STATUS OF MOOSE (*ALCES ALCES*) IN THE NORTH EAST OF ASIA BEFORE AND AFTER PERESTROIKA (1985)

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ABSTRACT: Prior to perestroika in 1985, a structured, state-controlled moose management system existed across northeast Asia. Biological data were collected regularly and used to formulate scientifically based recommendations for regulating the sport and game harvest of moose. Populations were stable and at reasonably high densities and sex and age structure was balanced. Since 1985, the situation for large ungulates and their predators has worsened sharply. The monitoring system has broken down and management of moose has been assumed by local authorities. Spontaneous and uncontrolled hunting, unreasonably high harvest quotas, and an influx of wealthy foreign hunters have contributed to decreased densities, imbalanced sex ratios, and lowered productivity throughout much of the area. Beginning in 1994 in the Chukotka, hunting of moose was severely restricted in an effort to rehabilitate populations.

Northeast Asia is a vast area extending from the east bank of the Lena River to the Okhotsky and Bering Seas and includes the mountainous regions of the Momsky and Chersky (Yakutia) ranges as well as the extensive uplands of Okhotsko-Kolymsky (Magadansky region), Chukotsky, and Koriaksky (Chukotka). The area's physical heterogeneity results in considerable variation in habitats available to large ungulates, including moose.

Prior to 1985, the status of large ungulate populations in this territory was monitored by a broad, state controlled reporting network. Periodically (every 1-2 yr), population estimates and sex and age structures were determined for large ungulates, particularly the main game species, wild reindeer (*Rangifer tarandus*) and moose (*Alces alces*). Various State jurisdictions with authority over hunting lands traditionally followed the principles of legal game exploitation based on the scientifically based recommendations of the USSR Academy of Sciences and of the Russian Federation Central Hunt Services (Glavokhota). Generally throughout the territory of the RSFSR, a uniformly structured management system existed with a clearly formulated harvest adjusting mechanism that was based on the integration of science and practice. Over these vast areas, strict control was exercised in monitoring the status of moose and regulating their exploitation. Long-term monitoring of moose numbers and demographic structure was realized in North Asia.

Data collected during certain years served as a basis for scientific recommendations regulating the sport and game harvest of many moose populations. In the Chukotka, such recommendations involved the selective removal of individual moose thought to negatively affect the gene pool of the population. As a result of this practice in all regions of north Asia, the age and sex structure of most moose populations was usually found to be relatively balanced.

The status of many moose populations in the territory of north Asia began to worsen in 1985, and intensified in 1990 when the responsibility for population management was assumed by local authorities exercising their sovereignty in the face of regional disintegration.

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Since the beginning of perestroika in 1985, and with the USSR and Russian Federation entering into market relations, the situation for large ungulates and their predators has become sharply worse. A management structure that had provided for the protection of large game animals was completely broken in Russia. Inspection services were abolished in almost every region of the north. The protection of many large species, especially moose, became difficult. For a short period, their numbers decreased considerably and their habitat was reduced.

Up until 1985, the moose was the main species in game and sport hunting. The cost of a licence did not exceed 20% of the monthly income of a hunter-sportsman. The state of many moose populations was exceptionally good at that time. For example, mean densities ranged from 3.2 individuals per 1000 ha in the best lands of Chukotka, to 0.5 in the worst habitat on the area's periphery. In the northern parts of Koriakia, the moose population density was estimated at 7.0 individuals per 1000 ha, and in Yakutia's valley landscapes, it was up to 4.0 animals per 1000 ha (Zheleznov, 1990). Careful regulation of the moose harvest resulted in their numbers increasing, sex and age structure becoming stable, and population productivity being high. This was promoted by a complex of measures based on scientific recommendations aimed at stabilizing the population structure through the selective removal of defective individuals during sport and game hunting periods. The ratio of sexually mature males to females in Chukotka changed little during the 10 yr period prior to 1985 (varying from 1:1.14 to 1:1.2). During the rut, pairs consisting of one male and one female made up 38.7% of breeding groups. Other groups had a male and some females. The mean number of calves per female moose was 1.24 in Chukotka, and in Kamchatka and Yakutia, was 1.34, although the potential productivity of females was much higher.

Total numbers of moose in the North-East regions just prior to 1985, were estimated at 6,200 in Chukotka, 12,000 in Magadansky region, 1,400 in Kamchatka and 55,000 in Yakutia. By 1990, moose populations began to decline as a result of weakened control over exploitation, monitoring being stopped, and spontaneous and uncontrolled moose hunting with unreasonably high quotas.

Increasing numbers of foreign hunters with strong currencies had also begun to put pressure on moose populations. They were particularly interested in the trophy qualities of the subspecies *Alces alces buturlini* which is distinguished by a large antler spread (up to 176 cm) and by weight up to 19 kg together with the skull. Numerous sport-hunters from Germany, Austria, Sweden, and Norway poured into Chukotka and Koriakia. A scarcity of hunting inspections allowed boundless shooting of moose for dollars. Moreover, animals were easily taken in thinned forests (relative spacing, or separation/height ratio of 0.3-0.5).

Such uncontrolled hunting was carried out for 3-5 years. In some years, the number of moose taken by licenced foreign hunters comprised up to 6 or 8% of the total game quota. Balanced sex ratios were disturbed as a result of disproportionate harvesting of the most beautiful and productive males. By 1992 along the Anadyr River basin, the male to female ratio was 1:4.7 and in the Velikaja River basin was 1:7.6. Therefore, the probability of male-female pairing during the rut was reduced and the frequency of barren and old females increased. As well, the productivity of female moose dropped. In 1993, there were 43 calves for every 100 females or a mean of 0.43 per female. The total number of moose also went down. Presently there are fewer than 4,500 moose in Chukotka and the decline continues. Mean densities range from as low as 0.05 to 0.6 individuals per 1000 ha.

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An historical analysis of changing moose numbers in the far north east, reveals a numer of discrete periods or phases:

Phase 1. - a decline in moose numbers ending in 1970-1972.

Phase 2. - 1973-1976 - number were slowly increasing.

Phase 3. - 1977-1983 - numbers grew rapidly.

Phase 4. - 1983-1985 - growing and stabilization of moose reserves.

Phase 5. - the end of 1985 and into 1986-1987 - signs of future degradation apparent (old females, a higher proportion of barren females, and fewer young animals).

At the present time, urgent measures are being taken to stabilize moose populations in Chukotka. In 1994, we recommended that moose hunting be prohibited during the rut and in certain remote parts of Chukotka. However, in 1995-1996, all moose hunting was prohibited.

REFERENCES

ZHELEZNOV, N.K. 1990. Wild ungulates of the USSR Far-East. Vladivostok. FEB of the USSR Science Academy. 480 pp.

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