

HISTORY AND STATUS OF MOOSE IN THE ROSTOV REGION, RUSSIA

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ABSTRACT: Moose (*Alces alces*) disappeared from the Rostov region in the 19th century due to agricultural development, hunting, and deforestation. They reappeared in the second half of the 20th century due to broad conservation measures including intensive forest management, and by the 1970s numbered >1000 and were found throughout the region. Although hunting was regulated, the population became stagnant in the 1980s presumably from trophy hunting that skewed the sex and age structure, as well as measurable wolf (*Canis lupus*) predation. Political reform in the 1990s further caused population decline due to increased and less regulated hunting, increased poaching without punishment, reduced predator control, decline in forest management, and large forest fires. Currently the population is at a 50-year low and occupies 1/3 of its range in the 1980s. Moose are no longer considered a commercial species, rather a species of concern.

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Historically, moose (*Alces alces*) inhabited the flood plain forests and small forested steppe ravines in the territory of the modern Rostov region. Moose occupied this region in the 17th and 18th centuries into the early 19th century; in the 1660s moose were so common in the Don River region that hides were a major export product to the Muscovy (i.e., Moscow state; Kirikov 1959). Moose gradually disappeared from the Lower Don area in the 19th century due to intensive agricultural development, hunting, deforestation, and increasing populations of boar (*Sus scrofa L.*), red deer (*Cervus elaphus L.*), and roe deer (*Capreolus capreolus L.*).

Moose reappeared in the Rostov region in the second half of the 20th century, in large part, to broad conservation measures. Since the middle of the 20th century the steppes experienced extensive reforestation, largely due to establishment of pine (*Pinus spp.*) plantations. For example, the area of state forest nearly doubled to >1.8 million ha from 1947 to 1975, with the peak activity

in the Rostov region during the 1970s. Pine plantations provide basic moose forage for about 10 years. Further, in 1967-2005, >2.2 million ha of forest were protected including >1.2 million ha of forest shelter belts. This region currently consists of a dense, connected network of forests and forest belts that provide moose optimal shelter, forage, mobility, and population distribution.

The moose population also responded positively to concurrent, intensive agricultural activity in the region during the 1970s. The primary horticultural emphasis was on apple (*Malus spp.*) production that also provided moose an additional forage resource. Moose gradually expanded southward inhabiting riparian habitat of the Don River and steppes, and utilizing new forages including sunflower (*Helianthus annuus*) tops and heads of reed (*Phragmites australis*). During and after their spring, summer, and autumn dispersal, moose occupy a wide range of forest habitat and agricultural areas, particularly farms with tall-stalked crops (i.e., sunflower and corn).

Another effective form of conservation was the maintenance of strictly protected natural areas, including State game parks that preclude hunting of rare and endangered species. Since the 1960s the number of State game parks has increased annually with the main objective of protecting wild ungulates. By 1982 there were 21 regional and 1 national wildlife reserves in the Don River area; the Rostov State Forest and Hunting Facility is being established currently. Additionally, in the 1950-80s many measures were implemented to improve the distribution and size of game animal populations including harvest strategies and regulations, establishment of various hunting facilities, and improved protection, forage/forest management, and biotechnical methods and strategies.

Moose populations were also enhanced through predation control. Wolves (*Canis lupus*) have been killed regularly throughout the region for a number of reasons including

compensation to the Gosstrakh, the dynasties of wolf-hunters living in the region (Fig. 1). Wolf reduction via helicopter gunning was arranged with aerotaxation on helicopters for the direct purpose of exterminating wolves. The wolf population is minimal because about 70-80% of the professional wolf kill occurs at dens.

An effective regulatory system for controlling moose hunting is the Glavokhota–RSFSR, legislation that provides criminal liability for shooting of moose. Further, personal access to rifles/weapons was minimal as only certain people were allowed such weapons in their possession. Widespread educational efforts in schools and universities in the 1970-80s focused on conservation and ecological concepts to promote such appreciation in society. Thus, a multitude of factors had positive influence on the appearance, distribution, and increase of moose in the Don River region.

Natural recruitment of moose in the Rostov region began in the late 1960s although the first report of moose was recorded in 1950 in the Veshenskiy area of the Voronezh region (Fertikov 1975). Afterward moose regularly entered the Don River area from Ukraine through forests alongside the Seversky Donets. In 1966, 423 moose were counted in 15 of the 37 regional districts; by 1969 a separate population had inhabited the flood-plain forests of the Don and Seversky Donets. By 1970, >1000 moose inhabited 22 districts, this population expanded to about 1300 in 1972 (Table 1, Fig. 1), and by the end of the decade moose were throughout the region. Moose were seen in the adjacent forest at the outskirts of Rostov, and at the popular city beach. Some crossed the banks of Manych-Gudilo Lake, walking for hundreds of kilometers through the open steppe, rarely entering forest belts.

The dramatic expansion in both number and range of the moose population was evidence that favorable environmental conditions existed in the region. Reproductive analyses in the 1970s confirmed such as 80% of adult

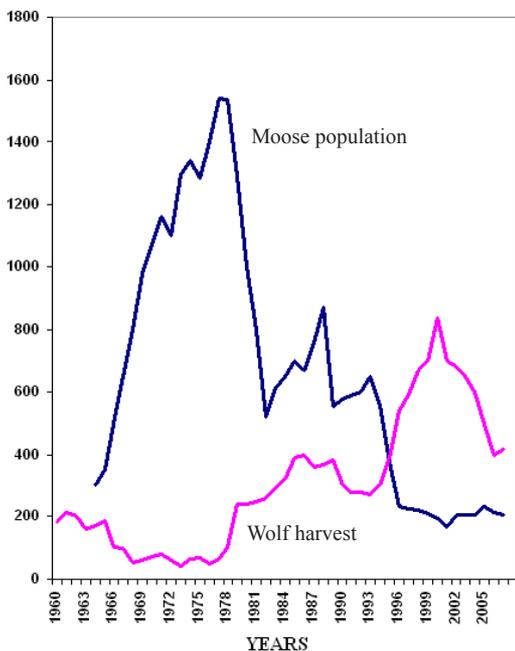


Figure 1. The change and relationship between the moose population and wolf harvest in the Rostov region, 1964-2007; data from the Department of Okhotnadzor of the Federal Service of Ros-selkhoznadzor, Rostov region.

Table 1. Chronological change of the moose population in the Rostov region, Russia, 1964-2008. Data are from the Department of Okhotnadzor of Federal Service Rosselkhozadzor in the Rostov region.

Decade	Population (min-max)	Average population/yr	Year of maximum
1964-1969	300-979	597	1969
1970-1979	1075-1540	1301	1977
1980-1989	523-907	692	1980
1990-1999	209-925	439	1990
2000-2008	166-234	232	2005

cows had 2 embryos, and occasionally 3. However, despite intensive population control of wolves, predation loss was estimated as about 100 moose. And, by the 1980s, the population was obviously stagnant and a myriad of influencing factors became starkly evident. The incentive system to harvest and deliver meat to the State encouraged shooting of the largest, most productive individuals. Trophy hunting was in favor, and adult bulls with well-developed antlers were desired and

shot preferentially. The population changed radically from a well-balanced sex and age structure to one predominated by young males and cows, and productivity declined. The regional population declined rapidly and migrations ended from the Volgograd and Voronezh regions (Table 1).

The country-wide crisis in the 1990s had much negative influence on the regional moose population and its management. It caused impoverishment of the human population, reform in the state management system of hunting, cancellation of public hunting inspections, and removal of legal, economical, and other regulatory mechanisms to maintain and manage state-associated hunting facilities. The personnel situation at regional hunting facilities was greatly affected because many experts left and replacements were often without adequate education and experience. Hunters appeared to have easy access to automatic rifles of the SCS type (self-loading carbine of Simonov) with shell types typically used in the armed forces. These weapons

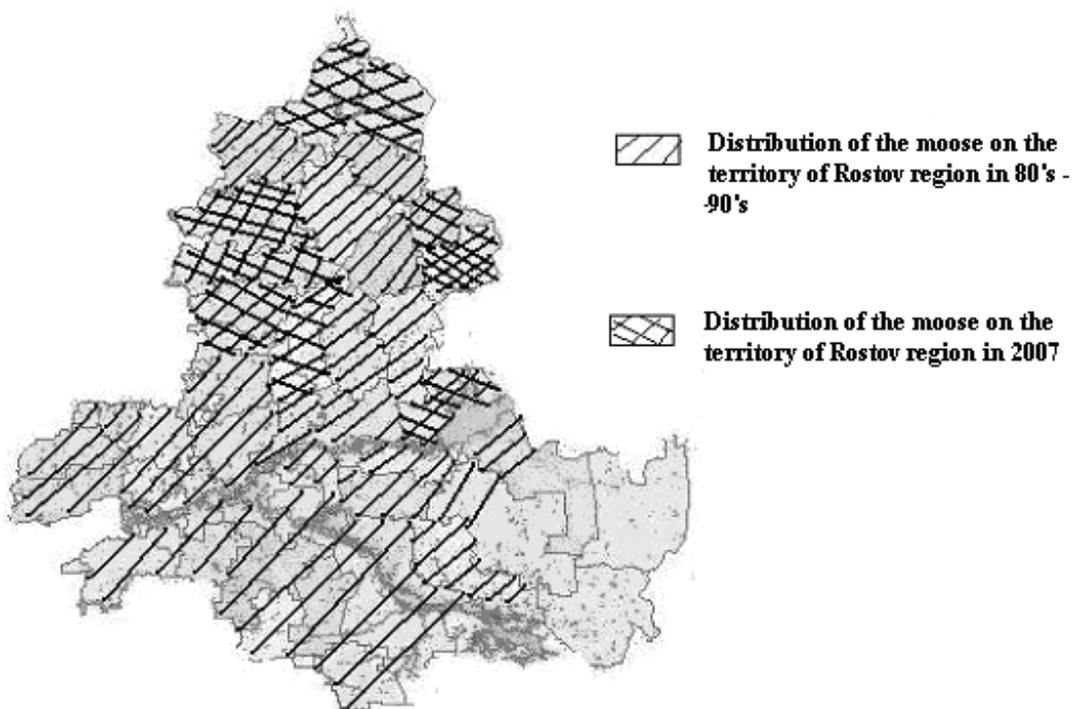


Fig. 2. Change in the distribution of moose in the Rostov region, 1980-1990s to 2007.

presumably caused excessive wounding and low recovery rates due to rapid-fire shooting across long distances with low-power bullets. Further, the cancellation of criminal liability for shooting moose that probably intensified poaching, and the termination of subsidies for shooting wolves that increased the wolf population and predation of moose (Fig. 1), also combined to reduce the moose population. Subsequent reformation of the forestry system that terminated reforestation activity caused sharp decline in the amount of young pine suitable as moose forage as older plantations matured and no longer provided adequate winter forage. A large number of forest fires occurred, and the loss of pines was up to 1000 ha annually in the north.

All of the above had great influence on the moose population, and in combination resulted in rapid and tremendous decline of the population in the 1990s. In the past 10-12

years the population has stabilized to a level about 25% of that in 1990 (Fig. 1), and its geographical range (8 districts) is about half that in the 1980-90s (20 districts) (Fig. 2). As a result, moose in the Rostov region no longer have commercial value and are considered a species of concern and are subject to strict, protective management.

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