UNIVERSITY OF THE ARCTIC

Module 8
Reindeer Herding and Traditional Resource Use

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Key Terms and Concepts

- *rangifer tarandus*
- patterns of arctic adaptations
- reindeer husbandry
- pastoralism
- nomadism
- “reindeer revolution”
- “herding capitalism”
- annual cycle of migrations
- migratory route
- large-scale reindeer herding
- collectivization
- sedentarization
- reindeer herding management
- collective farms
- state farms

Learning Objectives

Upon completion of this module, you should be able to:

1. Understand reindeer husbandry as a system of adaptation in the North and as an extension of traditional resource use
2. Define the main historical stages of reindeer husbandry development
3. Describe the environmental and geographical contexts of reindeer husbandry

4. Describe the main types of reindeer herding

5. Define “herding capitalism”

6. Trace the experiences of different states in their regulation of reindeer herding

7. Discuss the basic concerns and problems encountered in modern reindeer husbandry

8. Highlight the ethno-cultural aspects in reindeer herding

Module Readings

Read the Overview and Lecture for Module 8, then read the assigned readings from the *Reading File* given below.

Reading 16: Leonid Baskin, “Reindeer husbandry/hunting in Russia in the past, present and future”

Reading 17: Konstantin B. Klokov, “Nenets reindeer herders on the Lower Yenisei River: Traditional economy under current conditions and responses to economic change”

Reading 18: Robert Paine, ”The pastoral logic”

Reading 19: Andrei Golovnev: “*Yamal and Chukotka: A Comparative Case Study*”

Overview

This module will discuss reindeer (*Rangifer tarandus*) husbandry as a system of northern adaptation and traditional circumpolar resource use, the ecological and historical roots of reindeer herding, and its ethnic and geographic diversity. Focussing on these three main areas in particular allows an understanding of the current trends and problems of reindeer herding. We will pay special attention to the social and political forces that have (and are) effecting change and evolution in reindeer pastoralism. Differences and similarities of pastoralist systems in the Eurasian North—both Western and Soviet-Russian adaptations—are the background of the module. Reindeer herding as sophisticated practice and complex of economic, social, and

cultural functions will be presented in the context of historical events and current circumstances.

Lecture

Introduction: Reindeer Herding—Economy or Lifestyle?

Reindeer herding in the modern Circumpolar World is much more than just a branch of traditional economy. In the last decades, it has acquired the status of a "stronghold of traditions," even for those ethnic groups who, historically, could hardly be recognized as Arctic pastoralists. Reindeer became a symbol of personal, group, and cultural identity—even an ideological icon—for Indigenous peoples facing increasing intrusions from outside industries, policies, and cultures.

Meanwhile, "the great reindeer crash" took place in the Russian North, and the symbol's fragility became apparent. Uncertainty as to why the drastic drop of reindeer herds affected most northern areas simultaneously, with no evident signs of epizootic or climatic disaster, made the theory that tradition was losing to modernism plausible. Experts openly question whether reindeer herding is ready to go to the ethnographic archive right now, or whether it can survive for a while. Leonid Baskin, an authority on Russia's reindeer science, reasoned, "Now, when the possibility of a complete crash of reindeer husbandry exists, we need to consider whether is it theoretically possible to exchange husbandry with hunting of wild or feral reindeer" (2000, 24).

Will we indeed be witness to the collapse of the northern "cultural stronghold," or is this just another ebb of the tides in the turbulent history of northern pastoralism? How is reindeer herding, the most advanced traditional technology, capable of meeting current and future high-technology challenges? Finally, how can Indigenous peoples of the Eurasian North, small in numbers and scattered over the vast spaces, increase their knowledge and expertise in this vital dialogue?

By any measure of ethnic values, reindeer herding ranks as one of the highest achievements and basic cultural distinctions of many northern communities. This is something that no one, including ambitious newcomers, can do better than genuine northerners. It is the core of the economic system, of the social network, of ethnic religion and ideology, and of inherited science.

There is no biological difference between domesticated and wild reindeer (caribou); they vary only in the degree of socialization with humans. A caribou is a part of the natural environment; a reindeer is part of a culture.

Herding exceeds hunting in the degree of mutual responsibility between man and reindeer, whose rhythms of behaviour become tightly linked, or even unified. Herders sometimes say that they accept reindeer as a part of society and expect, reciprocally, to be viewed by reindeer as a part of the herd.

For example, Nenets pastoralists migrate with their herds, repeat the natural seasonal rhythms of reindeer movement, direct the bulk of everyday activity towards reindeer, and rely on the products of this activity. Reindeer flesh, blood, fat, and marrow is their basic food; hides become tent covers, beds, and clothing; sinew, sewing thread; bones and antlers are used to make handles, buttons, and utensils. Children play reindeer, throwing the lasso on each other, harnessing each other into small sledges, re-enacting scenes of camp life or of a migrating caravan using rocks as reindeer, wooden figurines as sledges, and dolls of ducks' beaks as people. The Nenets calendar consists of lunar months, the names of which are often directly linked with herding: ty nich iry (calving month); khor iry (rutting month); malkoms iry (antler falling month), and so on. A number of Nenets' clan names are derived from the herders' vocabulary: Ngokateta means "Owner of many reindeer," Seroteta, "Owner of white reindeer," Teseda, "The Reindeerless." People and reindeer are inseparable, even beyond life, as ritually slaughtered reindeer follow their masters after death.

The biological and economic advantages of this union became apparent during the periods of exploration and colonization when people, in alliance with reindeer, managed to occupy forbidding northern areas and converted them into new habitats. Politically, reindeer herding gave Indigenous groups the transportation and economic autonomy to maintain relative independence from colonial authorities. They simply moved to areas that were so remote that authorities didn't want to, or couldn't, follow them. They could do this because their means of livelihood, the reindeer, were both mobile and adaptable to these hostile frontiers. Since then, reindeer seem to be reliable allies for nomadic people against strangers (newcomers, invaders, administrators).

Reindeer herding, however, remained quite a hazardous economy because it was largely dependent on natural circumstances. Winter ice, spring blizzards, or epizootic events might quickly convert a herder into a forager (though leaving him a chance to regain his former status in few years). These conditions prevented rigid social stratification in herders' communities and maintained egalitarian traditions in leadership. Norms of mutual support combined with individual property in reindeer stimulated both social regulation and personal activity in herding. Therefore, the northern nomads of the "classic type" usually appeared as mobile, sometimes aggressive, social units consisting of energetic persons capable of enduring the rigours of harsh natural or social environments.

In light of this, the nomadic lifestyle might be considered one of the basic conditions necessary for cultural survival in the North. The strongest cultural traditions are still alive among those groups of northern peoples that practice reindeer herding because, historically, nomadic groups were most resistant to outside impact. In the twentieth century, pastoralist communities retained their identity based on several significant distinctions (Golovnev and Osherenko 1999, 141–142):

- A nomadic lifestyle that requires daily use of a fund of traditional knowledge
- An economic autonomy that guarantees survival in times of catastrophe—that is able to provide essential human needs for transport, food, shelter, clothing, tools
- A minimalist ethic that limits the need for material goods and intercultural interaction

Reindeer husbandry revealed, throughout its history, a capability to spread internationally, even overseas. The earliest (recorded) international experiment was launched in 1892–1902 when Eurasian domestic reindeer were introduced to Alaska's Seward Peninsula. The experiment aimed to provide a dependable source of red meat for local Inupiat who were perceived to be suffering from the absence of caribou, an alternative to dog teams for transportation, and a mechanism for social change whereby Inupiat would be converted from a hunter-gathered subsistence society to contributors to the cash economy, and from shamanism to Christianity. By the mid-1930s, reindeer increased to about 641,000 throughout Alaska. From 1930 to 1945, however, the large-scale, commercial reindeer industry in Alaska experienced a decline because of negative economic conditions. By 1950, numbers stabilized at roughly 25,000 animals. Since 1990, the number has declined to less than 15,000 reindeer. From the 1980s onward, the Seward Peninsula reindeer industry has been critically impacted by wildlife, especially caribou invasions (Stern et al. 1980; Dau 2000, 57–62).

Environmental and Historical Background

For centuries, Indigenous groups in the Northern Eurasia—Saami, Komi-Zyrians, Nenets, Khanty, Mansi, Selkup, Dolgan, Enets, Tofalar, Tuva, Evenk, Even, Yakut, Chukchi, Koryak—practiced herding of various patterns. Baskin (2000, 24) summarized three main types of reindeer herding in the twentieth century.

1. "Close" herding, defined as keeping reindeer in big herds, was the main technique in the tundra and forest tundra of the West-Ural area, Yamal, Taymyr, Yakutiya, Chukotka and Kamchatka.

2. “Free-camp” system, in which reindeer are kept near human settlements or camps, was used in Tofalariya, Tuva, Buryatiya and Sakhalin.

3. “Loose” herding, in which herders only periodically gather scattered animals and move them to fresh pastures, was used on the Kola Peninsula and in Khanty-Mansi region, Yakutiya, and Evenkiya.

In many areas, two or more methods were practiced synchronically or diachronically. Native Americans never developed reindeer husbandry until Eurasian reindeer were imported as noted above.

Behavioural research demonstrated that the minimum practical herd size is 35 animals. For herding, the optimal size is 100 to 300 animals, whereas the maximum herd size is 1500 to 3000 animals (excluding new-borns), because larger herds become fragmented. Reindeer herders must watch their herds constantly. Herd size, animal distribution within pastures, speed of pasture rotation, and methods which herders use to keep animals under control are all strongly influenced by landscape features (Baskin 1974). The annual migration of the tundra pastoralists may cover from one hundred to more than one thousand kilometres. Reindeer behaviour varies significantly from year to year due to changing environment and herders must use a wide variety of strategies to meet expected and unexpected troubles.

Reindeer herding, in spite of its complex and sophisticated technology, is of fairly recent origin. Tracing its historical dynamics might be a clue to some of today’s problems and opportunities.

Reindeer Herding among Systems of Arctic Adaptations

In the Eurasian North, there were four main types of pre-industrial subsistence: inland hunting and fishing; maritime hunting; horse and cattle breeding; and reindeer herding. Environmental and climatic diversity, cultural peculiarities, and the intensity of outside contacts influenced the various circumpolar economic patterns. Historically, subsistence cultures and economies changed considerably under the influence of trade, migrations and intrusions. The earliest subsistence mode, inland hunting (or foraging), spread throughout the late Pleistocene glacial plains of Northern Eurasia and North America in the Upper Palaeolithic (up to 10,000 BP), taking various forms according to local environmental conditions.

The next stage of Northern economic evolution, maritime adaptation and sea-mammal hunting, occurred during the Mesolithic (middle Stone Age) period and was due to favourable climatic conditions in the northern coastal areas of the Atlantic and Pacific Oceans, and in Scandinavia and the Aleutian archipelago.

The third main type, horse and cattle breeding, was introduced by Germanic-speaking people in the Bronze Age and Early Iron Age, mostly in western Eurasia, Scandinavia, and adjacent North-European areas.

The forth subsistence pattern, reindeer herding, emerged in the Early Iron Age as a mixture of local experience in reindeer taming and methods of horse breeding. In the middle of the second millennium it was converted after the "reindeer revolution" into a basic economic system in the Eurasian Arctic and Subarctic.

Hardly any "pure" samples of these types can be found, though northern cultures might be roughly grouped around them as follows.

The inland hunting-fishing type used various methods of foraging (hunting, trapping, fishing, gathering). Ethnographically, they are represented in Siberia by the Yukagir, Nganasan, Ket, Selkup, Mansi, Khanty, Evenk, Even, Itelmen, Nivkh, Nanaitsy, Negidaltsy, Ulchi, Udege, and Orochi; in Northern America by inland Eskimo, Algonquian and Athabaskian groups. Their semi-nomadic life style demanded light, transportable lodges for housing, such as conical tents, including chum (West and Central Siberia), urasi (Yukagir), and tepee (American Indian), which consisted of poles bound together at the upper end, and covered with skin (mostly reindeer) in winter and bark (mostly birch) in summer. Dugouts were in often used for winter housing. Means for transportation included skis, snowshoes, sleds, and boats. Clothing was made of fur and animal skin, birds' feathers, and fish skin. In local variants this type was supplemented with features of other systems, like reindeer breeding for transportation of Evenk, Even, Khanty, Mansi, Ket, and Nganasan.

Maritime hunting, typical for coastal cultures, emerged in the areas favourable for hunting big sea mammals like walrus, whale, and seal, though this subsistence pattern was also based on exploiting a wide range of animals, "from whales to shellfish and caribou to lemmings" (Taylor 1966, 118–19). Peoples of the Siberian north-east and the American north-west represented this economic type: Chukchi, Koryak, Aleut, Inuit, Yupik, Itelmen. The main features of their cultures were living in stationary, year-round settlements in dugouts or semi-underground houses (Yupik and Aleut) and seasonal dwellings like the Chukchi *yaranga* or the Eskimo *igloo*. Some groups used dog sleds, boats of different types (*kayak*, *baydara*, twin boat) for transportation. Historically, mediaeval Scandinavians, Saami, and Nenets shared traits of this type.

Horse and cattle breeding was initially confined mostly to the western part of Northern Eurasia, that is, Fennoscandia and the Russian north (Pomor area), where stockbreeding was combined with sea-mammal hunting, fishing, agriculture, and trade. For Scandinavians, Northern Russians and their close neighbours, horse riding and horse use was no less typical than sailing. In

Siberia, horse breeding had been introduced in ancient times by Indo-European and Turkic steppe nomads, then in the mediaeval period by Sakha (Yakut) and Russians. In some North-Siberian areas, including Kamchatka, horse breeding became important beginning in the eighteenth century.

Reindeer herding emerged in various parts of Eurasia (in at least four near-mountain areas, Scandinavia, Urals, Altai, and Chukotka) and spread widely throughout the Arctic and Subarctic. The Saami, Nenets, Chukchi, Koryak, Evenk, and Even each developed their own ethnic styles of reindeer herding. Differences among the groups concerned herding technology and techniques, method of transportation (including construction of sledges), arrangement of harnesses, and so on. Saami reindeer breeding is semi-nomadic, with stationary, seasonal camps, small herds, free grazing on summer pastures, ear-marking, and use of reindeer fences and herding dogs. Nomadic Nenets move with their herds, stopping in stationary, seasonal camps. Reindeer were the basis of their subsistence, the main source of transportation, food, clothing, and coverings for their dwellings. The Evenk and Even travelled with their small herds, using them as riding and draught animals. Portable, wooden-framed dwelling covered with reindeer skins, such as *yaranga* (Chukchi), *lavvo* (*kuvaksa*) (Saami), and *chum* (*mya*) (Nenets), are common for herders. Subsidiary occupations included hunting for wild reindeer, moose, sable, fox, Arctic fox, marten, and sea-mammals (seal and walrus) and coastal fishing (salmon, whitefish, and sturgeon).

The last system of adaptation, reindeer herding, was certainly not the least for the groups populating remote areas of the Eurasian North. This type appeared to be most resilient in the face of the industrial and economic invasion, while the others either easily adopted innovations or were immersed in the new economic complexes. Furthermore, reindeer breeding experienced different, sometimes highly sophisticated and specialized, forms. Many nomadic pastoralists (recently hunters) demonstrated how changeable so-called conservative reindeer herding might be.

“Reindeer Revolution” and “Herding Capitalism”

It is impossible to think of today’s tundra nomads apart from their reindeer herds. Most of these groups, however, are recent pastoralists whose practice of large-scale reindeer breeding is hardly longer than three to four centuries. Their ancestors were skilful in taming and breeding reindeer since at least the Early Iron Age, as archaeological data show (for example, harness parts from Ust-Polui site on the low Ob River). Those ancestors bred reindeer for transportation and as decoys for hunting, a practice that differs widely from large-scale herding. The transition from a foraging subsistence pattern using reindeer (extraction of natural biological resources) to herding (specialized livestock pastoralism) occurred in some short period around 1600 C.E. Ethno-

historical data show the absence of large herds in medieval times and the appearance of large herds at least by the eighteenth century. Igor I. Krupnik (1993, 160–84) attributes this "reindeer revolution" in the Eurasian North to a convergence of ecological and social factors.

Most scholars emphasize stress as the most important catalyst for modulation and transformation in human societies. Debate concerning the emergence of large-scale reindeer herding in Northern Eurasia has focused on two questions. One, was it a crisis in the former subsistence hunting system that pushed northern peoples to vastly increase their herds or, on the contrary, were there favourable conditions for enlarging the herds? And two, did ecological or social conditions (or their convergence) play the key role in that transformation? Below are some of the ideas of participants in this discourse.

Ecological critical circumstances: Climatic change increased winter temperature in the first millennium C.E., which would have caused a decrease in the total number of wild reindeer and probably compelled people to change their traditional economic form, according to Leonid Khlobystin and Galina Gracheva.

Socially favourable conditions: The Russian state reduced intertribal warfare and established a rule of law that encouraged and protected private property, including ownership of reindeer. Without these conditions, Boris Dolgikh reasoned, the property of the wealthy would be very soon expropriated by his own kinsmen, and a big reindeer herd would be desired by neighbours, so the clan would have to conduct perpetual warfare to protect it.

Ecologically and socially favourable conditions: Krupnik (1993) showed that "[S]table cooling phases [which are particularly positive for reindeer and their reproductivity] clustered recurringly during the late 1500s to early 1600s, throughout most of the 1700s, and the early [and right through the middle of the] 1800s, as well as the first decades of this century." The first period coincided with the Russian invasion of Siberia and the attendant conflicts, epidemics, and forceful relocations, which could not be suitable for development of a pastoral reindeer economy. Rather, it was during the second period, which occurred alongside "the entrenchment of government power, the development of trade throughout Siberia, and attenuation of intertribal conflicts" that reindeer pastoralism burgeoned in the Eurasian Arctic. "The ecological aspect of the mechanism of transition to large-scale reindeer herding should have been fairly universal, while the social factors in this process probably varied among different peoples in their local environments and historically specific circumstances" (165–169).

Socially critical impact: The Indigenous people's desire for autonomy from newly-established Russian power raised the importance of mobility to retire to remote tundra areas and this, in turn, required larger herds. Simultaneously,

over-hunting and consequent scarcity of wild reindeer led to a reorientation of the native economy from foraging toward pastoralism. The core transition occurred in the 1600s. As is well-known from chronicles, the "classic pastoralists," Nenets and Chukchi, rebelled against Russian power until the late 1800s. For a long time they, especially those in the remote tundra, remained practically independent from Russian administrators. The real base for their social and economic autonomy became domestic reindeer (Golovnev and Osherenko 1999, 17–19).

The latter position does not entirely reject ecological change as a complimentary factor. Adverse climatic conditions in the 1600s could have caused a reduction in the wild reindeer population, hastened over-hunting and broadened seasonal migration. These hard conditions could have strengthened a trend toward enlarging the small domestic reindeer herds used previously only for transportation. Since then, the largest reindeer herds and richest owners' migration routes were located in remote tundra areas.

The next phase of reindeer herding development was associated with so-called "reindeer capitalism," when raiders became traders. It can be seen in the Nenets practice of trading their reindeer for fur and fish with forest peoples (Khanty, Mansi, Selkup) as well as in Chukchi and Koryak reindeer barter with the coastal maritime groups of Eskimos, Chukchi, and Koryak. More obviously, the same process could be seen among Saami (Ingold 1976, 62–72) whose reindeer trade allowed some herders to turn into capitalists. An especially remarkable example is that of the Komi-Zyrian (Izhma), the most advanced of Russia's herder-capitalists who, in the eighteenth and nineteenth centuries, created their own model of market-oriented, large-scale reindeer herding based on hired labour and use of money. Expanding in this phenomenal development, Komi herder-traders colonized the vast European-Siberian tundra areas from the Kola Peninsula in the West to the Ob River valley in the East.

The Izhma Komi borrowed the breeding method from West-Ural Nenets and then built their own system where reindeer became the main currency in trade. In the early nineteenth century, the Komi already practiced the regular, large-scale sale of meat and skins. Their large-scale commercial herding was oriented toward external markets. That was an ethnically developed northern capitalism independent of any state support. On the contrary, the Russian administration, on many occasions, attempted to moderate Komi reindeer herders' expansion.

Komi herding-trading influenced or even undermined the formerly conservative attitudes of Nenets and Saami to their herds and stimulated the latter to use their reindeer for consumption and trade (Krupnik 1993, 177). Further spread of this husbandry-merchantry was stopped by the Soviet state,

which destroyed its commercial core and attempted to reorient the productive Komi herding technology toward increasing state income.

Viability of Reindeer Husbandry

The third main stage of reindeer husbandry development, after the "revolution" and "capitalism" could be called "nationalization." This change occurred throughout the whole Eurasian North in the twentieth century in various ways following Western capitalist and Soviet socialist models. In its origin, reindeer herding was by no means a state's creature, even more, as seen from the ideological point of view of the reindeer revolution, it was inspired by autonomist and anti-state ideas. Not accidentally, any so-called help coming from a state did not fit reindeer herding's praxis. A strained dialogue between states and pastoralists reveals innumerable dissonances in their opposing values.

Experiences in Nationalization

Since in the early twentieth century, a well-guarded border has separated the Eurasian North, roughly along the 30th meridian, causing the Fennoscandian Saami reindeer herders to encounter the challenges of modern Western capitalism, whereas peoples of the larger part of northern Eurasia (including Kola Saami) endured Soviet socialism. Soviet economic policy resulted in foraging for income in the stocks of wealthy herders who were deprived of their civil rights and property. Trade was drastically reduced, and herders lost their function as mediator between market and natural resources. Several (at least three) severe economic declines during the Soviet period compelled herders to revert to their forefathers' methods and tools, such as spears and bows. That happened during the Revolution and Civil War (early 1920s), the Second World War (early 1940s), and the post-Soviet collapse (early 1990s). In the intervals, Soviet authorities promoted a series of the forced institutional reforms including collectivization (1930s, with its second stage in the 1950s), the sedentarization of nomads and the relocation of rural dwellers from small villages and camps into the large settlements (1960s).

In the late 1920s, when the reindeer herds became the target of government efforts to create collective farms and to liquidate the wealthy owners (*kulaks*) as "class-hostile elements," the pastoralists avoided collectivization by retreating to the remotest coastal or mountain pastures. For example, since Siberian Nenets developed large-scale herding and until the late 1920s, they usually reached northern and coastal areas in summer and went back south in the winter. In 1931, only half of those migrating north returned to the south over central Yamal tundra; in 1932, only one-tenth migrated to the south.

Finally, Nenets responded to government actions with *mandalada* (war assemblage) in 1934. A rebellion happened once again in 1943, with its headquarters in northern Yamal. Not accidentally, just after the Second World War, in 1947, 335 households from the northern Yamal were forcibly relocated to southern villages (Golovnev and Osherenko 1999, 81–96).

Through the whole of Arctic Russia, from the Barents Sea to the Bering Sea, the Soviet state "introduced large-scale, heavily subsidized, collectivized, and centrally planned reindeer industry, and it promoted this model with an iron fist" (Krupnik 2000, 52). Soviet authorities disrupted the system of ownership by confiscating and redistributing large herds and dividing pastures into numerous family units. One of the most painful moves in this reorganization was the demarcation of the pastures by administrative borders between the collective farms (*kolkhoz*). That reduced the former flexibility of nomads' trade contacts and migrations, especially in periods of disastrous climatic conditions, like ice-crusts. However, the underlying system of control of pasturing by kinship groups initially survived within the new administrative framework of the collective farms. Many individuals or families retained private ownership of herds and maintained the rights to use specific lands in specific seasons.

In the 1960s, the Soviet reorganized most collective farms into state farms (*sovkhoz*). The sovkhoz structure concentrated control in the hands of a few managers at the top—mostly non-natives. The state farm became the owner of the reindeer, the user of land, and the employer of hired worker-herders. Systems of management became more rigid, and herders were pushed to sell their products to the state at fixed, low prices. Through a campaign of sedentarization, Soviet policy encouraged nomads to settle in villages. The establishment of boarding schools in the large villages particularly affected the transmission of inter-generational cultural—the state finally had emerged victorious from the long-term battle between Native parents and state authorities over control of the education of children.

During the twentieth century, the Kola Saami experienced numerous rounds of enforced resettlement in addition to the hardships of two world wars, collectivization with its accompanying repressions, agglomeration into a single place of residence (the agro-centre of Lovozero), and practically a single economic entity, the sovkhoz known as "Tundra." About 22 winter settlements (*pogosts*), and later villages, were removed from the map by these events and by the massive strategic build-up of the Cold War. Lovozero became a village of high-rise blocks of flats wherein the Saami in the late 1990s constituted one-fifth (743 out of 3537) of the total population (Konstantinov 1998, 1–27; 1999, 11).

In some areas, the campaign of resettlement culminated in the total abandonment of reindeer husbandry. Before the 1930s, in Taymyr Peninsula,

Nganasan groups used domestic reindeer mostly for transportation. In the dawn of collectivization, Soviet authorities encouraged the Indigenous Taymyr population to become more engaged in reindeer husbandry. In the 1960s and 1970s, the Nganasan people, encouraged to settle in several villages, eventually gave up reindeer herding (an additional reason was an increase of wild reindeer in Taymyr). At the same time, Nganasans could not get access to hunting, which had been taken over by outsiders, and they were left to languish in village poverty. The same fate overcame several groups of Ket, Evenk and Even in Central and Eastern Siberia.

The Soviet campaign of agglomeration of northern farms and settlements in the 1960s and 1970s was based on the assumption that state employees could function as rural managers, including management of reindeer herds. Modern technology and techniques seemed to be a way to stimulate the archaic pastoral economy, and an industrial boom was launched in the Soviet North. Aviation and tractors were introduced into reindeer herding practice, especially in the East-European and Far East tundra regions. Aviation delivered changing teams of herders in the Nenets Autonomous Region and tractors moved pastoralists' camps in Chukotka and Magadan Province.

Indeed, the state succeeded in stimulating a quantitative increase of reindeer herds in many tundra and forest areas. For example, in Yakutiya, domestic reindeer grew from 120,000 in pre-revolution time (early 1900s) to 380,000 by 1970. At the heyday of Soviet "reindeer nationalization," in the 1970s, the Chukotka's herders, equipped with tractors and organized in big collective farms, achieved reindeer head counts of around 590,000.

Some regions, however, remained apart from technological progress because of their remoteness and landscape conditions. The north-west Siberian swampy tundra, for example, was incompatible with tractor transportation. There were only a few coastal villages on the Yamal and Gydan peninsulas, and the state managers did not have easy access to the Nenets' nomadic camps scattered along the vast tundra. For their part, Nenets pastoralists kept outsiders from penetrating deeply into the management of their reindeer herds and retained a capability to out-manoeuvre Soviet economic policy. Nenets preserved their traditional nomadic lifestyle and invented strategies to keep their private herds safe from officials. One common trick was to mix the collective and private herds, making it impossible for inspectors to determine the actual ratio of collective to private animals. In the west-Siberian and Ural tundra, young herders, registered as state workers, pastured collective herds, while their old relatives, listed officially as pensioners or hunters, pastured private herds. The two herds migrated side by side, allowing herders to select from the mixed herd the reindeer of highest quality.

The Nenets' remoteness gave them a chance to retreat from the most devastating impacts of Soviet influence. Nevertheless, these circumstances

alone would not have ensured the survival of the culture. Rather, it was the Nenets' mobility that enabled them to avoid outside intrusions and control in a way that peoples more dependent on localized and stationary resources within a smaller territory could not. Nenets culture, by its nature, is flexible. The nomadic lifestyle with its non-stop accidents fosters this flexibility of character. For Nenets, the capacity and readiness for change is tradition (Golovnev and Osherenko 1999:141–144).

The Soviet collapse in the early 1990s ended state management of reindeer herds. In eight years, from 1991 to 1999, the reindeer population in the Russian North dropped from 2,260,600 to 1,357,300 (Klokov 2000, 39). At the beginning of the twenty-first century, the number of domestic reindeer in Russia had decreased by 40 per cent in comparison with 1990 (in some regions by 50 to 80%) to about 1.2 million. Total venison production dropped almost to 25 per cent of 1990 production. Reindeer herding, which was recently one of the most profitable economic activities, is, in post-Soviet Russia, creating negative returns. The only island of prosperity in this sea of crisis was the marshy tundra where nomadic Nenets pastured their mixed herds.

In Fennoscandia, reindeer herding experienced another version of nationalization. The first political pressure came when enforcement of national frontiers in Fennoscandia and Russia restricted the traditional migratory routes (Elbo 1952). In 1852, Russia closed the Norwegian-Finnish border along the eastern perimeter of Finnmark to the seasonal passage of the pastoralists. At that time, some fifty thousand reindeer from the Norwegian side had winter pastures in Finland, and around fifteen thousand animals from the Finnish side pastured in Finnmark in the summer (Paine 1994, 157). In the twentieth century, Swedish Saami lost the traditional summer ranges toward and along the Atlantic coast because the Swedish-Norwegian border was gradually closed to reindeer migration (Danell 2000, 112).

The closing of various frontiers and borders significantly affected the basic principles of pastoralism. After the Second World War, Saami in Sweden were "caught between a continually rising subsistence minimum of reindeer and a continually reduced grazing capacity due to the combined encroachments of the timber, tourist, mining and hydro-electric power industries" (Beach 1983, 15). In Norway, in the 1960s and 1970s, the number of pastoralists increased disproportionately to the number of animals, and the bearing capacity of pastures was seriously overextended because of the number of pastoral units (Paine 1994, 158). In Finland, fences not only protected reindeer from predators, they also restricted the movement of reindeer in the grazing areas.

The northern territories of Finland, Sweden, and Norway, in the last decades of the twentieth century, provided pasture for about 300,000, 220,000, and

220,000 domestic reindeer respectively. There were no population crashes as in post-Soviet Russia. One of the main concerns in the long-term dialogue between Saami herders and state administrators was the balance of economic and cultural values and reindeer husbandry development. In the first decades of the twentieth century, national programs treated reindeer nomadism as "a historical survival" whose "natural demise" was only a matter of time (Paine 1994,158). Since then, state policy has moved towards accepting the status of pastoralists and farmers.

Tim Ingold makes the important distinction between stock-rearing, which "assumes the existence of a fully developed market structure as well as the acceptance of commercial values" (1976, 121) from pastoralism, which "recommends a man to slaughter only the minimum of deer needed to maintain his family, stock-rearing requires him to leave alive only the minimum needed to maintain his herd" (1976, 89). The point is, whether reindeer are doomed to become breeding stock with reindeer management regulated in detail. Not surprisingly, the Swedish Saami refer to the state's rationalization of reindeer herding as "the pig farm ideal" (Beach 1981, 338).

Making reindeer husbandry efficient—"More animals must be slaughtered, and animals' weights must rise" (Paine 1994, 160)—minimizes its cultural value. Hugh Beach argues that, "It is vital to seek clarity in the question of to whom the rational-herding policy is rational… It is the community's or the nation's best interests" (1981, 287). Viewing the Swedish case, "The State barrels ahead with its rationalization programme to increase the efficiency of the reindeer industry seemingly in oblivion of its cultural implications" (Beach 1983, 16). Robert Paine's insight into the Norwegian case seems no less acute, "Is Saami reindeer pastoralism becoming a thing of the past, replaced by Norwegian pastoralism with Saami herder-owners?" (1994:189)

A Nenets from Yamal visiting herders in Finland and Norway said, in slight perplexity, "A herder owning one hundred reindeer is believed to be very rich man." (in Yamal he supposes [a rich man to] be a 'thousander'). Then, "Lots of things surprised me. In my country, just a Nenets comes out of tent, his closest friends, reindeer, approach him… In Finland reindeer are wild. I could miss, but I've never seen a reindeer coming to a man. Maybe, because of fences?" (Okotetto 1999, 35–36).

Capacities: People, Animals and Land

In northern Finland, there are about 300,000 reindeer in 57 reindeer husbandry units. Of the 7000 reindeer owners, two-thirds own fewer than 25 reindeer, and only seven per cent own 100 or more. In winter, some supplementary feeding occurs. The herding of reindeer is of great importance to the Saami because it is part of their traditional way of life, as well as providing income.

The greater the number of reindeer owned, the higher the status of the owner within Saami society (Lee et al. 2000, 99–105).

In Sweden, during the twentieth century, reindeer husbandry developed into an extensive seasonal migration in which privately owned flocks are merged into large herds and herded collectively during the snow-free season. They are divided into smaller flocks that are more intensively herded during winter. The winter population is regularly around 225,000 (±50,000). Grazing resources are managed by 51 herding communities, known as "Saami villages." A growing strain on the reindeer industry is caused by national commitments to restore viable populations of brown bear, lynx, wolverine, wolf, and golden eagle. About 1900 Saami are active herding reindeer owners. Reindeer husbandry faces possible marginalization because, if reckoned only according to market values, productivity and profitability are low (Danell 2000, 111–115).

The current conditions of the Saami highlight some of the problems for the viability of reindeer herding in modern society. Nonpastoral encroachment replaces pastoral expansion. In Sweden, there is a race between the cost of living and the price of reindeer meat in which the former is winning (Beach 1983, 15).

Reindeer herding in the Eurasian North has encountered obvious problems in adapting to the modern market economy. The modern economy is not inclined to value such notions as "ethnic identity" or "symbolic value." However, in both Fennoscandia and Siberia, reindeer herding shelters ethnic heritages and human values. In Sweden, reindeer husbandry provides the principal refuge for the Saami language (Danell 2000, 113–114). In the Khanty-Mansi area, "a reindeer" recently became a banner for the Indigenous minorities movement against devastating industrial developments.

Conflicts between the traditional economy and modern industry often occur on issues of land use. From 1978 to 1989, the area of pasture lands in the Nenets Autonomous Region was reduced by six per cent because of the uncontrolled use of cross-country transport and geological surveys (Andreeva 1999, 38–39). On the Kola Peninsula, industrial pollution of pastures is a severe problem in the vicinity of mines and smelting-works, especially the Nikel, Zapoliarnyy and Monchegorsk plants (Dallmann 1997, 64).

A number of ecological factors are threats or possible threats to lands, pastures, and Indigenous subsistence. These include:

1. oil and gas developments and their associated infrastructure;

2. radioactive pollution;

3. pollution from industry and mining activities;

4. loss of pasture lands to other land use, such as forestry, industry, infrastructure, and mining;

5. transportation lines (such as above-ground pipelines) that block the migration routes of domestic reindeer;

6. use and misuse of pasture lands for military purposes;

7. socio-economic reasons that reduce reindeer herds (slaughter for survival, increased predation, etc.); and

8. the increasing wild reindeer population (Dallmann 1997, 84–85).

Land use is a top-priority for reindeer herding. Chaotic reforms in Russia undermined the previous system in which all lands and waters were state (public) property. In fact, the lands in remote northern regions continue to be regulated as limited (restricted) common property with a well-understood allocation of grazing territories and migratory routes. Since their creation in the 1960s, state farms have been the organizing mechanism for reindeer herding. They are responsible for the allocation of migration routes and production, and for marketing and distribution of meat, antler, and other products. The state farms contract with other state-run enterprises for the provision of supplies—fuel, food, housing, tools, ammunition, and so on. Herding households depend on the sovkhoz in large measure as a market for their reindeer (usually in trade for supplies), to pay wages, market their products, and deliver supplies. Economic difficulties in the transition to a market economy in Russia have combined to make the economies of reindeer herding state farms extremely difficult. These problems include:

1. The loss of old markets and failure to develop new markets, resulting in huge surpluses of reindeer meat

2. The crisis of non-payment that has spread to affect the income of state farms

3. A lack of adequate processing facilities

4. A significant drop in prices for polar fox fur on both the domestic and international markets

In the past, the state reindeer farms provided meat, skins, boots, and fur to other state enterprises and received bread, flour, sugar, tea, vodka or spirits, canvas for tents, wood for tent poles, fuel, and other necessities. This system is breaking down. In the face of crisis conditions, Russian oil, gas, mining,

and other enterprises have offered state farms the option of becoming subsidiaries (Golovnev and Osherenko 1999, 128–129).

In the 1990s, new natural and human-caused changes made conditions more difficult for herders. These changes include climate change and competing uses for pasture land by industry, transportation, new national parks and protected areas and, most importantly, changing systems of rights and rules governing access to and management of land. Destabilization resulting from the change from a centrally managed socialist economy to a capitalist market economy has spread to the Russian North.

The weak economy of Russia, the absence of clear procedures for establishing title to lands traditionally used by minorities, and the lack of unified Indigenous leadership have been obstacles to the recognition of Indigenous people's rights to land in Russia. Nevertheless, in some regions of Russia, minorities have been able to use existing laws to secure partial rights to their lands by establishing "territories of traditional nature use" and increased rights of self-government within family or clan communes (Fondahl 1998).

In the case of Yamal, the lack of control over land and resources makes it difficult for Nenets to address the two biggest threats to their livelihood: overgrazing of pastureland, and gas and oil development. Guaranteeing Indigenous people property rights to land in Northwest Siberia would not likely result in the termination of extractive resource development, but would more likely lead to the creation of mixed economies in which some of the revenues generated by development could be used to capitalize the herding economy and help secure the futures of both the nomadic and settled populations. At the same time, herders would likely seek environmental precautions to preserve the herding-hunting complex.

Overgrazing of pastures presents an imminent threat to herding cultures, though, as Ivar Bjørklund (1990) noted concerning Finnmark, overgrazing has been much exaggerated by biologists and administrators. Herders try to increase their private herds to fulfil their perceived needs. Government land managers, environmentalists, and scientists, fearing a crisis, are tempted to follow the usual course of outsiders and insist on rules and regulations to reduce the herds. A better way might be to allow the herders to use their own systems of management and decision-making to address the issue of overgrazing. Acute overgrazing in areas close to slaughter houses and processing facilities might be reduced. Increased numbers of small trading or supply posts would promote the redistribution of herds on Yamal and could reduce herd size. Allowing and encouraging the herders to actually participate in solutions is more likely to succeed than rules imposed from outside (Golovnev and Osherenko 1999, 145–146).

In 1996, the prospects for gas development on Yamal dimmed. The number of gas and oil workers dropped from thousands to hundreds. For herders, this marked a return to autonomy and a chance for survival. The loss of transport, communication, and supply lines created hardship for the whole population of Yamal, but for the Nenets, the withdrawal of oil and gas enterprises provided a reprieve. These difficult conditions may well strengthen the herding culture (Golovnev and Osherenko 1999, 147).

In Conclusion: A View from the End of the Land

Enormous gas fields and vast reindeer pastures are realities of the Yamal Peninsula. A new tide of oil and gas development seems inevitable as regional authorities discuss the practical needs and ask for environmental and social studies. Gasprom and Lukoil, the most powerful Russian oil and gas corporations, are ready for the start. In the other corner of arena is the mightiest reindeer herding community in Russia, the Yamal Nenets.

This seems to be a meeting of two opposing realities, globalization and traditionalism. “Yamal” in Nenets means “The end of the land,” and for nomads the name also symbolizes “the last land.” Historically, Nenets have experienced extraordinary troubles, but always found an escape. And always relied on their reindeer.

What else might strengthen the nomads’ position? Ingold (1978, 122–123) calls to replace the present system, which “tends to pit reindeer men against each other,” with a system of “associational management” among reindeer herder-owners, based on the experience of Finnish *paliskunta* (husbandry units). Indeed, “the fierce economic individualism of traditional pastoralism” drastically limits the herders’ social opportunities. A Nenets proverb says, “We have too large antlers, they balk our life.” The proverb compares Nenets individualism with the antlers of reindeer that make it difficult for reindeer to work together when in harness (Golovnev 1995, 576).

Industry is quite mutually supportive. For example, the World Bank and the European Bank for Reconstruction and Development have focussed primarily on revitalization of the Russian oil and gas industry to improve the Russian economy. Little effort has been made to approach the problem of revitalization of the Russian economy from more local or regional approaches. The health of small-scale economies that depend on renewable resources has been considered only insofar as Bank policies require studies of the social, cultural, and environmental impacts of proposed projects on local, and especially Indigenous, peoples. Protection of reindeer herding, fishing, and hunting economies of Northern populations is viewed as a nuisance to progress toward

revitalization of the dominant industry—oil and gas (Golovnev and Osherenko 1999, 137).

Today, reindeer herding units (Saami *sii'da* or Nenets *ngysy*) can deal from a position of strength if they have an adequate herding or Indigenous association behind them. The Saami Council, Russia's Association of the Indigenous Peoples of the North, the World Council of Indigenous Peoples, the International Labour Organization, and the Arctic Council are able to provide cultural, political, and economic strategies.

Study Questions

1. Describe the main types of traditional, pre-industrial subsistence economies in the North.

2. Discuss the various historical stages of reindeer herding.

3. Compare the development of reindeer husbandry in the twentieth century in Fennoscandia to that in Russia.

4. Compare contemporary challenges to reindeer herding in Russia and Fennoscandia.

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