaptations, but new innovations were also developed, such as a new type of sleigh that increased the potential to use reindeer for transport (Kortessalmi 2008).

Land-use was based on customary law, for the most part respected also by state institutions. However, the Swedish Crown prioritized the needs of settlers, a practice that sometimes led to local conflicts. When the border between Norway (Denmark) and Sweden (including Finland) was demarcated in the 1751 peace treaty of Strömstad, an additional protocol, the so-called Lapp Codicil, was signed to guarantee the right of the Saami to migrate across the border with their reindeer. Due to the small number of animals, the significant ecological impact of animal husbandry was limited to the southernmost areas and close to villages where grazing caused open vegetation types to become more common (Massa 1994).

### *Animal husbandry in the 19<sup>th</sup> century*

The 19<sup>th</sup> century saw a continuing increase in the importance of dairy-farming up to the northernmost Deatnu (Tana) and Ohcejohka (Utsjoki) river valleys, where it was practiced by the local Saami (Fellman 1906). Forested areas, bogs, and natural meadows were used as cattle, sheep, goat, and horse pasture, while variable resources were intensively collected and preserved for winter fodder. This led to rapid growth of open vegetation types also in the river valleys of the northernmost parts of the area.

Large reindeer herds were owned by a few families in the northern subregions as the large-scale reindeer pastoralism slowly spread eastwards during the first half of the 19<sup>th</sup> century. Small-scale reindeer husbandry and keeping of draft reindeer was still widespread in the whole of present-day Finnish Lapland. (Itkonen 1948).

After the Finnish war (1808–1809) the area of today's Finland became part of the Russian Empire. The seasonal reindeer herding routes between the Norwegian



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coast and the woodland areas nevertheless persisted until 1852 when the border with Norway was closed. The closing of the border caused a major disruption for herds and herders used to crossing the border, in the same way it did in Sweden and Norway. New pastures were sought to replace grazing areas left on the Norwegian side, resulting in conflicts over pastures, increasing grazing pressure on remaining land, large-scale reorganization of the herding system, and probably also contributing to the extinction of the wild reindeer in Finland. (Enbuske 2008.)

From the mid-19<sup>th</sup> century onwards, the Skolt Saami in the north-easternmost parts of Finnish Lapland gradually took up small-scale reindeer husbandry in tandem with the disappearance of wild reindeer, to supplement a livelihood mainly based on hunting and fishing (Nickul 1954).

Finnish settlers started to increasingly move into northern Finland from the south after a famine caused by a sequence of bad years in 1857–1868. The new settlers meant an increase in dairy-farming especially in central Finnish Lapland. In northern parts of the region this led to disputes over land rights and forced local Saami to establish farms in their old hunting and fishing territories and pasturelands, the use of which was previously secured by customary law. (Massa 1983.)

The closing of the Swedish-Russian border in 1889 caused further turmoil in the reindeer herding systems, leading to fast expansion of large-scale reindeer pastoralism within Finland. Many herders with large herds started to relocate in search of new pastureland, and herds were moved from Enontekiö in the west to Sodankylä and Inari in the east, and from Utsjoki and East Finnmark to western and northern Inari. In part, these herds took over areas previously grazed by the wild reindeer, but also pastures used by local small-scale herders. In many areas the total number of reindeer increased. (Nahkiaisoja 2016.)

In 1898 a state regulated herding organization (Fin. *paliskuntajärjestelmä*) was established and all reindeer herders needed to become members of official



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reindeer herding districts (*paliskunta*) with defined borders (Komiteanmietintö 1905). This system was based on the way reindeer herding was organized in the southern subregion, where reindeer husbandry was practiced alongside farming. The new system deviated greatly from the way large-scale reindeer pastoralism was organized (Kortessalmi 2008; Lehtola 2012). Furthermore, the state regulated herding organization was mainly motivated by the state's need to manage the practice of reindeer herding and the conflicts between herders and other land users. Limitations to the highest permissible number of reindeer were first set in 1916 by the Senate of Finland (Nyyssönen, 2004; Parpola & Åberg, 2009).

There were at times great differences in how a herder's right to utilize pastures was understood in the locally evolved herding communities versus in the state regulated herding districts. From a legislative point of view, all district members had equal rights to all pastures within the district and common responsibilities, e.g., to pay tax and damages made to farmers and forest owners (Komiteanmietintö 1952). In some of the traditional systems each working unit (e.g., *siida* or family), had exclusive rights to its own pasture areas and was only responsible for the actions of its members and animals. The traditional borders within herding districts are not acknowledged in Finnish reindeer herding law but may still be maintained even to this day within the system.

At the end of the 19<sup>th</sup> century reindeer herding in Torne River Valley was taken over by Finns who had gained the herding knowledge by working as hired hands for the Sami and through family relationships in interethnic families (Heikkinen 2002; Kortessalmi 2008). In more eastern areas the previously ethnically mixed population was gradually encultured in Finnish language and culture during the first half of the 19<sup>th</sup> century. Unlike in Norway and Sweden, restrictions for non-Saami ownership of reindeer were never made, and for example in the early 1990's, circa 60% of all



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reindeer in Finland were in herds located outside the official Sami Homeland region (Massa 1994).

At the end of the 19<sup>th</sup> century herd sizes grew and reindeer herding in general began to be characterized by large herds and meat production. This was connected with the transition to a monetary economy. In the northern subregions the herders transported meat to the coast of Finnmark-Troms and traded it there. In the southern subregion reindeer were most often taken to central villages and slaughtered there. Some meat was sold locally (Itkonen 1948; Kortessalmi 2008).

#### *Animal husbandry in the 20<sup>th</sup> and 21<sup>st</sup> century*

During the first half of the 20<sup>th</sup> century the seasonal long-distance migrations ended in Finland; first in the north-eastern subregion, where herders built houses in the river valleys and at lake-sides, while starting to supplement reindeer husbandry with cattle, and by Second World War also in north-western subregion. The number of reindeer fluctuated heavily in many areas, factors ranging from overgrazing caused by closing of the borders, large disease outbreaks, harmful weather conditions, and general turbulence caused by the World Wars (Itkonen 1948).

After the First World War industrial utilization of Lapland's natural resources intensified greatly, and the intensification continued after the Second World War due to the need to rebuild the country after the war and to pay war reparations to the Soviet Union (Valkonen 2003). Between 1920 and 1980 the land area covered by old growth coniferous forests, the most important winter pastures for reindeer, decreased by half due to logging (Massa 1994; Turunen et al. 2020).

The Second World War affected reindeer husbandry through military operations, a shortage of labor, and an increase in predator numbers. Evacuations and destruction of the civilian infrastructure affected herding communities. Some districts lost pastures because of cession of Finnish territories to the Soviet Union.





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The total number of ca. 200 000 reindeer in the 1930's was reduced to less than 100 000 during the war (Massa 1994). However, as a result of this, the general condition of many reindeer pastures improved. The recovery of the livelihood to its pre-war level took at least ten years (Turunen et al. 2018).

Returning war evacuees brought with them new cattle breeds, which required more and better fodder (e.g., Saressalo 1982). This led the state to promote the clearing of new meadows and dairy-farming in general. In turn, the keeping of other livestock, especially sheep, started to decline, as did the use of natural meadows. The use of forest pastures for cattle, sheep, and horses started to decrease in the 1960's due to intensified hay cultivation and improved preservation methods, while at the same time the importance of dairy-farming started to decrease. Decreased grazing caused transition from open vegetation types to shrubs and reduced the suitable habitat for herbaceous plant species. Since the 1970's dairy-farming has become a specialized livelihood with only a few practitioners and consequently without major impact on local flora or fauna in Finnish Lapland. (Massa 1994.)

Reindeer, on the other hand, were increasingly herded, instead of by walking and skiing, with the aid of both snowmobiles since the 1960's, and quad bikes since the 1980's. Motorization helped to control larger herds with fewer people, and to travel longer distances, but increased the costs of herding. Various aircrafts and helicopters, along with GPS collars, are the newest technological additions (Helle & Jaakkola. 2008; Pelto et al. 1968).

Large-scale forestry and pastures lost to state-built water reservoirs, led to the initiation of winter feeding first in the southern reindeer herding districts during the 1960's. Since that, the continuous intensification of land-use, for example logging, hydropower plants, wind farms, infrastructure, tourism, and mining, has decreased the areas suitable for reindeer pastures. This has caused the winter-feeding practice to spread to all districts and become more and more common and increased in



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volume. Winter feeding has raised the costs of herding and increased the workload of herders. (e.g., Pyhäjärvi et al. 2011; Turunen et al. 2020.)

Since 1898 the state has managed and regulated the reindeer herding systems by implementing new legislation, in 1932, 1948 and 1990, and by setting a maximum allowed number of reindeer. The maximum allowed number is set by the Ministry of Agriculture and Forestry, every ten years (Reindeer Husbandry Act 848/1990; 21 §). The maximum number is set both for each reindeer owner and herding district.

Looking at the past 60 years, the maximum allowed number of reindeer has varied between 187 700 and 228 900 reindeer. The actual number of reindeer peaked in the late 1980's due to favorable weather for many consecutive years and market disturbances making selling the meat difficult (Heikkinen, 2002). In some areas this led to overgrazing and trampling. Winters with difficult grazing conditions in the 1990's led to reindeer population collapses in some districts. The numbers stabilized in 2000 close to the allowed maximum of 203 700 reindeer. Among the reasons for the stabilization are the more intensive supplementary winter feeding, and possibly also the subsidy policy promoting the stabilization of herd sizes close to the allowed maximum (Landauer et al. 2021). This development is analogous to the one described from Sweden.

Reindeer affect northern ecosystems through consumption of plants, trampling and fertilization, to name a few examples. The overall impacts of supplementary feeding are so far unclear, but possibly a new source of concern. The most prominent effects on fauna are connected to intensive predator management. The populations of predator species have been kept very low, but for some species a recovery in population size has been seen during the past decades (Mykrä & Pohja-Mykrä 2015; Mykrä et al. 2005). On the other hand, environmental changes have transformed herding practices, with feedback to ecosystems as well. An illustrative example is the deforestation process that took place following a mass appearance of



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the autumnal moth (*Epirrita autumnata*) in Inari and Utsjoki in the 1960's. (Lehtonen & Heikkinen 1995, Forbes et al. 2020).

Extreme weather events have always caused problems for reindeer and herders, especially when it comes to winter. Before fixed borders and declension of pasture quality, in case of bad winter conditions herders were able to move to new areas with better pasture conditions. When ground lichen was not available, reindeer could feed on arboreal lichen, which is nowadays more difficult to find due to the loss of old-growth forests. Nevertheless, more or less regular die-off winters were experienced also in the old days (Helle 1980). This meant significant winter mortality or low calving success during the spring. Although present day reindeer owners in Finland are more prepared to feed reindeer than earlier, the 2019–2020 winter demonstrated that serious losses can still happen.

During the past decades, winter conditions with deep or icy snow have been experienced more frequently (Turunen et al. 2016). And coping with these has become more difficult for herders, because of reduction and fragmentation of pastures, consequences of overgrazing and disturbances to grazing peace caused by human activities and increased predation pressure. It is now common for herders to give hay and pellet fodder to reindeer either periodically in corrals or by feeding free-ranging reindeer on the open range. In some areas calving takes place in corrals to cope with bad pasture conditions and increasing predation.

Nevertheless, reindeer herding continues to be based on free grazing semi-domesticated reindeer, with a yearly rhythm of seasonal pasture use and movement. Lives and herding activities of herders still need to follow these, as well as additional variation brought by seasonal weather conditions, pasture conditions, and predation, among other factors.