

## **Methods of Collective Hunting for Large Ungulates among Tribes of Northern Asia in Archaeology and Ethnography**

Oleg Kardash

*Institute for Archaeology of the North, Russia*

Ekaterina Girchenko

*Institute of Archaeology and Ethnography, Russia*

### **ABSTRACT**

Since ancient times in the far north of Asia, herds of wild reindeer have made annual meridional seasonal migrations. According to archaeozoology, large ungulates (reindeer and elk) were the main food species for the indigenous peoples of Northern Siberia. Plentiful food resources and a lack of raw materials for hunting tools led to the formation of a newly developed system of collective hunting based on seasonal migration, landscapes, and biocenosis. This paper covers several methods of collective hunting known from archaeology and ethnography, collected by the authors during investigations in the Khanty-Mansi Autonomous Okrug-Yugra and the Yamal-Nenets Autonomous Okrug in the north of the West Siberian Plain.

Trap-pit systems, which are being found nowadays in large quantities, are the result of collective efforts that led to the evolution of more complex ancient social structures. Collective work, even in the appropriating forms of the economy, was more effective than the outcomes of individual hunting. An indirect confirmation of the development of the social structure of hunters and gatherers in the north of Western Siberia is the number of settlements and dwellings functioning there, which reached their peak in the Middle Ages, following which they started to decline with the emergence of individual hunting.

### **INTRODUCTION**

The durability and constancy of indigenous peoples' traditions in the north of Siberia allow us to reconstruct their traditional way of life over a relatively broad chronological period from the middle of the 7<sup>th</sup> to the 6<sup>th</sup> millennium BC until the middle of the 20<sup>th</sup> century. Such a wide range can be explained by the stability of natural conditions in the taiga region of Western Siberia, a stable biocenosis, and stable results from hunting, leading to the constancy of the main economic activities: hunting, fishing, and gathering. In these natural conditions, agriculture could not be developed (there are only some examples of gardening), so these

three activities comprised the main source of food.

In this region, deer breeding did not serve as a food resource since stable, effective hunting meant there was no threat of starvation. Domesticated reindeer were only used for transport, and each community had no more than 10 to 15 reindeer. The main food species, according to archaeozoology, were large ungulates, namely reindeer and elk (Alekseenko 1967: 37). The most effective ways to hunt for herd animals were passive hunting with the use of trap-pit systems or paddock hunting with leather net traps. Both forms of hunting were based on the animals' natural seasonal migration patterns. Hunting for other animals was for either ritual or trade purposes. To date, no single archaeological complex of hunters' pits has been fully investigated. Nevertheless, hundreds of them are being found. Among them are examples that could be a good source of information for studying ancient hunting, which was the leading branch of the taiga economy.

## METHODS OF COLLECTIVE HUNTING IN NORTHWEST SIBERIA

Collective hunting, when all the members of an ancient community were somehow involved at different stages, its features, and basic methods are closely linked to the landscape and biocenosis. Due to the necessary geographic conditions, collective hunting is not suitable for all regions, but in the far north of Asia, on the West Siberian Plain, the necessary conditions existed (Figures 1 and 2). Elsewhere, this combination of hunting and fishing and a low level of economy made people almost completely dependent on the mercy of natural changes. Migrations of animals, climatic hardship, or unsuccessful hunting or fishing led to starvation. However, in the north of Western Siberia, thousands of herds of wild reindeer make annual meridional seasonal migrations. Collective hunting twice a year made it possible to obtain a large quantity of food resources that would last a long time, leading to stable conditions for survival.

The Khanty-Mansi Autonomous Okrug-Yugra is located in the central part of the West Siberian Plain, extending approximately 800 km from north to south. The territory is a vast, slightly dissected plain with absolute elevations rarely reaching 200 m above sea level. In the west, spurs and ridges of the Northern and Subpolar Ural mountain system border the Okrug (autonomous area). Within the territory, subzones of the northern, middle, and southern taiga are distinguished, but nearly the entire territory of the district is located in the same natural zone: the middle taiga. Most of the territory is occupied by highly swamped taiga, while 52% is forest. The main rivers are the Ob and its lower tributary the Irtysh. The indigenous peoples are the Khanty, Mansi, Komi, and Nenets. The economic activities of indigenous people who lead a traditional way of life are closely dependent on natural conditions; the primary sources of natural wealth in their settlement areas are forests and rivers. In Yugra, there are approximately 5,800 archaeological sites from the Upper Palaeolithic to the late Middle Ages; about 900



**Figure 1** The West Siberian Plain on a map of Eurasia.



**Figure 2** The north of Western Siberia. Forest tundra. Northern taiga. (Photo taken by O. Kardash)

(15%) of these comprise groups of hunters' trap-pit systems.

Another region, the Yamal-Nenets Okrug, is located in the north of the West Siberian Plain and is bordered on the north by the Kara Sea. The extreme western part of the Okrug, on the left-hand side of the Ob River, borders the eastern slopes of the Polar (Labytnangi, Obskaya, Kharp, and Laborovaya) and Subpolar Urals. This is the region of the far north, with more than half of its territory located above the Arctic Circle. Taiga occupies the south, while forest-tundra and tundra spread across the north. The water resources of the region are rich and diverse and include the Kara Sea coast, as well as numerous bays, rivers, lakes and marshes. There are about 300,000 lakes and 48,000 rivers in the territory, the largest of



**Figure 3** The excavation works on trap pits on Balinskoe 63, Yugra, July 2016. (Photo taken by E. Girchenko)

which is the Ob, as well as the Nadym, Taz, and Pur rivers. The indigenous peoples include the Nenets, Khanty, Komi, and Sepkup. In the Yamal-Nenets Autonomous Okrug, about 550 archaeological sites have been found, of which about 100 are classified as hunters' pits. They are primarily in the forest-tundra zone in the areas adjacent to the borders of Yugra.

These hunting sites in the northern taiga range from the Upper Palaeolithic to the Middle Ages, with most belonging to the Neolithic: the middle of the first millennium AD. Notwithstanding, in the south, on the steppe, such sites do not exist, and are extremely rare in the Russian European northeast, in stark contrast to the massive number of such sites in Siberia. Other than the Siberian region, large numbers of hunting trap pits are only known from the Japanese Archipelago, where the earliest trap-pit systems have been dated up to 40,000 years ago (Sato 2012: 43).

In the north of Western Siberia, there are single trap pits and systems of several such traps, some dug in chains and stretched in a line, and some spread about chaotically (Figure 3). In the Purovsky District of the Yamal-Nenets Autonomous Okrug, there is a large-scale system of trap pits stretching for several kilometres. Not all of them contain the remains of wooden or archaeological material, so it is not always possible to date such pits. Pits are square, cone-shaped, or sub-rectangular in shape, sometimes up to 3 m deep, with an average depth of 1.5 m. The size depends on the hunting object used; most of them are for reindeer, the chief food resource for this territory from the Upper Palaeolithic onwards. Carbonaceous spots or the remains of wooden construction to prevent the sand walls from crumbling downward are sometimes found on the walls and at the



**Figure 4** The wooden construction of trap pits, Kedrovaya 20 archaeological site, Yugra, 2015. (Photo taken by M. Rudkovskaya)



**Figure 5** Reconstruction of building trap pit 1. (Drawing by A. Kuhterin)



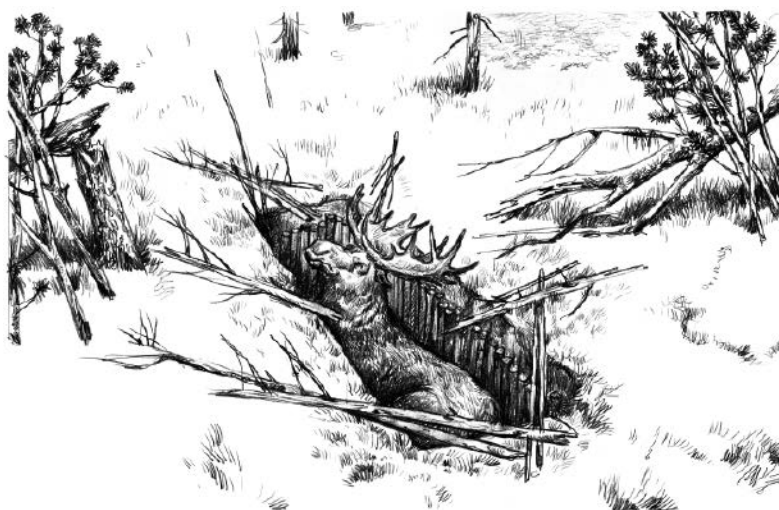


**Figure 6** Reconstruction of building trap pit 2. (Drawing by A. Kuhterin)

bottom (Figures 4 and 5). The bottom of such a pit contains sharpened stakes, while the area above the pit is covered with rods and branches (Figure 6).

The only region that can be compared with Siberian trap-pit systems in terms of scale is the Japanese Archipelago, where trap pits are distributed from Kyushu Island in the west to Tohoku and Hokkaido in the east. The densest distributions are in eastern Japan and along the coast of the Japan Sea. For example, the area of the Jomon Tama-New-Town sites cluster (Tama hill, west Tokyo, and south Kanto district) was also interpreted from the evolution of trap-pit hunting. This is a huge zone where chains of more than 10 pits in a row have been fully investigated. Jomon trap-pit hunting was trap-based, and we can see how in the Middle Jomon period, pits started being combined with fences made of grass, logs, branches, or stone. They were a part of organised communal hunting for game, such as deer and wild boar (Sato 2005: 109; 113).

In addition to trap pits, other methods of collective hunting are known from the ethnography of Siberia. The simplest (and probably the oldest) was a *pokolka* or *pokolyuga* (from the word ‘to strike hard’); it did not involve building special barriers, but was practiced in places where the traditional seasonal migration routes of wild deer crossed rivers. When the deer reached the middle of the river, hunters



**Figure 7** Reconstruction of a trap-pit and fence system. (Drawing by A. Kuhterin)

in light boats emerged from shelters and surrounded the herd, trying to make the deer swim upstream. While crossing the river, the swimming deer were practically helpless, and were killed in large numbers with spears or axes. Women and inexperienced hunters remained on the shore and did not allow the deer to escape from the water. The deer's thick wool and hollow hairs filled with air meant that the carcasses did not sink; they were towed on ropes and butchered ashore. This hunting technique could kill several hundred animals in a single day (Levin ed. 1956: 650).

The third type of collective hunting method has been recorded since the 7<sup>th</sup> century. Oral ethnographic evidence indicates that there was a technique of building some sort of fence on animal paths, within which there were carefully masked passages with hunters' pits, as well as special noise-making devices that would frighten the animals and force them in the right direction. The fences could be from 6 to 20 km long, and the passages were every 100 to 200 m. Sometimes hunters built two parallel fences several kilometres apart and examined them every 3 to 4 days. The animals fell into narrow and deep pits, at the bottom of which sharpened stakes had been placed (Figure 7). This type of hunting has continued up to the ethnographic present. In autumn, during the ungulates' rutting season, hunters lured deer with decoys, imitating the voice of a male or female. The animal, responding to the voice, was drawn to the hunters. Territorial isolation contributed to the preservation of an archaic culture and way of life for a long time, even up to the 20<sup>th</sup> century (for example, in the Ket or Khanty cultures). This hunting strategy is also known among the Ainu people of Hokkaido, where the seasons for deer hunting are spring and autumn. The Ainu engage in deer fence hunting, placing bow traps with poison arrows in the breaks of the fence (Sato

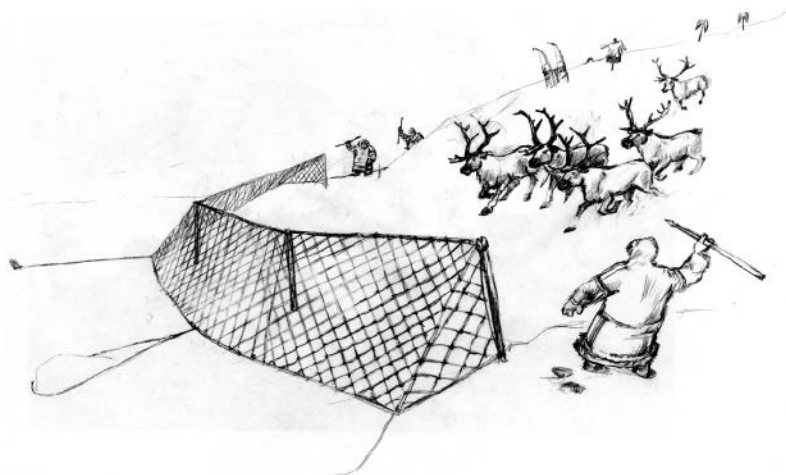
2005: 116; 117). The hunting strategies of Hokkaido and Siberia are thus linked by the same principle: to surround game with obstacles (fences, narrow corridors, etc.) to drive the animal(s) into one place.

In autumn, the Nenets, as well as the Nganasans, Enets, Dolgans, and Orochi, hunted with a domesticated deer, a *manchik*. A belt loop was attached to the horns and the deer was released not far from a herd of wild reindeer. The male (the leader of the herd) came out to meet the *manchik*; they began to fight, grappling with their horns. The belt loop would tighten on the horns of the wild deer, and the hunter could kill it with a gun or a bow. In another case, the hunter, hiding behind a *manchik*, would approach a herd of wild animals and kill a deer from a short distance away. In good years, this hunting method could enable a hunter to kill 15 to 20 deer.

The most recent method is paddock hunting with the help of stationary devices, such as nets on the edge of a shore (Figure 8). The nets were not pulled very tight, and the running deer became entangled in them. Sometimes crossbows were placed on the reindeers' natural migration routes. There were no pits, but there was a system of crossbows triggered when an animal entered the locale (Figure 9). In the ethnographic record, a system of paddock hunting with fences, crossbows, and large leather nets was used from at least the middle of the first millennium AD until the middle of the 20<sup>th</sup> century (Figure 10).

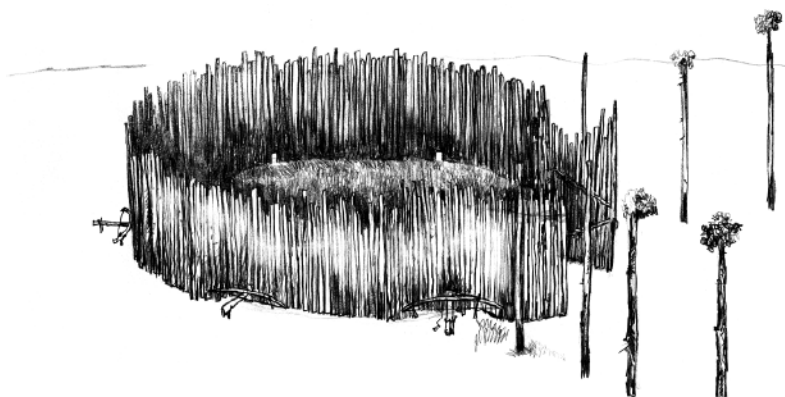
People also hunted for animals with various kinds of traps using loops, nooses, snares—*kulema* or *plashka*. The traps could be stationary and portable, and were often used by several generations of hunters.

Most traps were pressure-based. A *kulema* (or *kulemka*) is used even nowadays, but mainly for fur-bearing animals and birds. It is constructed like a mousetrap and allows a single hunter to capture hundreds of animals per day—with proper

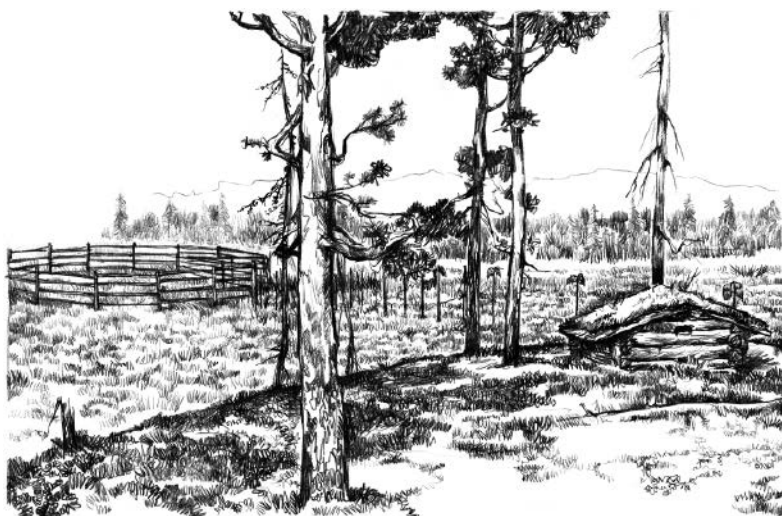


**Figure 8** Corral hunting with the help of nets to catch reindeer along natural migration routes. (Drawing by A. Kuhterin)





**Figure 9** Corral hunting with crossbows to catch reindeer along natural migration routes. (Drawing by A. Kuhterin)



**Figure 10** A hunter watching the reindeer coming from the hunter's hut. (Drawing by A. Kuhterin)

construction and the use of the correct bait, of course. Initially, however, the first *kulemki* were intended for medium-sized (or even large) animals, including bears. For this reason, they were made from entire tree trunks or large hewn branches and placed right in the centre of the forest. A *plashka* is the same type of traps, it is usually made from straight-layered raw or dry logs of coniferous trees (spruce, pine, cedar). A log is being sawn into chocks, which afterwards are carefully split into 4–6 blocks. 2–3 *plashki* can be made from these workpieces. The size depends on which animal the *plashka* is intended to catch. The upper block must have a weight sufficient for the quick death of the animal that has fallen into the trap. The

upper block is held in an alert position by a pair of planks, fastened together by a third piece (tongue), where the bait is strung. The animal takes the bait, pulls the 'tongue', the details of the clue scatter and the upper block presses the prey.

A *past'* ('month') is one of the most ancient traps that is still being used today. Recently it has only been used for small rodents, but in ethnography, there are examples where a *past'* could also catch small ungulates. It consists of a corridor formed by two walls (made with logs, boards, or stakes driven into the ground) and a long log, one end of which rises up when the trap is set. Bait is placed inside the corridor. The animal, drawn by the bait, enters the corridor and dislodges the mechanism. The log falls and kills it. Traps of the same type were also used for large animals, such as bears.

The crossbows were simple or complex bows mounted in a wooden box with a butt (a massive, smoothly planed, semi-circular bar at the bottom), with one or several small grooves in which arrows or wooden (or iron) bolts were placed. They were connected to a long rope laid across the path. The animal touched the rope and triggered the crossbow.

Loops to catch moose, red deer, wild deer, bear, lynx and fox were usually set in snow or in tall grass. The size of the loop depended on the size of the animal. They were made of wide, thick belts made from moose skin, rope, horsehair, and other materials. They must have looked like an elongated ellipse and were usually set above the pathway at the height corresponding with animal's head. It was the best method to catch an animal and not damage the fur. The loops were attached to a *potask* (a log that prevents the animal from moving quickly and escaping from the trap).

## HOW HUNTING COMMUNITIES LIVED

From Neolithic times onwards, small (but economically independent) family groups lived in the tundra, scattered over a large area. The responsibility for procuring food fell on the strongest and the quickest men, while women were responsible for processing the hunters' prey and caring for children. These collectives, judging by the dwellings, led semi-sedentary, seasonal lifestyles. One person or one family could dig out a single trap pit, but there were systems of several dozens of them, meaning that large numbers of people were involved. This implies that as early as the Neolithic, organised hunting groups of several family collectives worked together to dig out extensive systems of hunting pits for large animals (Khlobystin 1972: 32).

The mobile hunting life of tundra aborigines cannot be seen as unsystematic vagrancy. Hunters had to take into account the direction and time of mass migrations of deer (in the autumn to the mainland, in spring to the coast), and needed thorough knowledge of the routes of such migrations in order to choose the most convenient spots for hunting. The importance of taking these circumstances

into account is indicated by the fact that, until recently, changes in the routes of the seasonal migrations of wild deer fundamentally disrupted the rhythm of life of tundra populations, forcing them to move to other places, or even resort to physical attacks on others.

While chasing animals, a group of hunters would try to drive them from open to wooded areas where the snow was deeper, but at the same time not far from camp, in order it was not that far to drag the prey to the place they lived. The number of participants depended on the number of animals being hunted. The fastest, most agile hunter ran first, carrying little; the rest, besides their guns (or bows in earlier times), carried axes for butchering. The hunt could last up to several days. The lagging animal was beaten with a gun (and before, with a bow). If the hunters were not far from camp, and the prey was large, then the women came to butcher the carcasses. The Ainu people also hunt in groups of blood-related relatives, usually male adult kin comprising one to three families (Sato 2005: 117).

The chopped meat was folded separately, covered with branches and skin removed, then gradually dragged onto a hand sled. If there were not enough people (for example, one family was hunting alone), then meat was stored in the forest. A small storage shed was built, under which a fire was built. The meat was cut into small pieces and dried on the floor, while the bones were boiled in a cauldron and the fat melted down.

Among the northern groups living on the edge of the forest tundra, there was a hunting method for wild deer using a shield, under the cover of which the hunter crawled up to within shooting distance of the animal. The term in Russian is *skradyvanuye* (disguise), a way of hunting when a hunter approaches a wild animal so quietly it does not see, hear, or smell the hunter, or at least does not foresee the danger involved. In the north, hunters wore a light reindeer fur parka, and instead of ordinary shoes with a *camus* (skin from the lower shins of animals) shoe toes and woollen bootleg, wore shoes entirely sewn from light-coloured reindeer *camus* to be as inconspicuous as possible in the white snow.

One more specific feature of northern West Siberia is the almost complete absence of stone for making stone tools. Finds of stone tools are rare, and there are few arrowheads from the settlements discovered thus far, with only two or three found in burials. Of course, there were bows and arrows, but stone arrowheads were not widely used. Even bone arrowheads were rare because suitable stone tools were needed to make bone arrowheads in the Stone Age. Hence, individual hunting was likely minimal, there being little evidence for it in the archaeological materials, so collective hunting was more developed and effective. Only with the arrival of the Russians and firearms did the emphasis shift towards individual hunting; by the 19<sup>th</sup> century, collective hunting had more or less faded from traditional culture.

Territorial isolation was the reason for the preservation of biocenosis throughout the entire Holocene. Northern reindeer appeared in the Early Pleistocene, while the

resettlement of Asian tribes to this territory took place in the late Pleistocene–early Holocene from the south. The migrants faced an important adaptation challenge in making individual hunting tools, especially in the absence of flint. Collective hunting had apparently been known before, but in the north, under these unique conditions, this form of hunting was the result of adaptation, and, due to the region's isolation, it continued until the 20<sup>th</sup> century.

The construction of trap-pit systems and their subsequent use came from collective work, leading to more complex social structures developing in ancient society. The results of collective work are more effective than the outcomes of individual hunting. An indirect confirmation of the expansion of social structure among the hunters and gatherers of northern West Siberia is the number of settlements and the number of dwellings functioning at the same time. Separate Mesolithic–early Neolithic settlements usually had up to twelve dwellings, each belonging to a family, which allows us to determine the size of the neighbourhood community as ranging from 96 to 192 people. In the Iron Age, the average number of settlements was the same, rarely reaching fourteen dwellings, giving a maximum population for each of 112 to 222 people. For the far north, this is significant. If the population density was high, there was enough food to feed a great number of people. However, following the shift from collective to individual hunting, the population of settlements decreased, from 8 to 12 people up to a maximum of 38 to 48 people per settlement. By the 18<sup>th</sup> and 19<sup>th</sup> centuries, collective hunting had almost disappeared from traditional culture.

## CONCLUSIONS

Large quantities of food resources and a lack of raw materials for hunting tools led to the formation of a newly developed system of collective hunting based on seasonal migrations, the landscape, and biocenosis, which became specific for this territory. Trap-pit systems could provide large quantities of food on a stable basis; they did not require much labour as the sandy soils were easy to dig, and the processes involved were not complicated. This is an example of hunting groups' adaptation to the landscape of the West Siberian taiga. The results of the study of collective hunting systems allow us to conclude that changes and developments in the structure of the ancient societies of northern West Siberia can be associated with the use of this collective labour in the absence of raw materials (especially stone or metals) in order to acquire food resources. The territory of the Khanty-Mansi Autonomous Okrug is unique in comparison to the adjacent territories, because 5,800 archaeological sites have been found there. The size of the population here—twice that of neighbouring territories and stable for thousands of years—can be explained by the specific hunting methods adopted in response to their environment.

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