

## River crossings as principal points of human/reindeer relationship in Eurasia

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*Abstract:* Since prehistoric time, indigenous peoples throughout Eurasia have hunted reindeer from boats when the animals were swimming across rivers. A number of landscape peculiarities and reindeer behavior features determine the phenomena of mass reindeer river crossings at a few points. Hunting at river crossings occurs predominantly in the autumn season along migration routes of tundra and forest-tundra populations. In the past, many of the well-known river crossings were in private possession by indigenous families (Anonymous, 1945). In northern Russia, since the 1970s, the reindeer river crossings became the place of commercial slaughter of reindeer. The state hunting husbandry “Taymyrsky” was established, it received licenses for hunting and then totally regulated who was permitted to hunt reindeer and where (Sarkin, 1977). Step by step, most of the indigenous peoples have been forced out of their traditional hunting locations by aggressive non-indigenous newcomers and became unemployed. Large-scale commercial hunting has led to overexploitation and the decline of reindeer populations in Yakutia and Taymyr. The sustainable use of migratory reindeer populations, as well as renaissance of hunting economies, are possible if exclusive use of some of the reindeer river crossings are returned to indigenous communities as their property, with others to be used by urban hunters and commercial enterprises under the improved state regulations and enforcement.

**Key words:** behavior, indigenous people, *Rangifer tarandus*, sustainable use.

**Rangifer**, Special Issue No. 14: 37-40

### Introduction

Since prehistoric time, indigenous peoples throughout Eurasia have known that reindeer use a few river crossings year after year. The fact is that reindeer have used some localities for very long periods. In Taymyr, 8 km from Katyryk settlement on Kheta River (Fig. 1) there is a reindeer river crossing that is said to have been functioning for 3200 years (Khlobystin, 1998). In that place, Khlobystin excavated an ancient settlement, which specialized in reindeer stabbing, at the river crossing. In the past, mass slaughters in river crossings were a significant part of national economies and hunting culture (Khlobystin, 1996). Many well-known crossings were in private possession of some families (Popov, 1948). When reindeer changed their use of crossing points, it led to severe famine and even the perishing of entire settlements (Argentov, 1857; Vdovin, 1965).

In the past thirty years, the large-scale commercial

hunting on river crossings has forced out indigenous hunting husbandry. In Russia we meet urgent problems in the relationship of human and wild reindeer – a strong decline of wild reindeer populations caused crashes of commercial hunting and unemployment of indigenous people because urban hunters and commercial enterprises occupied their economical niche. In this paper, I demonstrate that fidelity of migratory reindeer to the river crossings provides a great possibility of exploitation, management, and study of reindeer populations.

### Stabbings of reindeer on river crossings in the past

Between a great diversity of hunting methods, stabbing reindeer by spears while animals were crossing rivers is well known in the history of indigenous peoples throughout Eurasia (Naumov, 1933; Washburn & Lankaster, 1968; Spiess, 1979). Stabbing at

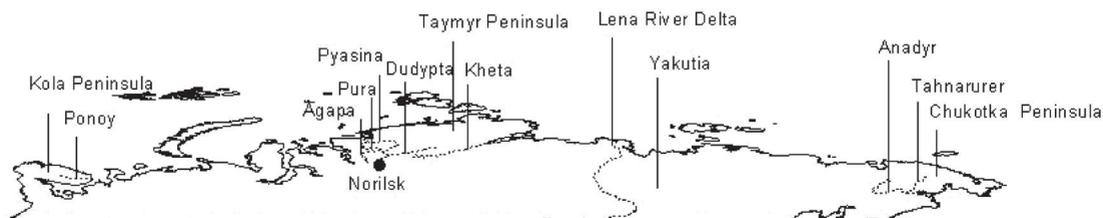


Fig. 1. Khatka river.

river crossings was the only method that provided a sufficient food supply guaranteeing survival of hunter's families over a year. There is much evidence on how productive such hunting was. During a half-hour period, the best hunters could kill up to 70 reindeer using only spears. They stabbed, aiming to damage an animal's liver, which kept the animals strong enough to reach a shore where assistants killed the animals and skinned them. Usually, there were small bands (up to 12 humans), which slaughtered up to 200 animals per a hunt. In fortunate years, each family stored up to 50 carcasses, which was enough to survive through a winter (Popov, 1948; Gurvich, 1982). In the past, many well-known crossings were in possession of indigenous communities. For example, in the basin of Pysina River where later the State hunting husbandry "Taymyrsky" was established right of hunting belonged to a nomadic community of Nganasans. In 1933, it consisted of 75 families from 5 genera, totaling 267 humans (Anonymous, 1945; Baskin, 2002). The family ownership of a crossing was determined by common law (Popov, 1948; Argentov, 1957; Vdovin, 1965).

### Mass reindeer river crossings localities and reindeer behaviour

In the Kola Peninsula and Western Siberia, few localities are known to have reindeer spearing at river crossings during the last centuries. In Chukotka, a well-known place of stabbing reindeer was located at the confluence of the Anadyr and Tahnarurer Rivers (Fig. 1). Starting from the summer grounds, reindeer can select different directions in their southerly migration. In autumn, reindeer herds migrated from the tundra to mountain taiga, and hunters were on the lookout for them on the southern bank of Anadyr River. In the past, indigenous communities arranged a reconnaissance, trying to predict directions of reindeer migrations. In Chukotka, mass river crossings of reindeer were known not only in tundra and forest-tundra but also

in the taiga regions. Autumn migrations were the only suitable time for hunting on river crossings because in spring reindeer often crossed the rivers along ice (Argentov, 1857).

In Yakutia, the well-known places of reindeer river crossings are located along the Oleneksкая Protoka Channel, a western branch of the Lena River Delta (Fig. 1). The reindeer population spends the summer in the Lena River Delta, where it finds plenty of food, cold winds and absence of insect harassment. In August and September, animals migrate southwest. The western bank is slightly elevated; dozens of hunting teams waited for the animals there.

In Taymyr, 24 locations of reindeer stabbing by indigenous people were situated along the Pyasina River and its tributaries (Fig. 1) (Popov, 1948). The mass river crossings of reindeer occupy fairly long parts of the river. For example, in modern days when commercial slaughtering is arranged, hunting teams occupy 10-20 km along the river, using observers that signal by radio about an approaching reindeer group and then use motor boats to the points where hunt can be organized (Sarkin, 1977). Obviously, past hunters used canoes and needed to recognize the places of reindeer-river crossing more precisely so as to be in the good place at the right time.

Other behavioral details are also very important for hunting success. Reindeer are very vulnerable in water. Although their speed in water is about 5.5 km/hour (Michurin, 1965) humans on light boats were able to reach the animals. Then, the hunters circled around a herd to keep animals together in solid mass and prevent their escape after a leader. Even in modern times, hunters using motorboats and rifles are able to kill a maximum of 70% of the animals of the group crossing the river.

Reindeer are often not able to see more than 200 m, especially in foggy conditions, and hence, cannot see the hunters and boats on the other side of the river. However, hunters use different precautions not to disturb the reindeer before they are in water and have reached the middle of the river. Humans must keep absolute silence, hide themselves and their

boats. Special attention is taken for leaders of reindeer herds. Human experience confirms that if the leader of a herd is not disturbed, nor its group, the next groups will follow behind to cross the river without disturbance; if a leader has started to cross a river, the other animals will follow it in spite of danger (Savelev, 1977).

### Commercial slaughtering

In the past thirty years, large-scale commercial slaughtering on river crossings has replaced indigenous hunting (Sarkin, 1977; Zabrodin & Pavlov, 1983). In that time, indigenous peoples using the crossings were based only on common law that was not recognized by the authorities. Since the State-hunting husbandry "Taymyrsky" was established, it had received the hunting grounds including the crossings, to conduct its activities. The local indigenous people were involved in the harvest as hunters but soon were pushed out by newcomers because the harvest was very profitable. In Yakutia since the 1970s, commercial hunting has been arranged at crossings and hunters-butchers have even tried to use electrical shock method. Hunters have stretched a wire connected with engine to kill reindeer by electricity when they came out from water. During last years, the migratory population declined drastically. The size of this herd has fallen to 800 animals (Safronov *et al.*, 1999).

In Taymyr up to the 1960s, indigenous people practiced subsistence hunting on river crossings. However, before the 1970s, Russian hunting regulations banned hunting on river crossings because animals in this position were considered extremely vulnerable. Since the 1960s, scientists have recognized a great increase of reindeer numbers in Taymyr. When the question was raised on how to arrange the most productive hunting, scientists proposed the use an ancient method of slaughtering at river crossings. Since 1970, the ban on slaughtering at river crossings has been canceled. The Taymyr State Game Husbandry Department was established. Up to 500 hunters participated in the slaughters. Practically, all appropriate locations of crossings on the Pyasina River and its tributaries Dudypta, Agapa, Pura (Fig. 1) have been occupied by hunters. The Pyasina River is a good waterway from an industrial zone of Norilsk. A ship-refrigerator was used to collect the meat. During 25 years, about 1.5 million of reindeer were harvested there (Pavlov *et al.*, 1993). In 1993, as reindeer did not return to these river crossings, a crash in hunting husbandry was observed. In later years the harvest has declined to 15 000 per year.

### Management and conservation

In recent years in northern Russia, a market for venison and river crossing hunting has been revived. In mining settlements, the cost of venison is 2.5 US\$ per kg, which makes commercial hunting profitable. A significant demand for velvet antlers also exists. However, northern Russia's present conditions: no roads and only a few settlements, makes hunting at reindeer river crossings a reliable and productive method of the economy.

The concentration of hunter's interest around a few localities gives a chance to improve management of the reindeer harvest. There is a responsibility to protect rights of indigenous hunters as a means of ensuring their livelihood. Because they are not able to compete with urban hunters, the only way is to return a few of reindeer river crossings as communal property to groups of indigenous hunters. At present, indigenous hunters only practice subsistence hunting. Becoming owners of the river crossings may revive commercial hunting. Several large industrial companies have expressed a readiness to support indigenous people in this endeavor and assist these hunters in transportation of their products to towns and mining settlements.

A portion of river crossings will be opened to other people from towns and for other commercial hunting operations. However, it is necessary to develop regulations to avoid large impacts on reindeer populations and migratory routes.

One proposed approach to protecting reindeer populations from over-exploitation is to establish hunting regulations that limits hunting to certain days in the week. Some reindeer-river crossings have been used for hundreds of years and are good candidates for protection.

### Acknowledgements

This work was supported by the Program of Bio-resources studies of the Russian Academy of Sciences. Three anonymous reviewers provided comments for this paper.

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