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Reindeer Pastoralism

In this chapter, we give a brief overview of the relationship between humans and domesticated reindeer, and show how it changed over time. We focus on intensive reindeer husbandry or reindeer pastoralism, which was a tenure system that emerged in the early modern period. Reindeer pastoralism and grazing are deeply interconnected and, in this chapter, we therefore illuminate the ecological settings for reindeer grazing. A large part of the debate about governing CPRs has dealt with pastoralists and their grazing lands.¹ We continue with a general description of the development of reindeer pastoralism from the late Middle Ages to the end of the early modern period. Important features of reindeer pastoralism are described, including a discussion about how the number of tame reindeer developed in the early modern era. The chapter ends with a portrayal of and a discussion about individual households' rights to use certain areas for grazing, chiefly based on descriptions of contemporary court rulings from the local court in Jokkmokk.

¹ Hardin (1968), Ostrom (1990), and Moritz (2016.)

The Development of Reindeer Herding

Reindeer have been used by inhabitants in northern Fennoscandia throughout history, both as prey animals in hunting and as tamed animals to decoy wild reindeer, for transports, and for milking. It is not coincidental that humans and reindeer developed a strong and complex relationship over time. Inhabitants in the north quickly learned to take advantage of the reindeer's presence, and its exceptional ability to survive in a cold climate with short growing seasons and long winters. In summer, reindeer feed on fresh vegetation, and in winter they survive on last year's vegetation, or on lichens under the snow that they dig out by using their front hooves. Reindeer also have characteristics that enable domestication, such as the right social structure, the proper ease and speed of attachment to parents after birth, enough tolerance and flexibility in habitats and diet, a reduced flight response, and tolerance of humans and other outer stimuli.² The questions of when and how reindeer were introduced and domesticated in Fennoscandia are under debate.³ The earliest written indication of tame reindeer dates back to 890 AD.⁴ Wild reindeer continued to be an important prey animal even after the introduction of tame reindeer (read more in Chapter 6) (Fig. 7.1).

The use of tame reindeer in interior northern Fennoscandia from its introduction to present day can be divided into three sequential tenure systems: (1) small-scale reindeer husbandry as a complement in a predominantly fishing- and hunting-centered economy; (2) more specialized and intensive reindeer husbandry, or reindeer pastoralism, with large herds for production of milk, meat, and blood; and (3) extensive reindeer husbandry, or reindeer ranching, primarily for production of meat. In the first phase, most or all households had small numbers of tame reindeer they used to carry loads and haul sledges, or as decoys when they hunted

² Zeder (2012).

³ Bjørnstad et al. (2012).

⁴ Norwegian chieftain Ottar visited King Alfred the Great in England in 890 AD and explained that he was in possession of six tame reindeer and 600 unsold, probably his food and trade supply from wild reindeer (Bjørklund, 2019, p. 91).



Fig. 7.1 Grey reindeer lichen (*Cladonia rangiferina*), depicted in 1695. Note The original image has been cropped (Source *Iter lapponicum*, Luefsta MS 92, Uppsala University Library, Sweden. Public domain. <https://www.alvin-portal.org/alvin/imageViewer.jsf?dsId=ATTACHMENT-0057&pid=alvin-record:162152>)

wild reindeer.⁵ Reindeer milking was depicted in two illustrations by Olaus Magnus in his book *A Description of the Nordic Peoples*, published in 1555.⁶ However, milking reindeer probably has a much older history; the oldest historical milking ground known dates to 1350.⁷ During the entirety of this phase, hunting and fishing made up the backbone of the households' economy, although tame reindeer provided many essential

⁵ Aronsson (1991, pp. 10–12).

⁶ The pictures of reindeer milking are dated 1518–1519, when Olaus Magnus traveled the area.

⁷ Egelkraut et al. (2018).

products, mainly milk, and services to the household. Access to most other reindeer products during this time, such as meat and furs, was still retrieved from hunted wild reindeer.

The second phase was a labor-intensive tenure with comparatively large herds that had to be rounded up each day to be milked. Products from tame reindeer became the focus of the household economy, and to ensure year-round grazing, most households moved between summer grazing in the western mountains and winter grazing in the boreal forest. This sort of animal husbandry with moveable lifestyles and livestock that feed on large, usually unfenced, grazing lands can be characterized as pastoralism. In the third phase, starting in the nineteenth century, a much more extensive reindeer husbandry emerged with an almost complete focus on meat production for sales, and milking was phased out. This process has been described as reindeer pastoralists turning into reindeer ranchers.⁸ The intensive form of reindeer husbandry for milk ended completely in the first part of the twentieth century, and reindeer ranching has become the prevailing tenure system in Fennoscandia. This chapter focuses on the second phase, reindeer pastoralism with large herds that were milked and how it came to alter land-use management and gradually property rights.

What Is Pastoralism?

Pastoralists generally own large herds of grazing animals that they manage by long-distance movements between areas where the grazing is currently good. Their household economy is based on the use of many different products such as milk, blood, and meat from the animals, and for trade with external groups.⁹ Since pastoralists typically have access to extensive or low-yielding lands, sizeable territories are a prerequisite if animals are to proliferate. Most types of grazing animals that pastoralists use are slow-growing species of herbivores that roam in herds searching for grazing.

⁸ Ingold (1980). Tim Ingold's seminal book about circumpolar people's relationship with reindeer is called *Hunters, Pastoralists and Ranchers*.

⁹ Galaty and Johnson (1990) and Khazanov (1994).

The animals are naturally adapted to varied and at times quite nutrient-poor feed. Pastoralists benefit when production rates increase, and herds enlarge if the animals are actively steered to areas with more nutritious or energy-rich grazing and drinking water or fresh snow. One can therefore say that grazing is the core resource that all pastoralists primarily have to manage. To be successful, the herder has to have a lot of experience and knowledge of environmental settings, weather conditions, risk aversion, and animal behavior.

In the seventeenth and eighteenth centuries, Sami were nomadic and moved with their herds to find suitable grazing based on the seasons. This lifestyle is sometimes referred to as *reindeer nomadism*.¹⁰ We, however, have chosen to use the term *reindeer pastoralism* for two reasons. First, almost all households in interior northern Fennoscandia, even those that lived on fishing and hunting and accordingly had few reindeer, had a more or less mobile lifestyle in the early modern period (see Chapters 5 and 6). In its scholarly sense, the term *nomad* cannot be confined to those inhabitants who moved around in search of reindeer grazing but also includes nomadic fisher and hunter households. Second, pastoralism is a well-established concept worldwide that describes similar systems of animal husbandry. Use of the concept hence makes it possible to associate with pastoralist systems elsewhere around the world. However, one limitation is its all-inclusiveness, and that it sometimes is interchangeable with, for example, transhumance.¹¹

The Debate About the Shift from Fishing and Hunting to Pastoralism

In recent decades, the shift from fishing and hunting to large-scale reindeer pastoralism has been an intensely studied topic among scholars in archaeology and history. The discussion has revolved around questions like When did it take place? Where did it start? Was it a slow

¹⁰ Khazanov (1994, pp. 43–44).

¹¹ Transhumance is a specialized branch of an agricultural economy; it implies a division of labor and a settled form of agriculture with fixed dwellings. Shepherds take animals to pastures far away from the settled areas (Khazanov 1994, p. xxxvii).

or a sudden process? What were the driving forces behind the transition?¹² One of the problems with the debate itself is that it applies the concept of pastoralism too indiscriminately. Bjørklund summarizes it well: “this debate unfortunately, has not always made a distinction between ‘husbandry’ and ‘pastoralism’, the latter being used synonymously for any kind of reindeer husbandry.”¹³ In other words, many scholars have used the term *pastoralism* for both small-scale and large-scale reindeer husbandry.

Nevertheless, the debate centers on two contending interpretations of the timing of the transformation, where some scholars argue that it took place during the Viking Ages (800–1000 AD),¹⁴ while others argue that it took place in the early modern period (1500–1800).¹⁵ Members of the latter group have moreover interpreted the transition as occurring at a rather fast pace,¹⁶ while the first group believes that it was a more gradual development that lasted until the end of the eighteenth century.¹⁷ With regard to the question of what pushed the transformation to happen, many scholars have pointed to external factors, more specifically trade, and that reindeer pastoralism was the inhabitants’ response to new opportunities for trade. Lundmark points instead to a crisis within the local society that forced the inhabitants to quit hunting and change to reindeer pastoralism.¹⁸ According to this theory, the crisis was caused by the Swedish state’s introduction of a new tax system combined with several years of harsh climate. By that note, the causes were partly self-imposed, through an increase in hunting pressure and rapid decline in prey animals, which resulted in a collapsing fur trade in the early seventeenth century (Fig. 7.2).

¹² See Hansen and Olsen (2014, pp. 195–206), for an overview of different perspectives on the questions.

¹³ Bjørklund (2019, p. 91).

¹⁴ Storli (1993) and Bergman et al. (2013).

¹⁵ Hultblad (1968), Arell (1977), and Lundmark (1982).

¹⁶ Most pronounced by Lundmark (1982), who argued that it happened in Lule lappmark in the first decades of the seventeenth century.

¹⁷ Most pronounced by Bjørklund (2013), who argued that it was not an abrupt change: reindeer hunting and fishing were important up to the nineteenth century.

¹⁸ Lundmark (1982).



Fig. 7.2 Mountain reindeer (*Rangifer tarandus tarandus*), depicted in 1695 (Source *Iter lapponicum*, Luefsta MS 92, Uppsala University Library, Sweden. Public domain. <https://www.alvin-portal.org/alvin/imageViewer.jsf?dsId=ATTACHMENT-0112&pid=alvin-record:162152>)

Our position in this debate is that Bjørklund's distinction between husbandry and pastoralism is a key to understanding the transition.¹⁹ Based on the written sources, we conclude that many households in interior north Fennoscandia had kept tame reindeer in small numbers since at least the ninth century. It is reasonable that the increase in tame reindeer began in the sixteenth and seventeenth centuries, and that it continued into the eighteenth and nineteenth centuries.²⁰ Hansen and Olsen emphasize that it is “important to keep in mind that the extent of reindeer herding even in the sixteenth century generally seems to have been very modest in relation to later levels of ‘full nomadism.’”²¹ There is also complementary evidence that supports the introduction of reindeer pastoralism in the early modern period: (1) the number of tame reindeer increased considerably (see section “Number of Reindeer”); (2) wild reindeer decreased rapidly, showing a strong correlation between the introduction of reindeer pastoralism in an area and almost simultaneous elimination of wild reindeer²²; (3) the use of pitfall systems ended due to a combination of the decreasing number of wild reindeer and harm being done to tame reindeer; (4) a genetic shift occurred that separated wild and tame reindeer from each other.²³ To these arguments we add several institutional changes that took place in the early modern period that affected how rules and norms regarding land use developed. Our results show that the introduction of reindeer pastoralism brought alterations to older institutions for land use.

Number of Reindeer

The number of reindeer was officially counted twice in the seventeenth century, in 1605 and 1609. Results from the 1609 survey, which is the most thorough of the two counts, shows the number of reindeer

¹⁹ Bjørklund (2019, p. 91).

²⁰ Hultblad (1968) and Bjørklund (2013).

²¹ Hansen and Olsen (2014, p. 194).

²² This development is described in Chapter 6.

²³ Bjørnstad et al. (2012).

for each of the 177 taxpaying inhabitants in the four villages in Lule Lappmark, and the distribution of male and female reindeer and calves. Users in Tuorpon and Sirkas, situated mostly in the mountains, had on average twenty-seven and twenty-eight reindeer, respectively, including calves, while users in Sjokksjokk and Jokkmokk, situated mostly in the boreal forest, had on average thirteen and fifteen reindeer, respectively, including calves.²⁴ Only five users in the tax records had sixty or more reindeer, and the user with the most reindeer had seventy. Overall, the taxpayers in the two mountain villages had more reindeer than the taxpayers in the two forest villages, but the differences were not especially pronounced.

Unfortunately, there are no surveys of the number of reindeer available from the second half of the seventeenth century. There are, however, several contemporary descriptions from the late seventeenth and the eighteenth centuries that describe how inhabitants in the mountains by then had developed an economy that was heavily reliant on reindeer pastoralism.²⁵ According to Rheen, who was a priest in Lule lappmark in the 1660s, many inhabitants owned a hundred or a thousand reindeer, and some even more. He wrote that inhabitants had to take care of the reindeer “night and day, winter and summer.”²⁶ Around 1675, another priest, Lundius, wrote that a rich inhabitant in the mountains could have more than a thousand reindeer.²⁷ Linnaeus described how he, in the morning of July 7, 1732, saw “some thousand reindeer” coming back from the pastures to be milked in the mountains in Lule lappmark.²⁸ In 1747, Högström, described how the inhabitants in Lule lappmark could own a few thousand reindeer and that they counted their fortune in reindeer.²⁹ According to him, one Sami village could hold 30,000 reindeer in total, and if these reindeer were distributed among the approximately 100 households in the village, they would average 300

²⁴ Lundmark (1982, pp. 211–215).

²⁵ Ehrenmalm (1743), Graan (1899), Linnaeus (2003), Lundius (1905), and Rheen (1897).

²⁶ Rheen (1897, p. 23).

²⁷ Lundius (1905, p. 20).

²⁸ Linnaeus (2003, p. 100); our translation.

²⁹ Högström (1747). Högström’s description is mostly based on evidence from Kaitum.

reindeer per household. In 1741, Ehrenmalm traveled through the southernmost lappmark of Åsele and described that a medium-sized herd for inhabitants in the mountains there consisted of 150–200 reindeer.³⁰ In a dissertation from 1773, Samuel Öhrling, who grew up in Pite lappmark, wrote that it was difficult to say anything for sure with regard to the number of reindeer, and even more so because it was *ovisst för ägaren själv hur många renar han har* (uncertain for the owner himself how many reindeer he has).³¹ Nonetheless, Öhrling estimated that inhabitants in the mountains in Pite lappmark owned at least 200 reindeer on average since many of them had 1,000 or 2,000 reindeer.³² Much like in Lule lappmark, he described that inhabitants there counted their fortunes in reindeer.

It is difficult to estimate the number of reindeer in a herd correctly by just looking at it. None of the early modern accounts from interior northern Fennoscandia offer independent estimations performed by people looking at the same herd at the same time, which could have made the estimations more assertive. Just to illustrate the hardships of telling the number of animals in a livestock herd, we use the notes from a Danish scientific expedition to the Arabian Peninsula in the eighteenth century. On the expedition, three members, independent of each other, registered the size of the camel herd they had traveled with to Cairo.³³ The first person stated that there were between 1,500 and 1,600 camels in the caravan, the second person estimated “many thousand camels,” while the third one stated that there were more than 400 camels. We do not know which of them came closest to the right answer, but the example shows how difficult it is to make good estimations of livestock herd sizes by just looking at them. It also indicates that the estimations

³⁰ Ehrenmalm (1743).

³¹ Öhrling (1970 [1773], p. 10). It might have been that the owners knew how many reindeer they had but did not tell when asked by outsiders. In the late nineteenth century, the Swedish government made attempts to count reindeer, but according to Hultblad (1968, p. 141), the Sami neither wanted to nor could tell how many reindeer they had.

³² Öhrling (1970 [1773], pp. 10–11).

³³ T. Hansen (2000 [1962], pp. 131–132). [Arabia Felix: The Danish Expedition of 1761–1767].

of reindeer numbers in the early modern accounts must be handled with some caution.³⁴

Even so, it is evident from the reported numbers that there had been a dramatic shift in the seventeenth century and that many inhabitants then owned larger herds than before. However, it is also important to understand that not all animals in a herd had the same owner; each household member, which could also include servants, owned their own reindeer. Herds might also have included reindeer belonging to other households, since it was common for reindeer herder households to take care of so-called *skötesrenar*—reindeer that belonged to residential, often non-Sami, inhabitants.³⁵

Many of the narrators in the early modern accounts, described how households in the mountains lived primarily on reindeer herding while households in the boreal forest lived primarily on fishing and hunting. The use of different resources impacted the households' economic possibilities, and mountain households were described as richer than those in the boreal forest.³⁶ According to the commissioner of the 1695 tax reform, more people lived in the mountains than in the boreal forest.³⁷ It is apparent that inhabitants in the mountains had more reindeer than inhabitants in the boreal forest but that reindeer pastoralism eventually became more widespread in the latter group. In the mid-eighteenth century, reindeer pastoralism spread to the easternmost parts of Lule lappmark, as discussed in Chapter 6.

Use of Reindeer

The written sources describe a versatile use of the reindeer that illuminates how important they must have been for inhabitants. Reindeer were

³⁴ T. Hansen (2000 [1962], p. 132) thinks the third person's estimation was closest to the actual number of camels in the herd.

³⁵ Hultblad (1968, pp. 146 ff.) has studied all the preserved probate inventories from Jokkmokk parish dating from 1799 to 1860. The average number of reindeer per owner was 148, and the four richest Sami had 1,054, 810, 760, and 602 reindeer.

³⁶ Graan (1899, pp. 32–49).

³⁷ Douglas (1695).

used as pack and draft animals to carry or pull loads. Apart from transport, reindeer also provided foodstuff, such as milk, blood, intestines, and meat. Reindeer were milked from summer to early fall. Milking was an elaborate task in which all the reindeer were first herded into pens, with the females separated and tethered, four by four, to special milking poles.³⁸ Reindeer were milked once or twice a day, which is described as a task for both men and women, young and old. It was time-consuming work, especially for households with many reindeer, which explains why all available labor was needed for milking. Some milk was drunk immediately but most of it was processed into cheese. The milk yield was relatively small and to make one cheese the size of a plate, the milk from at least ten reindeer was required. Households with few reindeer produced very small amounts of milk, and could only produce and trade reindeer cheese on a small scale. For households with many reindeer, on the other hand, cheese is described as a common form of merchandise, which they sold at market and bartered with neighboring groups. Each round of cheese had a high value and was therefore branded with the owner's personal mark. Many of the court rulings that dealt with theft highlight how cheeses were theft-prone due to their high value.³⁹

Almost every part of the reindeer was taken care off in the household.⁴⁰ Antlers and bones were used for making tools and utensils, such as spoons and knife handles.⁴¹ Sinews were skillfully handcrafted into twine and rope. Stomachs and intestines were cleaned and used as containers for storing blood and milk. The traditional slaughter time started in September, and continued as required until market time in January and February. Some of the meat was consumed immediately, cooked over an open fire, but it was also dried or otherwise preserved to be eaten in winter and spring. Reindeer meat was more important, in terms of diet, for households with many reindeer. Moreover, for

³⁸ Awebro (2000), Graan (1899, pp. 51, 56); Linnaeus (2003, p. 105), Rheen (1897, pp. 24–25), and Ruong (1969, ch. 10).

³⁹ One example would be a court ruling from 1706 when a man had stolen reindeer cheese from three persons: One man lost 48 rounds of cheese, another man lost 20, and a third man lost 5 (HRA 1706, pp. 54–55).

⁴⁰ Phebe Fjellström (1986, pp. 262–268) and Högström (1747, p. 120).

⁴¹ Högström (1747, p. 84).

them, reindeer meat was an important trade good they sold to Swedish and Norwegian merchants at market. It was also bartered with non-Sami settlers and Sami households with few reindeer, on an everyday basis in return for dried fish or other products. Not least, the reindeer hides were either de-haired and tanned, or stretched out to dry with the hair in place. Reindeer fur, with its tremendous insulating property, was essential for surviving the winters in interior northern Fennoscandia and was thus an indispensable product in every household for both parkas and blankets. Additionally, furs were a tax good and a popular form of merchandise. Households used reindeer for all the above, albeit to varying degrees depending on numerous factors: spatial, temporal, number of reindeer owned, etc.

Grazing Conditions

Most pastoralist households in Lule lappmark in the seventeenth century stayed in the mountains in summer and in the boreal forest in winter. In summer, reindeer feed primarily on fresh vegetation, such as herbs, grasses, and sedges. Fresh vegetation has a high nutritive value and contains much energy, especially early in summer, and promotes both growth and milk production, as well as fat deposition in the animals.⁴² The mountains offer especially rich grazing in summer, mostly on widespread alpine heaths and grasslands, willow thickets, and alpine birch forests.⁴³ The boreal forest also offers vegetation with high nutritive and energy value in summer, albeit not across as coherent and widespread areas as in the mountains. In the boreal forest, there is usually a dense tree layer of conifers under which little field vegetation grows. Suitable grazing is thus primarily located in more open terrain, such as on open

⁴² Danell and Nieminen (1997, pp. 21–25).

⁴³ Today trees do not grow higher than about 800 m above sea level in Lule lappmark. From around 650 m above sea level, there is only mountain birch forest, and thereunder the boreal forest, dominated by spruce and Scots pine, begins. However, the treeline, for both birch and conifers, varies locally due to local climate and soil fertility. The treeline has also varied quite a lot over time.

mires, along shores of lakes and streams, and in terrain with deciduous trees.⁴⁴

In winter, reindeer feed either on last year's vegetation, and on lichens growing on the ground or on trees. Old coniferous forests, especially those containing Scots pine, are often relatively rich in lichens, which makes them favorable locales for winter grazing.⁴⁵ Even if there is a lot of snow, reindeer are able to dig out ground lichens with their front hooves as long as the snow is relatively soft. The porousness of the snow depends on several factors, such as openness, forest structure, wind, temperature, and snow depth.⁴⁶ Conditions that favor soft snow are generally more prevalent in the boreal forest than they are in the mountains. The openness of alpine heaths, in combination with wind, tend to create a hard, ice-covered snow crust, which is unsuitable for grazing. Only windswept upland terrain in the mountains that is free from snow offers ground lichens and vegetation that reindeer can easily access in winter. According to Hultblad, the inaccessibility of winter grazing in the mountains first became a problem when households increased their reindeer herds in the seventeenth century.⁴⁷ The dearth of winter grazing invoked them to move to the boreal forest in winter. Wild reindeer, which were common before the introduction of reindeer pastoralism, stayed year-round in the mountains, and migrated to the boreal forest only when grazing conditions there became extremely severe.⁴⁸

During the short growing season in northern Fennoscandia, reindeer must have as much time for undisturbed grazing as possible. It is necessary both for growth and to amass a reserve of body fat to survive the upcoming winter. Mosquitoes and heat have been considered a major nuisance for reindeer in summer. Deviant behavior among reindeer due to insects was described by Linnaeus in 1732. He noted that one single fly could upset a whole herd:

⁴⁴ Axelsson Linkowski (2015).

⁴⁵ Danell and Nieminen (1997, p. 23).

⁴⁶ Roturier and Roué (2009).

⁴⁷ Hultblad (1968, pp. 53–54, 123).

⁴⁸ Ekman (1910, p. 9). See also Hultblad (1968, pp. 50–54).

I remarked with astonishment how greatly the reindeer are incommoded in hot weather, insomuch that they cannot stand still a minute, no not a moment, without changing their posture, starting, puffing and blowing continually, and all on account of a little fly. Even though amongst a herd of perhaps five hundred reindeer there were not above ten of these flies, every one of the herd trembled and kept pushing its neighbor about. The fly meanwhile was trying every means to get at them; but it no sooner touched any part of their bodies, then they made an immediate effort to shake it off.⁴⁹

Linnaeus clarifies that the turmoil was caused by the insect *Oestrus tarandi*, known today as the warble fly (*Hypoderma tarandi*, *Oestridae*). Furthermore, he concluded that heat and gnats/mosquitoes disturb the reindeer and stop them from eating:

When these animals are permitted to face the wind, they run very fast and without intermission, in hopes of finding a place to cool themselves. Indeed, I observed one of the herds crowding close together under the shadow of a hill, on a spot covered with snow, to avoid the heat caused by the reflection of the sun from the snow in other places. These animals will eat nothing in hot weather, especially as the gnats are then very troublesome.⁵⁰

In modern research of reindeer behavior during summer grazing, Hagemoen and Reimers have shown that parasitic oestrid flies, especially the warble fly and nose bot fly (*Cephenemyia trompe*, *Oestridae*), set off all the observed behavioral deviances among the studied reindeer.⁵¹ Contrary to general opinion, neither mosquitoes nor heat seemed to have any substantial effects on the reindeer in the study. The oestrid flies' activity is tightly linked to air temperatures as they are unable to fly if it is colder than 7 °C in clear skies and 11 °C in cloudy skies. Moreover, wind has a negative effect on their activity. Blustery weather cools the air and

⁴⁹ Linnaeus (1811b, p. 22).

⁵⁰ Linnaeus (1811a, p. 308).

⁵¹ Hagemoen and Reimers (2002).

creates turmoil, which makes it difficult for the fly to maneuver properly. Furthermore, no signs of heat stress were recorded in the studied reindeer, even on the hottest summer days. Opposite popular belief, it seems that reindeer do not run against the wind, or seek out northern slants, snow patches, or glaciers, primarily to cool down but rather to try to avoid oestrid flies. Even on blustery days, the air temperature above snow-covered surfaces is too cold for the oestrid fly to pass over, at least at the heights that the fly operates.

The optimal summer grazing condition for reindeer seem to be cold (below 7 °C), overcast, and windy weather, which minimizes the activity of the oestrid fly. In fact, in the absence of oestrid flies, weather parameters or mosquitoes had no influence on the conduct of the studied reindeer.⁵² All in all, mountain regions offer more favorable settings for reindeer pastoralism in summer compared to the boreal forest, thanks to its rich grazing over widespread areas, occurrences of snow patches and glaciers, and cold and windy weather that decrease the activity of oestrid flies. In the boreal forest, favorable summer grazing is confined to open terrain where the vegetation is lush, and where recurrent winds hinder oestrids from flying. The study concludes that oestrid flies can cause a significant decrease in reindeer's feeding and resting time, and a significant increase in time spent walking, running, and standing. Altogether, the cutback in grazing and resting time compromises the reindeer's physical condition at the end of the growing season.

Two Trajectories

When we look more closely into the development of reindeer herding in Lule lappmark, it is good to keep in mind that the majority of Sirkas and Tuorpon Sami villages were situated in the mountains while Sjukksjokk and Jokkmokk were situated in the boreal forest. In the early seventeenth century, the average number of reindeer per household in Sjukksjokk and Jokkmokk were eleven to twelve adult reindeer. Some households had very few reindeer, while others had many more than average, but

⁵² Hagemoen and Reimers (2002).

no one had a particularly large herd.⁵³ For poor households, the relatively low animal number had to suffice for transport and some milking. These households either kept the herd close to their temporary location or, according to some sources, left it unattended for most of summer to graze freely in the boreal forest.⁵⁴ The average number of animals did not change much during the seventeenth century. The written accounts differentiated between households in the mountains, which generally had more reindeer, and households in the boreal forest, which generally had no or fewer reindeer. In the latter group, fishing and hunting were described as fundamental for survival.⁵⁵ Any surplus that the latter produced came from fishing, hunting, gathering of eggs and feathers from wild birds, or from collecting berries or shoe hay (to line soft leather shoes or boots for warmth and stability).⁵⁶ Nonetheless, the economic characterization of households into either of these two categories in the seventeenth century clouds the fact that important changes in animal numbers also ensued among households in the boreal forest. Starting in the westernmost parts, some inhabitants began to amass more reindeer and migrate to the mountains in summer to access beneficial grazing.⁵⁷ In the mid-eighteenth century, many households in the eastern part of Sjokksjokk had likewise developed reindeer pastoralism. Although these eastern households had reindeer herds as large as western pastoralists, they seem to have initiated a more stationary tenure system that was based in the boreal forest year-round.⁵⁸

By considerably enlarging the reindeer herds between the sixteenth and eighteenth centuries, most households in Sirkas and Tuorpon entered onto an economic path apart from most households in Sjokksjokk and Jokkmokk. For the former, the enlargement of the herds was achievable primarily through having easy access to lands for summer

⁵³ Lundmark (1982, pp. 211–212).

⁵⁴ Högström (1747, p. 85).

⁵⁵ Hultblad (1968, p. 141).

⁵⁶ Chapters 5, 6, and 8.

⁵⁷ In a court ruling from 1707, reindeer had been stolen from three users from Sjokksjokk in September when they were grazing in the mountains (HRA 1707, pp. 145–149).

⁵⁸ Hultblad (1968, pp. 141–142). In Chapter 6, we discuss the correlation between the extinction of wild reindeer and introduction of reindeer pastoralism in the eastern part of Sjokksjokk.

grazing in the mountains. Already in the sixteenth century, these users had had more reindeer than the users in the boreal forest, and rather swiftly this had developed into an economy based wholly on the tenure of many hundreds of reindeer moving between mountains and forests. There was a correlation between the number of reindeer and the need to relocate: the more animals a household owned, the farther they had to move to find grazing.⁵⁹ As discussed in more detail later in this chapter, the new moving patterns caused some tension between users in Jokkmokk and Sjukksjokk on the one hand and users in Sirkas and Tuorpon on the other hand.

Almost within one century, all households in the mountains had become reindeer pastoralists, and the more animals they accumulated, the less time they could spend on fishing and hunting. It was a shift to a more efficient, high-yielding production system with a higher degree of specialization, which decidedly would turn out to be fortunate for the economic development of these households. The reindeer became an important capital or cash asset for the household, and by producing a surplus of reindeer products, such as meat, cheese, and furs, that could be sold at market or bartered with neighbors, households made substantial profits. These profits were in turn invested in a variety of commodities, such as silver jewelry, tobacco, steel, wool, or alcohol.⁶⁰ Still, the new tenure system, where some households accumulated several hundreds of animals, led to more pronounced inequalities between rich and poor households.⁶¹

Mobility, Flexibility, and Reciprocity

With regard to land use, especially for grazing, reindeer pastoralists require mobility, flexibility, and reciprocity much like other pastoralists do.⁶² Since grazing varies spatially and temporally, habitual relocation

⁵⁹ Hultblad (1968, p. 135).

⁶⁰ Phebe Fjellström (1986, pp. 75–76).

⁶¹ Kvist (1989, p. 100).

⁶² Fernández-Giménez (2002).

became the strategy that reindeer pastoralists applied in order to optimize the use of largely erratic resources. Moreover, moving patterns depended on many factors, not least weather, winds, and vacant pastures. Moves often could be performed with only a little forward planning, such as when the winds suddenly turned or when the grazing conditions changed, which called for a highly flexible herding strategy. With a growing number of reindeer came an augmented focus on grazing, so mobility and flexibility inevitably had to become integrated features of the tenure system.

Fernández-Giménez remarks that pastoralists also have to be sure of access to natural resources and therefore identifies a paradox between their simultaneous need for both security and flexibility.⁶³ In addition to being flexible, reindeer pastoralists needed some degree of predictability to achieve food security for their household members. It therefore became customary for households to return to roughly the same locations every year, and to travel along approximately the same routes between summer and winter grazing. The routes also included several predestined locations for spring and fall grazing. In the eighteenth century, a recurring topic for the local court was to decide which inhabitants had the right to stay where with their reindeer during the seasonal migrations, and sometimes to decide for how long they could stay at specific locations. One of the keys to understanding land-use strategies among early modern reindeer pastoralists is to analyze the balance between flexibility and predictability, and how inhabitants negotiated to maintain this steady state.

Reindeer pastoralism has always been a precarious business, especially due to recurring menaces, such as animal pests, predators, and starvation due to lack of grazing. For most households, the principal strategy for coping with uncertainties, was to strive for the herds to be as large as possible. Owning a large herd increased a household's chances of having at least a few animals left after a crisis. Another strategy was to establish robust relationships with relatives, neighbors, and other households that could lend a helping hand if some misfortune suddenly hit your herd. Good relations worked as a kind of insurance scheme and

⁶³ Fernández-Giménez (2002, pp. 50–51).

was founded on services and reciprocal services. The establishment of social relations was, among other things, tightly connected to marriage patterns.⁶⁴ Strategic marriages were a way of creating coalitions that knit families together, in good times and bad times. Households gained from cooperation, especially during migration when they formed more or less transient alliances depending on grazing conditions and migration routes. Large herds required a lot of manpower to perform the many time-consuming work tasks, such as guarding, gathering, and milking. Wealthier households, with many reindeer, had to have employees, often young men and women from other households who lived with the family and worked with both herding and domestic chores. Another strategy that rich households used in order to get more manpower was to create partnerships with poor households. For the latter group, cooperation with rich households primarily offered enhanced food security.

Three Steps

The development of pastoralism from the seventeenth century onward, which focused on milk and meat production from many animals, gradually evoked a redistribution of the rights to winter grazing lands in the boreal forest in eastern Lule lappmark. Reindeer pastoralism also led to the introduction of a new property regime for summer grazing in the western mountains. During the eighteenth century, the tenure of reindeer grazing in Lule lappmark had been transformed into a well-established common-property regime. As it turned out, all inhabitants in the Sami villages had well-regulated rights to grazing lands. A household, or a group of households, could have rights to use a specific location, but the use could also, if needed, be renegotiated in and confirmed by the local court. The development of a common-property regime for inhabitants with large reindeer herds can be described as taking place in three stages: the first step involved households in the mountains that used winter grazing in the boreal forest, the second step invoked increased competition over grazing between users in villages in the mountains, and

⁶⁴ Nordin (2009).

the third step was when users in villages in the boreal forest started to use grazing lands in the mountains.

As households in Tuorpon and Sirkas started to have more reindeer in the seventeenth century, they began to move with the reindeer to the boreal forest in the southeastern part of Lule lappmark in winter to access lichen. This was part of the first stage described above. The rights to winter grazing lands belonged to inhabitants in Sjukksjokk and Jokkmokk, and their access to natural resources was mostly organized within *skatteländ*. The migration has left relatively few traces in the court material, mostly because the main resource that inhabitants from Tuorpon and Sirkas needed in the boreal forest—winter grazing—was not so much in demand by the rights holders there. Thus, it seldom resulted in conflicts that had to be taken to court. Moreover, visiting households often paid rent to the rights holders for letting them graze their reindeer.⁶⁵ Almost all available information about this early phase of reindeer pastoralism instead originates from mid-eighteenth-century court rulings where inhabitants refer to prior circumstances as evidence in ongoing conflicts over grazing rights. For example, a ruling from 1765 shows how three users were prohibited from letting their reindeer graze on land that belonged to six other users, all nine of them were from Sjukksjokk. As it was made clear in court that the three defendants really needed more grazing in spring and summer, the court concluded that they should be allowed to use grazing in Sirkas. The principal argument being that users in Sirkas had to tolerate intrusion from users in Sjukksjokk on their lands since the former spent their winters in Sjukksjokk in great numbers.⁶⁶ The tradition to pay lease for grazing

⁶⁵ The tradition to pay a lease, in cash or in kind, for grazing rights in the forest is also known to have occurred in Ume lappmark (Norstedt et al. 2014, p. 234). When inhabitants from Pite lappmark used grazing lands belonging to users in neighboring Lule lappmark, they had to pay rent (Hultblad 1968, p. 93 and p. 399, evidence 768a). Regarding the abundance of winter grazing, Norstedt et al. (2014, p. 232) conclude that users in the boreal forest in Ume lappmark during the 1670s controlled much more winter grazing than they used. According to their extrapolations, users in the boreal forest had less than 500 reindeer combined. The boreal forest received about 6,600 reindeer from the mountains for winter grazing each year. In spite of this, they estimate, users had enough grazing resources left to feed an additional 32,000 reindeer.

⁶⁶ Hultblad (1968, p. 397, evidence 715a).

seems to have disappeared by then, and it was now a reciprocal agreement where users from different villages could stay on each other's lands. Gradually, users in Sjokksjokk had acquired rights to use lands in Sirkas, and vice versa. The case described above does not suggest that there was a general consent that let all inhabitants freely use lands belonging to other village members for grazing. It rather shows that it once had been common for users in Sami villages in the mountains to use winter grazing on lands belonging to users in Sami villages in the boreal forest. We assume that the organization of grazing, in the majority of cases, was agreed upon between users without involvement of the court. The case also shows that the jurisdiction of the court went beyond the single village. Obviously, the court could decide that users in one village had the right to use lands in another village. It demonstrates that the court considered and treated grazing like a CPR, and that the inhabitants had developed a common-property regime regulating who had access.

The second step in the development of a common-property regime in Lule lappmark was characterized by users in Sirkas and Tuorpon seeking both flexibility in mountain grazing and secure grazing rights. It could seem contradictory, on the one hand, to be working for the right to roam freely in search for grazing and on the other hand to be working for the right to use specific locations. There are few historical sources that can tell us about land use in the mountains before the seventeenth century or how it was organized. The organization of inhabitants in Sami villages is mentioned for the first time in tax records from the sixteenth century.⁶⁷ However, from the seventeenth and eighteenth centuries there are several historical sources that can give more detailed insights into how the use of land was organized. There are court rulings from the local courts, a tax record (*jordebok*) from 1695, and notes citing local inhabitants as part of the assignment to delineate the Swedish-Norwegian border in the 1740s.⁶⁸ These records point to the fact that the land division was not very strict between the villages in Lule lappmark's mountains. A court ruling from 1751 described how grazing lands in the mountains

⁶⁷ Hultblad (1968, p. 38).

⁶⁸ Wiklund and Qvigstad (1909) published the minutes written by border engineers during their work to delineate the Swedish-Norwegian border in 1745, and it was used by Holmbäck (1922) in his inquiry about *lappskatteland*.

were used alternately by users from Sirkas and Tuorpon.⁶⁹ Another court ruling from the same court in 1770 described how grazing lands in the mountains in Tuorpon and Sirkas were distributed randomly between users.⁷⁰ The overlap suggests that the grazing was organized more or less collectively. This assumption is strengthened by the tax record from Lule lappmark in 1695, which among other things tells us that eighteen out of forty-three users in Sirkas could not be connected to a specific plot of land.⁷¹ This in turn suggests that they used the grazing land in common within the village. A similar conclusion can be drawn from Tuorpon, where the tax record from 1695 do not state anything about inhabitants being connected to specific lands. Nonetheless, court records from the eighteenth century show that individual lands existed in Tuorpon, and that they in fact were connected to specific users. Holmbäck, though, concludes that the division into individual *skatteland* in Tuorpon could not have been strict.⁷² It is backed up by a source from 1745 in which a couple of users in Tuorpon told engineers doing preparatory work for the demarcation of the Swedish-Norwegian border that the Sami villages in the mountains (*ffällsamebyarna*) Sirkas and Tuorpon often overlapped “since Sami belonging to both of these villages mostly *ligga om varandra* (lay on each other) as good friends.”⁷³ The engineers were also told that grazing land in the mountains was used as the inhabitants pleased (*efter behag*), even if there were more users from Sirkas farther to the north.⁷⁴

Another example that corroborates a collective organization of grazing in the mountains comes from neighboring Pite lappmark. In the tax record from 1695, only one of thirty-two inhabitants in Norrvästerby Sami village in the mountains of Pite lappmark could be connected to a specific location, while the remaining thirty-one were described as being without land and as moving about in the mountains.⁷⁵ There is a similar example in the tax record for Ume lappmark from 1695 that described

⁶⁹ Hultblad (1968, p. 368, evidence 213a).

⁷⁰ Hultblad (1968, pp. 370–371, evidence 270a).

⁷¹ Holmbäck (1922, p. 18) and Hultblad (1968, p. 89).

⁷² Holmbäck (1922, p. 19).

⁷³ Holmbäck (1922, p. 19).

⁷⁴ Wiklund and Qvigstad (1909, pp. 17–18).

⁷⁵ Holmbäck (1922, p. 20).

that only two of twenty-one inhabitants in Ran Sami village in the mountains could be connected to specific lands. In the tax record, next to the name of one of the inhabitants from Ran, it is clearly written that he did not have a specific plot and that he moved about in the mountains as did all his neighbors. Holmbäck concluded that this remark was valid also for eighteen other inhabitants in Ran who were listed in the tax record.⁷⁶

At the same time, court rulings from the eighteenth century tell of an increasing competition over grazing in the mountains, especially between users from Tuorpon and Sirkas. The goal was to formally secure locations where households could stay in the summer, and during migrations between winter and summer grazing. Users needed to make sure that the tenure system was as predictable as possible in an otherwise unpredictable setting. Some of the formal institutions that were instigated by the court in the first half of the eighteenth century might have gone back to older, more informal institutions, and might even have been codifications of rights to locations that were already in use. But according to the court rulings, most of the rules were new and illustrated how fast land use in the mountains transformed into a more intensive tenure system. The seventeenth century had seen an increase in the number of reindeer, but a relatively stable number of people in Lule lappmark. The eighteenth century on the other hand, saw both an increase in the number of people and more and more people owning many reindeer. Hence, the competition over grazing became more salient, and the desire to attach user rights to specific locations became a more frequent topic for the local court to handle.

In the eighteenth century, more strict rules developed in the mountains regarding which grazing lands could be used by whom, and for what time periods. By then, many of the lands that were particularly sizeable had also been divided between several users. This had given rise to a new land structure, that co-existed with the old land structure, so each user's grazing land was arranged in a pattern that more or less adjoined the plots in the mountains in northwest to plots in the boreal forest. This followed how the reindeer herds moved to find available grazing over

⁷⁶ Holmbäck (1922, p. 22).

the year. These new lands, in-between the summer and winter locations, were fairly small compared to the old *skatteländ* in the boreal forest, and they were often shared between several users. In numerous court cases from the 1730s to 1740s, where user rights were discussed, it becomes apparent that a user could have numerous lands. For example, one court case shows how Olof Olsson Ainil in Tuorpon, had at least four plots of land.⁷⁷ However, since he was not the only user, the questions of how they should be used and by whom had been taken to court. Another court ruling described how Anders Paggesson in Sirkas had been using at least six different lands between 1733 and 1735. Five of them seem to have been used for grazing and at the sixth, he had the right to fish. On each of the five lands used for grazing, there were at least three other users involved which had given rise to conflicts.⁷⁸ In a third example, from a court ruling in 1750, it is clear that Pål Eriksson Tulpa, his brother, and another user, all three from Tuorpon, shared the use of at least three plots.⁷⁹

Moving routes between grazing areas seem to have been quite fixed, and it often became an undertaking for the court to decide if users could stay temporarily on another user's land during migration. In the rulings, the court could for example stipulate how many days certain visitors were allowed to stay in a location before they had to move on with their reindeer. In one court ruling from 1733, a user in Tuorpon got the right to stay for seven days in a location that belonged to two users in Sirkas.⁸⁰ In another court ruling from 1731, a man in Tuorpon was allowed to use a certain land and some years later, in 1746, he in turn contested another user who had moved over that same land. The court found that the intruder's ancestors had used it earlier, and so it was stipulated that he could stay there for two days during migration.⁸¹ In yet another court case, it was decided that Anders Larsson Lanni in Tuorpon and his son were permitted to stay for one day, or if it was on a weekend for two

⁷⁷ Hultblad (1968, pp. 356–357, evidence 25a, b, c, d).

⁷⁸ Hultblad (1968, p. 385, evidence 476a, b, c, d).

⁷⁹ Hultblad (1968, p. 366, evidence 191a).

⁸⁰ Hultblad (1968, p. 385, evidence 476b).

⁸¹ Hultblad (1968, p. 358, evidence 37c).

days, on a certain land when they migrated.⁸² The court could not only decide who had the right to what land, it could moreover stipulate that users could not bring *skötesrenar* (reindeer that belonged to other households) on to lands that were shared among several users.⁸³ The court could also stipulate that users with a great proportion of male reindeer in their herds could not keep them on lands that were shared with users that had a great proportion of *vajor* (female reindeer) since it might be harmful for the latter.⁸⁴

Other matters that the court dealt with were, for example, whether or not land should be divided between users, or if someone should lose rights to use certain lands. An illustration of this comes from a court ruling in 1735 wherein the court said no to a request from Pål Persson in Sirkas to become the sole user of a plot of land. Instead, the court decided that he had to *beta klöv om klöv* (graze hoof by hoof) with another user. However, to be able to share the grazing equally, both users had to arrive at the location around the same time in fall since this was a fall grazing location.⁸⁵ In a similar court ruling from 1754, the court stipulated that two users sharing a land in Tuorpon had to arrive around the same time to get a just distribution of grazing.⁸⁶ The court could also decide that users with relatively few reindeer had to give up land they did not need for others to graze their animals, and that users with many reindeer could obtain more grazing land when needed. The results of these negotiations were warranted by a phenomenon called *renmakt*, a term that literally could be translated into “reindeer might” or “reindeer power,” which meant that users’ rights were linked to possession of reindeer. A couple of court cases from the 1770s show how these proceedings could end. One case from 1772 concerns a user, Anders Nilsson Skubb, in Tuorpon who stated that he lacked summer grazing. He was permitted by the court to use a certain land individually, and also to share two lands

⁸² Hultbland (1968, p. 356, evidence 18b).

⁸³ Hultblad (1968, p. 366, evidence 191a). The users should abstain from taking care of Norwegian or Swedish reindeer on the land.

⁸⁴ Hultblad (1968, p. 356, evidence 25a).

⁸⁵ Hultblad (1968, p. 385, evidence 478a).

⁸⁶ Hultblad (1968, p. 357, evidence 25 g).

with three users.⁸⁷ It is noteworthy that Nilsson Skubb owned as many reindeer as the other three users together. In another court ruling, two users in Tuorpon, Amma Larsson Tjagge and Per Anundsson, stated that they lacked grazing land and asked if the court could point them to a place that was available.⁸⁸ They were referred to a land with summer and fall grazing that no one was using. In a third ruling on the same theme from 1775, a user, Pål Turesson Pirkit, in Tuorpon obtained the right to use a grazing land in spite of protests from two users in Sirkas who claimed that their ancestors formerly had used the land.⁸⁹ The court's formal argument for handing over the land to Turesson Pirkit was that he owned many reindeer. All of these cases illustrate ongoing negotiations and renegotiations between users over how grazing resources should be distributed.

For households, it became more and more important to follow approximately the same route every year, to stay in approximately the same locations, and to cooperate with other users as their reindeer herds grew in size. These components, characterized by predictability and reciprocity, contributed to the long-term endurance of an otherwise relatively vulnerable tenure system, which in turn granted a more robust living situation for household members. The inhabitants developed a deep knowhow about the land, such as conditions for grazing, water supplies, and prevalence of other natural resources, as well as familiarity with the best locations for establishing living grounds where they could erect the *goahte* (Lule Sami for the tent that inhabitants lived in). This knowhow was transferred to the next generation, because the same lands were often used for many generations. Households also made investments along their routes, for example, by setting up storage buildings for food and gear at locations they passed during migrations. Many court rulings from the seventeenth century dealt with theft or burglary, and it was not uncommon that the perpetrator had broken into such storage buildings to steal reindeer cheese, cauldrons, fishing gear, clothes,

⁸⁷ Hultblad (1968, p. 369, evidence 259c).

⁸⁸ Hultblad (1968, p. 370, evidence 261a).

⁸⁹ Hultblad (1968, p. 375, evidence 354a).

shoes, fabrics, or other items.⁹⁰ Food items, such as meat and cheese, could also be stored in mountain crevasses that were situated on the household's land.⁹¹ Firewood was a much-used resource in the household, and shortages could arise, particularly in the mountains where fire materials were relatively sparse. Consequently, it was sometimes important to regulate the use of firewood.⁹² Households could also invest in *renvallar* (gathering pens) that were used for milking.⁹³ All in all, in the largely unpredictable setting that dictated much of the tenure system for reindeer, it was a rational strategy to return to the same locations, and to travel approximately along the same routes every year. Retracing their steps allowed inhabitants to control as many factors as possible in a largely uncontrollable world, and thus make food production more predictable.

Users needed access to many lands with different grazing qualities to be able to keep large herds of reindeer alive and prospering. Grazing was, however, not the only ecological factor that was important to be successful in this tenure system. Another feature was that reindeer prefer to stay in locations where they can avoid insects in summer. Access to these kinds of locations could be negotiated in the local courts, which the following example from 1774 shows. In the ruling, Anders Nilsson Guvåla in Sirkas had complained in court that another Sirkas user, Anti Ivarsson Abril, had trespassed onto his land.⁹⁴ Ivarsson Abril replied that he lacked “ice and snow land” that could protect his reindeer from

⁹⁰ A few examples are HRA (1699, pp. 70–75; 1704, pp. 814–818) (in this case, 202 reindeer cheese rounds that belonged to five people had been stolen); HRA (1706, p. 57).

⁹¹ HRA (1701, p. 403). Tomas Amundsson Nabri in Sjokksjokk explained to the court in 1774 that he had lost at least 80 cheese rounds that had been stored under a large stone at his summer grazing land (Hultblad 1968, p. 411, evidence 937b).

⁹² Firewood was sometimes in short supply, and the court could therefore apply restrictions on its use. In a conflict where a man from Sirkas and his son had used a land belonging to users in Pite lappmark, the court found that they could use the land in the fall because the users from Pite lappmark only used it in spring and summer. However, they were not allowed to use juniper (*Juniperus communis*) growing there for firewood, but had to bring their own firewood (Hultblad 1968, p. 307, evidence 344c).

⁹³ Aronsson (1991).

⁹⁴ Hultblad (1968, p. 389, evidence 526c). The court ruling mentions mosquitoes, but the word probably was used as a collective term for all insects that were a nuisance to reindeer. It was more likely different types of oestrid flies that caused the worst problem for the reindeer and made them seek out snow and ice patches.

mosquitoes. The court suggested that the two parties exchange lands so both could have lands with access to ice and snow in summer. In a similar case from 1777, user Lars Pålsson Rimpi, in Sjokksjokk, who migrated to the mountains in summer with users from Sirkas, complained that he lacked lands where his reindeer could avoid mosquitoes “in the strongest heat of summer.”⁹⁵ Pålsson Rimpi got permission by the court to use a land belonging to two other users that they did not need in the middle of summer. The authorization was, however, restricted to seven to ten days.

The last case takes us to the third stage in the establishment of a common-property regime for inhabitants with large reindeer herds in Lule lappmark. In this stage, some users in Jokkmokk and Sjokksjokk had begun to amass larger reindeer herds, and some of them had also started to move to the mountains to find better summer grazing. As mentioned before, the earliest court rulings with descriptions of users in the western parts of Sjokksjokk’s boreal forest taking reindeer to the mountains came from the early eighteenth century.⁹⁶ During the eighteenth century, it gradually became more and more common for users in villages in the boreal forest to access summer grazing in the mountains. In 1721, two brothers from Sjokksjokk could not guard their reindeer from insects and instead they ended up on a land that belonged to some users in Tuorpon which resulted in the latter filing a trespassing complaint in court.⁹⁷ The court resolved the matter by permitting the brothers to use the land, and to move together with the users in Tuorpon, under the condition that the latter were permitted to use lands in Sjokksjokk. It shows that reciprocity had developed regarding the organization of grazing between villagers in the mountains and villagers in the boreal forest. Some users had become dependent on resources that another village controlled, and a functional solution was to share the resources equally between them. It resembled an earlier mentioned situation where the court argued that the users in Sirkas had to tolerate the intrusion of

⁹⁵ Hultblad (1968, p. 379, evidence 391b).

⁹⁶ HRA (1707, pp. 145–146). Three users in Sjokksjokk told the court that their reindeer had been stolen when their animals were grazing in the mountains in September of 1706.

⁹⁷ Hultblad (1968, p. 399, evidence 767a).

users in Sjokksjokk during spring and summer since the former spent winters on lands that belonged to users in Sjokksjokk.⁹⁸

The custom of paying rent for winter grazing in the boreal forest was probably downplayed due to the more reciprocal exchange of user rights between villagers. One court ruling shows, for example, how a land that was situated on the border between two villages was divided to permit users in Tuorpon to also use land situated in Jokkmokk without payment, but only in the fall.⁹⁹ Not all attempts made by users from the villages in the boreal forest were successful in establishing grazing rights in the mountains. Nonetheless, these efforts also show how badly users from Jokkmokk and Sjokksjokk wanted summer grazing in the mountains. For example, in a court ruling from 1763, a user in Tuorpon complained that four users in Jokkmokk had repeatedly trespassed onto his land.¹⁰⁰ It resulted in a verdict wherein the court prohibited the latter from this trespassing. In another ruling from 1774, a user in Jokkmokk was prohibited from using a particular land since it belonged to a user in Tuorpon, but he was instead pointed to another land in Tuorpon where he could stay with his reindeer.¹⁰¹ According to the rulings, one explanation behind why users in the boreal forest had access to grazing in the mountains was that they had obtained permission to graze there directly from the rights holder.¹⁰² Such assurances would discard any potential claims from other users belonging to the same village to let them share the grazing. For the rights holder, it was probably a strategic choice to formally share the grazing land with a user from a forest village, since he or she could get access to winter grazing in the boreal forest in exchange.¹⁰³

⁹⁸ Hultblad (1968, p. 397, evidence 715a).

⁹⁹ RA SH (1769, pp. 504–505). In this case, the users in Tuorpon were only allowed to graze their reindeer on the land, not hunt or fish.

¹⁰⁰ Hultblad (1968, p. 357, evidence 25i).

¹⁰¹ Hultblad (1968, pp. 357–358, evidence 33b). Other court rulings wherein users in Jokkmokk and Sjokksjokk were allowed to use land in Sirkas and Tuorpon are Hultblad (1968: p. 354, evidence 1a [1753]; p. 358, evidence 45b [1754]; p. 411, evidence 937a [1773 and 1774]; p. 412, evidence 940a [1772]; p. 422, evidence 1056a [1774]; p. 425, evidence 1082c [1754]). Some lands were situated in the high mountains (*högfjäll*).

¹⁰² Hultblad (1968, p. 358, evidence 46a).

¹⁰³ Hultblad (1968, p. 143).

Another strategy to get access to grazing resources across village boundaries was through strategic marriages. Hultblad showed that the number of intervillage marriages increased after mid-eighteenth century.¹⁰⁴ It had several benefits, including in the short term that it enhanced cooperation between villages that gained both parties, and in the long term that children resulting from these marriages would inherit both winter and summer grazing. Instead of paying rent for grazing, households could form coalitions based on mutual interests. An important factor in reindeer pastoralism was intricate patterns of reciprocity between practitioners, and through strategic marriages some of the necessary bonds could be facilitated, which in turn contributed to a more robust tenure system. As was mentioned in Chapter 3, part of the discussion about the origin of CPRs in mediaeval Europe has focused on the transition from an economy based on family and kinship to an economy in which neighbor relations grew in importance. In this transition, people started to make alliances, mainly with persons with the same occupation.¹⁰⁵ For reindeer pastoralists, it was important to have good relations with one's family and extended family, but it is also clear that relations to users in neighboring villages grew in importance over time.¹⁰⁶ We showed earlier how the use of grazing in the mountains often overlapped in Sirkas and Tuorpon. Eventually, a parallel development took place between users in the mountains and users in the boreal forest. It was a development where the adjacent border between villages in the mountains and the boreal forest started to dissolve, and where the emerging villages took on a more elongated northwestern-southeastern geographic orientation compared to the previously much smaller and more circularly shaped villages. These changes can be interpreted as highly functional responses to the needs created by a new land-use pattern, categorized as reindeer pastoralism, which focused on use of grazing resources.

¹⁰⁴ Hultblad (1968, p. 143).

¹⁰⁵ de Moor (2015, p. 3).

¹⁰⁶ Some rights holders continued to collect rent for winter grazing; e.g., Hultblad (1968, p. 365, evidence 178) where one user had paid with a two-year-old reindeer and the other with 16 *skilling*.

Creating a Common-Property Regime

During the eighteenth century, a common-property regime with detailed rules of use had been established with regard to the most important resource for reindeer, i.e., grazing lands, encompassing all villages under the jurisdiction of the local court in Jokkmokk.¹⁰⁷ The regime had many of the characteristics that grant the management of CPRs success, including a vivid and ongoing negotiation among users to try to define a just distribution of resources and who should have the right to use them.¹⁰⁸ These negotiations were based on extensive knowhow about local settings, and were executed by local people who lived in the area under similar circumstances as the plaintiffs and the defendants. The court rulings themselves show that the court worked as a collective-choice arena and that local users were involved in the process of defining the rules of use. Simply put, it was a local arena where inhabitants solved conflicts and disputes regarding natural resource use. The court not only solved conflicts as they occurred, it also facilitated the expansion of reindeer pastoralism. The commonly elaborated rules generated favorable conditions for pastoralists with room for more flexibility and increased mobility. At the same time, the local court warranted continuity, which contributed to reliability and stability for the tenure system. Still, it was not a completely egalitarian system as most of the court's decisions favored users with many reindeer.

Flexibility was created in many ways; one was through a continuing discussion about how land should be used and who had the right to use it. The court's role as a place where user rights could be negotiated and the court's members functioned as mediators and surveyors is important to emphasize. As a collective-choice arena that could decide the conditions for how land could be used, the court also worked as a guide for how other users could solve problems regarding land use, such as access to grazing land. What we, today, can read in the court rulings is most likely only a fraction of all the discussions that took place about land use and grazing rights that happened between users. Reindeer pastoralism,

¹⁰⁷ Up to 1751 it also included Kaitum and the northern part of Sjøksjøkk.

¹⁰⁸ Ostrom (1990, p. 90; 2005, pp. 258–270).

to function well, required better reciprocal arrangements with other households than fishing and hunting did during the same period. These reciprocal arrangements included marriages between households to obtain access to grazing lands throughout the year, and negotiations and oral agreements between households that involved permission to use other users' lands in case of emergency.

Grazing land in the mountains must be viewed as a CPR with strong user rights. How the land had been used earlier and if a household had used a certain location during a long period of time was important to determine future use, and it was something that the court deliberated. The rulings show that lands could be inherited. However, the court could also decide that a user could lose the right to a land if it had not been used. Or, if a land was underutilized for grazing, the court could decide to redistribute the rights to other users. If someone had many reindeer and contributed to the village by paying tax, the court could consider it more important to afford him or her access to grazing rather than the original rights holder who might have had fewer reindeer and paid little or no tax. Yet, no one was allowed to routinely share lands that already had rightful users if the grazing resources were limited. If a tax-paying household with many reindeer lacked grazing resources for one reason or another, it triggered a search for available grazing where the household could be designated grazing rights by the court. Hence, although the reindeer was private property, the collective natural resource, i.e., grazing lands, that made it possible to manage reindeer was a collective resource.

The conditions for winter grazing in the boreal forest varied a lot over the season, which called for a high degree of flexibility among reindeer herders¹⁰⁹ and implies that winter grazing in the early modern era had to be organized in smaller user groups rather than large settlements as Tanner claimed.¹¹⁰ Our conclusion is corroborated by Kuoljok, who states that for practical reasons reindeer herds must be divided into smaller groups during winter.¹¹¹ Demant-Hatt wrote a book about her year living in a reindeer herder household in Torne lappmark in the

¹⁰⁹ Roturier and Roué (2009).

¹¹⁰ Tanner (1929) See also Chapter 3).

¹¹¹ Kuoljok (2011).

early twentieth century and described winter grazing as a highly flexible system where the family mostly lived on its own and moved with the herds as frequently as every two weeks in winter, in constant search for better grazing.¹¹² Although she described the reindeer rancher phase of history, it is possible to draw some parallels to our study period, when the pastoralist economy shifted from reindeer milk to meat production. The common denominator is the importance of mobility and flexibility in the grazing regime. Regardless whether the outcome was milk or meat, the main goal for reindeer herders was to find good enough grazing for the reindeer to survive and prosper, as is the central goal for modern-day reindeer herders.¹¹³

In summary, the tenure system for reindeer that evolved in the seventeenth and eighteenth centuries was based on a collective organization of extensive grazing resources instead of the restricted household territories that had characterized the previous system. In this development, households in Sirkas and Tuorpon had an advantage compared to households in Jokkmokk and Sjöksjökk, mainly due to the former group's access to favorable summer grazing in the mountains.

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¹¹² Demant-Hatt (1913).

¹¹³ Roturier and Roué (2009).

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