

Number of wild and domestic reindeer in Russia in the late 20th century

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Abstract: The dynamics of wild and tame reindeer populations in Russia during 1991-99 are described. Causes of declining numbers during this period are suggested and comparison is made with population fluctuations in the past.

Key words: population status, *Rangifer tarandus*.

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Introduction

During 1991–99, there was a crisis in management of wild and tame reindeer in Russia and wide spread over-exploitation of their populations. This was connected with a general breakdown of socio-economics conditions following the dissolution of the Soviet Union. Both hunting harvest from wild reindeer and from reindeer husbandry lost state financial support for management. Humans of the Russian North suffered from malnutrition and practiced unrestricted hunting of wild reindeer as well as uncontrolled slaughtering of tame reindeer.

After 1991, the system of collecting information on wild and domestic reindeer was discontinued for lack of funds. In some areas, however, due to the enthusiasm of a few scientists, expert estimations, at least, were provided. Not until 2000, did the state provide significant funding to enable aerial surveys of reindeer to be conducted.

The aim of this paper is to present information on dynamics of numbers of wild and domestic reindeer in Russia during the last decade of the 20th

century. A comparison of these data is made with the wild and domestic reindeer population peaks in 1970s and 80s, as well as with the situation in recent years. Suggested causes of the changes in numbers are discussed.

Methods

Winter counting of reindeer tracks is a regular practice in Russia. Officers of each regional hunting management district conduct counts of tracks on snow and send reports to regional and Russian National authorities. Using a formula for collating these data (Baskin & Lebedeva, 1987; Lomanov, 2002), reindeer density and general numbers are calculated in each region. This method has shortcomings because of inadequate coverage of all areas and non-uniform distribution of reindeer. However the data are useful for following general trends of numbers.

Aerial surveys are the main source of data on reindeer numbers in Russia. Three aerial survey methods have been used. The first involves animal

counting on routes with use of fixed-wing aircraft when small groups of reindeer are sparsely distributed but plainly visible in a large region. It has been used in the surveys conducted by the National authority (Tsentrkhokontrol) that is responsible for game animal counting (Novikov, 1996a; Paponov, 2000; Lomanov, 2002). The second method was used to count reindeer gathered in wintering grounds. This method was used mostly in mountain areas of Evenki Okrug, Khabarovsk Kray, and other regions where winter gatherings are in elevated forestless mountain valleys. This method is only suitable for following general trends of reindeer populations.

The third method was developed in Taymyr (Pavlov *et al.*, 1976; Kolpashchikov, 2000). These aerial survey or censuses take place in the hottest period of summer (in the last days of July – the first days of August) when reindeer under insect harassment gather in herds of hundreds and thousands. The scientists attempt to enlarge reindeer concentrations by circling around the herds in airplanes. In 1970–80s, they photographed these gatherings and later counted animals on the photos. When the animals were in the very large aggregations significant mistakes could occur. It was often not possible to determine whether the same reindeer had been photographed more than once. The scientists used fixed-wing aircraft having a turning radius of about 1.5 km. Prior to 2003, the scientists had no GPS and determined the position of gatherings by eye. During the 1990s, the size of herds was determined only by visual estimation from the aircraft, which could lead to serious errors in the estimates.

During 2000–03, two methods (survey along a route and photographing of reindeer gatherings) were used in Taymyr. In the extremely hot summer of 2000, Yakushkin and Kolpashchikov found extremely large reindeer aggregations of 85 000 to 450 000 (Yakushkin *et al.*, 2001; Kolpashchikov *et al.*, 2003). Total number of reindeer in Taymyr was estimated as 1 050 000 reindeer. The scientists determined the gathering sizes by eye; they flew only 28 hours (7 hours directly for the survey and 21 hours to locate the animals); they did not photograph the gatherings. In 2001, Lomanov and his collaborators (Tikhonov *et al.*, 2003) conducted a new survey. Summer in that year was cold and maximum aggregations did not exceed 3000 animals. Lomanov's

team counted reindeer along flight routes, used GPS, and flew 150 hours. They estimated the total number of reindeer as 354 000. In the summer of 2003, Lomanov, Kolpashchikov, and Yakushkin jointly conducted the survey. They attempted to compare visual estimations with counting on photos of the same reindeer groups (I. Lomanov, pers. comm.). They found that Lomanov overestimated the size of groups by 1.3 times, Yakushkin by 2.5 times, and Kolpashchikov by 3–5 times. According to Lomanov and Yakushkin (pers. comm.), in 2003 the total number of reindeer in Taymyr was estimated at not more than 400 000. Therefore, the previous estimate of 1 000 000 reindeer in Taymyr (Yakushkin *et al.*, 2001; Kolpashchikov *et al.*, 2003) is not considered acceptable.

Data on tame reindeer is based on information from state, cooperative and private farms. In the past, twice a year all animals were counted through corraling, and these data were considered correct. However, during 1991–2000 counting of tame reindeer took place irregularly. Numerous private farms have not had the incentive to present accurate information. More recently, increased reporting of numbers of tame reindeer numbers is occurring. However, during the last few years farms and private herders received money on the basis of the number of their reindeer, thus they benefit financially from providing inflated numbers in their herds.

Island populations

In the 1990s, the personnel numbers of military, border and meteorological stations, and geological parties in the arctic zone of Russia have decreased. Accordingly, hunting pressure on the arctic populations of reindeer also decreased. In the Novaya Zemlya Archipelago the reindeer population increased from about 10 thousand to 15 thousand. Reindeer were found in both the northern and southern islands. Population density fluctuated from 1.1 to 3.4 animals per km², up to 18.7 animals per km² (Tikhonov & Khakhin, 2003).

In the Novosibirskie Islands, surveys have not been conducted since 1981. There is information on migrations of the reindeer from the islands to the mainland in late autumn for wintering that has provided evidence of significantly large size of the island population. During population lows the migrations ceased.

Feral reindeer on Wrangel Island have maintained stable numbers during the last 20 years, and there are about 3000 reindeer there. Harvest from this population was stopped in 1993. There is no apparent management plan for regulation of the population (Baskin & Danell, 2003). There are 900 feral reindeer on the Komandorskie Archipelago. This population died out twice (in 1917 and 1955) and was reestablished in 1927, and again in 1984 when a hundred tame animals were released (Abolitz, 1987; Voropanov *et al.*, 2003).

On Sakhalin Island there are 3500 wild reindeer compared with 6000 in 1992, and 4400 in 1986 (Ermin, 2003). Industrial development of the island is progressing as well as human impact on reindeer pastures. However, the northern part of the island continues to be of limited accessibility by hunters because of the absence of roads, the rugged relief, and extensive area of swamps.

European part of Russia

In all regions of European Russia, with the exclusion of the Kola Peninsula, the distributional range and numbers of wild reindeer have declined (Fig. 1). In the Kola Peninsula, tame reindeer, being less alert and more available than the wild reindeer, have been the target for hunters, reducing hunting pressure on wild reindeer (Makarova & Khokhlov, 1985). In all regions of the European Russian

North, the former extensive range of wild reindeer has been fractured into smaller segments. Reindeer survived in areas more remote from human populated localities. Migrations of Arkhangelsk reindeer from the taiga to the tundra have ceased. The forest-tundra population (2000 animals) that existed to the south of the Nenets reindeer husbandry area has almost become extinct (Ermolaev *et al.*, 2003; Korepanov *et al.*, 2003).

Taiga regions of Siberia

In Western Siberia (Khanty-Mansi Okrug, Tyumen oblast, Tomsk oblast) causes of the strong decline of wild reindeer populations are particularly obvious. These areas include the main centers of the oil and gas industry of the Russian North. They are full of workers, oil drill rigs, and thousands of snow machines that are used to travel in the area by the seismic geologists (Novikov, 1996b; Fertikov *et al.*, 2003). In other parts of Siberia hunting pressure is not significant. Reported decline in numbers of wild reindeer in the taiga of Evenki Okrug and Yakut Republic (Fig. 2) can be explained by mistakes in the aerial survey estimates. There are no suitable localities (as, for example, river-crossings) for effective commercial reindeer hunting, and transportation of reindeer meat over the distances involved is too expensive. The limited harvest of animals is by the few local hunters present in the region.

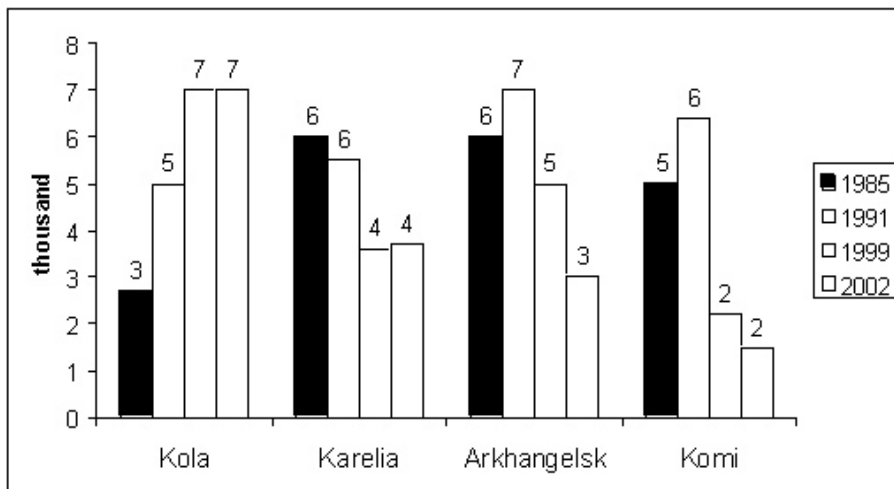


Fig. 1. Wild reindeer numbers in European Russia regions (Makarova & Khokhlov, 1985; Novikov, 1996a; Paponov, 2000; Ermolaev *et al.*, 2003; Korepanov *et al.*, 2003).

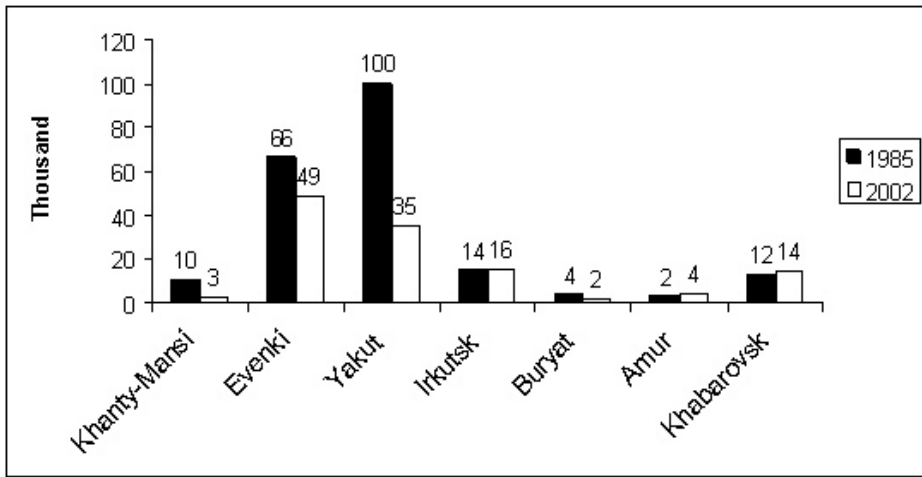


Fig. 2. Wild reindeer numbers in taiga regions (Syroechkovsky, 1986; Novikov, 1996b; Paponov, 2000; Fertikov *et al.*, 2003).

Tundra regions of Siberia

According to the last aerial survey, in Taymyr there are about 350 000 wild reindeer. The controversy over the accuracy of the survey methods (see above) required reconsideration of all statistics on the dynamics of the Taymyr reindeer populations since the 1970s (Syroechkovsky, 1986; Pavlov *et al.*, 1996). Data on the reindeer harvest in Taymyr Pronyaev (2003) demonstrated that the maximum numbers of the Taymyr reindeer (470 000-550 000) occurred in 1976-80. The commercial slaughtering on river-crossings on the Pyasina River and its tributaries (Baskin, 2003) essentially eliminated the largest segment of the Taymyr population that had migrated from Western Putorany Mountains to the tundra of Western Taymyr.

In Yakutia the Lena – Olenek population increased from 77 000 in 1990 to 90 000 in 2000. The probable cause of the increase was the cessation of commercial hunting on the Olenekskaya Protoka channel that is a western branch of the Lena River delta. The Yana – Indigirka population declined from 130 000 in 1987, to 101 000 in 1991, and to 42 000 in 2000. The main cause of decline was unlimited hunting of migrating females in spring. The Sudrun population declined from 39 000 in 1993 to 30 000 in 2000 (Safronov *et al.*, 1999; Popov, 2003). In the mid-1990s harvest of tundra reindeer reached 45 000, which was about 25% of total numbers.

Chukotka, Kamchatka

Numbers of Chukotka reindeer changed from about 15 000 in 1987 to 159 000 in 1999, and to 120 000 in 2002 (Paponov, 2000; Fertikov *et al.*, 2003). The increase of wild reindeer numbers is connected with a precipitous decline of tame reindeer from about 490 000 in 1991 to 121 000 in 1999. Observations of migrations of wild reindeer were begun during the latter part of the decline, showing that the migratory reindeer at times took with them the tame reindeer. An interview by the author with S. Shcherbakov, a leader of the Evens community, characterizes the situation. He explained that the community occupies the Pezhenka River basin in Chukotka. Seven men and their families, totaling 30 humans roam within the river basin. While two-three men herd tame reindeer on the mountains above tree line, others are fishing, trapping fur-bearing animals, and hunting moose, snow sheep, and brown bear. On one day in April, 2002 wild reindeer appeared in large numbers in the mountains. During three days large herds of wild reindeer moved through the Pezhenka basin, taking with them tame animals. Of the 3200 tame reindeer belonging to the community only 292 remained.

In Kamchatka the number of wild reindeer has remained stable at about 5000 since 1991 (Novikov, 1996a; Paponov, 2000). These are, however, “expert” estimations, since aerial surveys in the complex environment of Kamchatka are not possible.

Southern Siberian Mountains

In the Altai and Sayany Mountains only remnants of wild reindeer populations have survived, with 700 in Altai and 350 in Sayany. These reindeer have survived only in the high mountains or in nature reserves (Paponov, 2000; Fertikov *et al.*, 2003).

Reindeer husbandry

During 1991-99, the numbers of animals in tame reindeer husbandry were stable or increasing in Nenetsk Okrug and Yamal (Fig. 3). The large gas and oil companies in these areas provided sufficient financial support for transport, fuel for snow machines, and other goods. The staff of the companies utilized meat from the production of reindeer husbandry. In Yamal, numbers of reindeer increased so much that over-exploitation of pastures occurred.

lost significance since the 1960s. In the 1970s and 1980s, meat production developed in only a few areas of Yakutia (Baskin, 1989). In the Buryat Republic, Evenki Okrug, and Tuva Republic reindeer husbandry declined and almost ceased after 1991. Modern aims of taiga reindeer husbandry emphasize skin production, transport, sport, and tourism. The state and industrial companies support reindeer husbandry to conserve national cultures. They brought 600 tame reindeer from Yamal and moved them to Evenki Okrug. Similar translocations of reindeer are planned for Yakutia and Chukotka.

Conclusion

According to official data, in the 1990s the numbers of wild reindeer in Russia fluctuated around 1 million, with 1 005 000 in 1990, 972 000 in 1995, 1 232

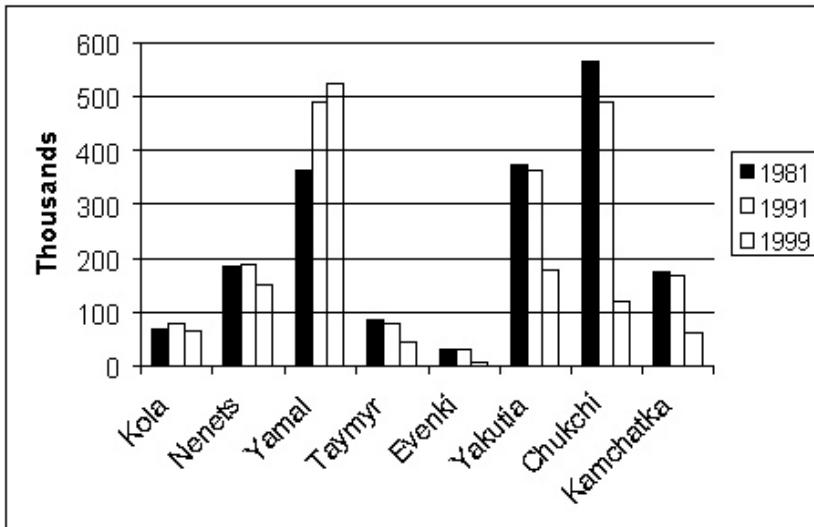


Fig. 3. Tame reindeer numbers in regions of the Russian Federation (Baskin, 1989; Syroechkovsky, 2001).

Tame reindeer numbers in Yamal increased twice to approach carrying capacity of pastures (Jernsletten & Klovok, 2002).

Reindeer husbandry in Yakutia and Chukotka has declined markedly in recent decades. Only after financial support was received in 1998 did recovery of the reindeer begin. Authorities not only delivered goods and arranged transport and communication, they started to pay about 500-600 rubles per reindeer (about 17-20 USD).

In the taiga areas, reindeer husbandry almost ceased. Traditional transport use of tame reindeer

000 in 1999, and 881 000 in 2002 (Novikov, 1996a; Paponov, 2000; Fertikov *et al.*, 2003). Fluctuations of total reindeer numbers depend to a large extent on the different estimations of the size of the Taymyr population. They, therefore, do not reflect real status changes in different regions. The total numbers of tame reindeer declined from 2.5 million in 1969 to 2.3 million in 1991, and to 1.2 million in 2001 (Jernsletten & Klovok, 2002).

In Russia, the period of 1991-99 included major socio-economic transformations. In many regions, the impact of these changes on reindeer husbandry

was destructive. Only since 1999 has stabilization and even improvement of the situation become apparent. Wild reindeer populations, however, were found to be less sensitive to human influence, mostly because of the vast territory of pasture grounds they occupy, the sparse human population in these regions, and the poorly equipped hunters there with inadequate transport and restricted availability of fuel.

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