THE HISTORY AND STATUS OF MOOSE IN CHINA

Jingbo Jia
Department of Forest Ecology, Finnish Forest Research Institute, P.O.Box 18, SF-01301 Vantaa, Finland

ABSTRACT: The status of Manchurian moose (*Alces alces cameloides*) in China was reviewed. Their historical distribution was limited to three major areas in Heilongjiang province and presently occurs in two of those areas. Distribution movement has been northward three degrees latitude from known historical records. Moose, in China are a traditional game animal and play an important role in minority poeple's lives. The population was stable before 1965, declined in the 1970's, and increased in the 1980's. In the 1970's the population decline was recognized and it was listed as a protected species. A Wildlife Conservation Law became effective in 1989 that legally protects moose, and in 1992 a regulation was adapted requiring a census of wildlife every 10 years.

ALCES VOL. 28 (1992) pp. 89-93

Historically, there were several scientific names for Manchurian moose, for example: *Alces machlis yakutskensis* (Sowerby 1923), *Alces americanus* (Loukashikin 1939), and *Alces alces bedfordiae* (Mori 1942). Later, most scientists agreed that moose between the Ussuri River and the Stanovoy Mountains should be designated *Alces alces cameloides*, Milne-Edwards 1867 (Ellerman and Morrison-Scott 1951, Ma 1986).

The Manchurian moose is small-bodied (Geist 1987) with a mean shoulder height of 163 cm (146-177 cm, n=7) and skull length of 563.5 mm (520-593 mm, n=6). Antler weight of moose over two years old averaged 2.95 kg (0.35-6.3 kg, n=121) (Ma 1986, 1989).

This paper is a historical review of the status and distribution of the Manchurian moose in China. Hunting as a tradition and present management are also discussed.

HISTORICAL RECORDS

The earliest document available recording the presence of moose in China is the ancient book "Shengjing Tongzhi" (General Annals of China) (Wei 1736), which states: "the moose, also named Kandahan, coming from Ningguta along the Ussuri River, looks like a kind of deer, with a short neck. Its body is brown-yellow without any spots. Under its neck is a dewlap of loose skin and hair hanging from the throat. It weights about 500kg, with the palm-like antler. The superior bull's antler is bright and white like bone, named Plank Finger".

Such vivid descriptions are found in many local annals, such as Heilongjiang Tongzhi Gangyao (Outline of General Annals of Amur Valley) (Jin 1925) and Heilongjiang Zhigao (Annals of Amur) (Zhang 1933). They are also found in travel notes such as Heilongjiang Waiji (Anecdote of Amur) (Xi 1810) and some official reports such as the Report of Officer in Chief in the Border of Zhuergan River (Zhao 1911). The descriptions of moose were buried in accounts dealing with other unrelated topics, but they revealed the presence of moose as early as the 1800's. The descriptions also included information on moose distribution, ecology, hunting methods, economic values and records.

From these accounts we know that moose occurred throughout the whole Amur River Valley (Manchuria) at the beginning of the 19th century. The population was apparently large "can be found on almost every mountain" (Xi 1810). Their distribution before the 20th century included the Giant XingAn Mountain and Lesser XingAn Mountain along the Amur Valley (Xi 1810, Zhao 1911), and the Wanda Mountain along the Ussuri Valley (Wei 1736). This distribution, from 44 to 54

degrees north latitude, is basically the same that Peterson (1974) described.

PRESENT DISTRIBUTION

The historical distribution of moose in China included three areas (Fig. 1), (1) the Giant XingAn Mountain, (2) the Lesser XingAn Mountain, and (3) the Wanda Mountain (west of the Ussuri River). These are productive forestry regions all in Heilongjiang Province. Moose presently are found in the first two areas, but disappeared from the Wanda Mountain area at the beginning of this century. Eroded moose bones and skulls were found on Wanda Mountain in 1988 (Piao, pers. comm.), but no sightings or hoofprints have been recorded since the 1950's. Prior to the 1960's, the southern range of moose receded northward about two degrees latitude (44 to 46 degrees). In the last 30 years it receded again an additional degree northward (Fig. 1). There is the possibility of further northward movement.

During the 1940's the Wanda Mountain area was disturbed by war. Forest exploitation was heavy in all three forestry regions, especially the Giant XingAn Mountain. However, this did not seem to affect the local moose population. The increase in the human population appeared to be the main factor impacting moose. Moose disappeared around towns, railroads and highways due to exploitation by humans and were forced into unexploited areas or Nature Reserves. On some cultivated

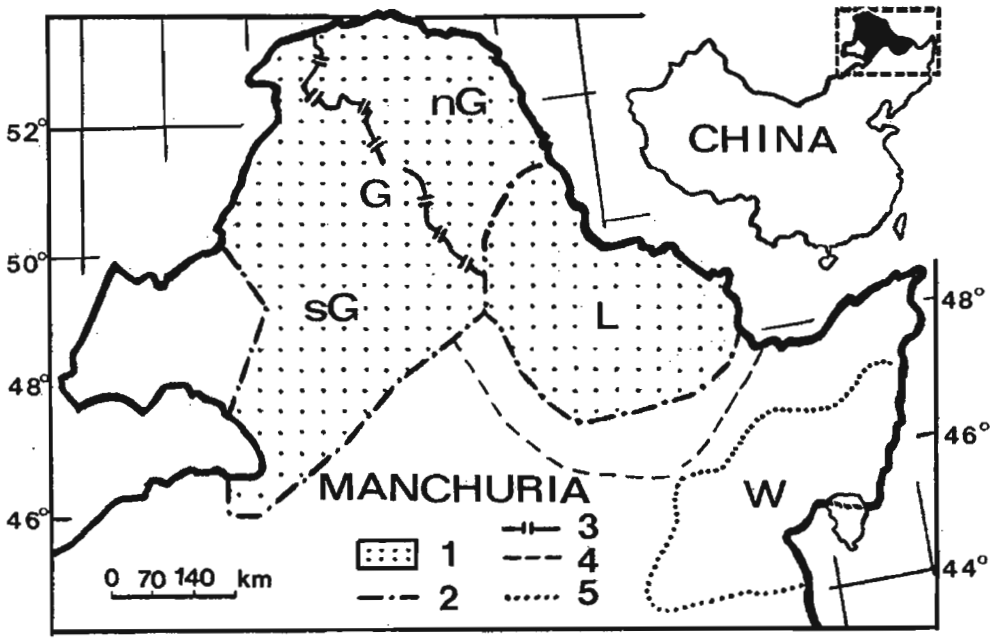

Fig. 1 The distribution of Moose in China
G: Giant XingAn Mountain;
nG: northern Giant XingAn Mountain;
sG: southern Giant XingAn Mountain;
L: Lesser XingAn Mountain;
W: Wanda Mountain;
1: Present Distribution Area;
2: Distribution Edge in the '80s;
3: Boundary between nG and sG;
4: Southern Edge in the '70s;
5: Additional Range Occupied prior to 1900.

forest areas, moose density remained stable or increased due to sparse human activity and vegetation recovery.

POPULATION NUMBERS

Population numbers of moose seemed stable before 1965 when harvest was about 2000 per year. They occurred mainly in the southern and part of northern Giant XingAn Mountain, where population density was clearly higher than that of the 1970's. Hide purchases in a local town reflect fluctuations in one area (Table 1 from Wang 1983). Moose hunting was quite rewarding on northern Giant XingAn Mountain in 1959 when in 20 days more than 30 moose could be shot by three to four hunters. In 1957 a hunting group of about 40 people killed 104 moose in one season (Ma 1986).

In 1976, a wildlife census was carried out in China and the total moose count, accounted for the first time, was about 18,000. Southern Giant XingAn Mountain accounted for 53% (9700), northern Giant XingAn Mountain 22% (4000), Lesser XingAn Mountain 10% (2000), the region between Giant and Lesser XingAn Mountain 15% (2700) (Wang 1983). These estimates followed the Cultural Revolution, the 10 years from 1966 to 1976, when hunting was out of control (even though the moose had been protected since 1973) and poaching was quite serious. Therefore, the moose census likely represented the lowest point in recent history. Antler purchase through this period reflects this possibility (Table 2). Moose antler sales during 1979 were only 21.7% of sales in 1962. Sales in 1982 were 107.7% of 1962 sales suggesting that the population in the 1980's may have recovered to 1960's levels.

In 1985 a comprehensive investigation in the northern Giant XingAn Mountain area recorded 5400 moose (Ma 1989). Compared to the 1976 (4000 moose), this represented a 35% increase in population over eight years. In 1987, a large fire destroyed 1,140,000 ha of forests in the most northern part (four forestry bureaus of 2,420,000 ha) of the northern Giant XingAn Mountain, resulting in a notable impact on moose density. In these four bureaus, the moose population was 1100 in 1976, 1800 in 1985, 970 in 1988 (first year after the fire), 1,100 in 1989 (second year after the fire) and has been growing since ("Report on Wildlife Resources on the Fire-slash in Giant XingAn Mountain" by Dept. of Wildl., Northeast Forest Univ., unpublished). In some regions of the Lesser XingAn Mountain the estimated moose population in 1990 was 140% of the 1976 population.

In summary, moose seemed aboundant before the beginning of this century and stable at levels before 1965 which were higher than the 1970's. The estimate in 1976 of 18,000 moose may be the lowest level in history, at least during this century. In the 1980's, even though the range of moose has receded northward, the population density has increased.

HUNTING AND MANAGEMENT

Historically moose in China are a traditional game animal. Some minority people

Table 1. The Hunting Bags in Shibazhan, northern Giant XingAn Mountain based on local hide purchase. (Wang 1983)

year	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
moose hunted	375	353	393	469	515	458	491	512	457	282

Table 2. Antler Purchase in southern Giant XingAn Mountain. (Wang 1983)

year	1957	1958	1959	1960	1961	1962	1979	1980	1981	1982
antler (kg)	280	445	1125	1084	1144	1423	309	497	650	1532

such as the Olunchun and Owenk have subsisted on moose for generations. Moose still play a role in minority people's lives. In the 1960's, during the July to August hunting season, families or groups went into the forests by horse to hunt moose (Ma 1989). The men hunted and the women cared for the horses and dried the meat (over 50kg dry meat/family/season). The moose nose (2-3 kg) was a famous Chinese dish and in ancient times was used only for paying tribute to the emperor. The moose nose, the bear's palm and the hazel grouse (*Bonasa bonasia*) were called the "Three Dainties". Moose hide was used for jackets, leather coats, shoes and hats. Moose bone was used for exquisite chopsticks. Hard antler, pilose antler (velvet) and penis were raw materials in traditional Chinese medicine. A medicinal "glue" made of moose antler was used to cure tuberculosis, scabies and other diseases. The medicine mixed with moose pilose antler was used to cure neurasthenia (nervous prostration) (Ma 1989).

Moose hunting and utilization have occurred for several hundred years, but because of their extreme northerly distribution have not until recently experienced as much pressure as other animals elsewhere in China . Before the 20th century, moose hunting was carried out mainly by Olunchun and Owenk people. The human population increased within the range of moose after the 1940's, and hunting by non-minorities also increased. Hunting weapons changed from primitive shotguns to advanced rifles. Poaching increased and during the Cultural Revolution illegal hunting was rampant. Moose disappeared from the Wanda Mountain area. The Chinese government realized the seriousness of the problem and in the 1970's established a policy of Planned Hunting and Active Protection for moose and other game. In 1973, moose were placed on the second class list of

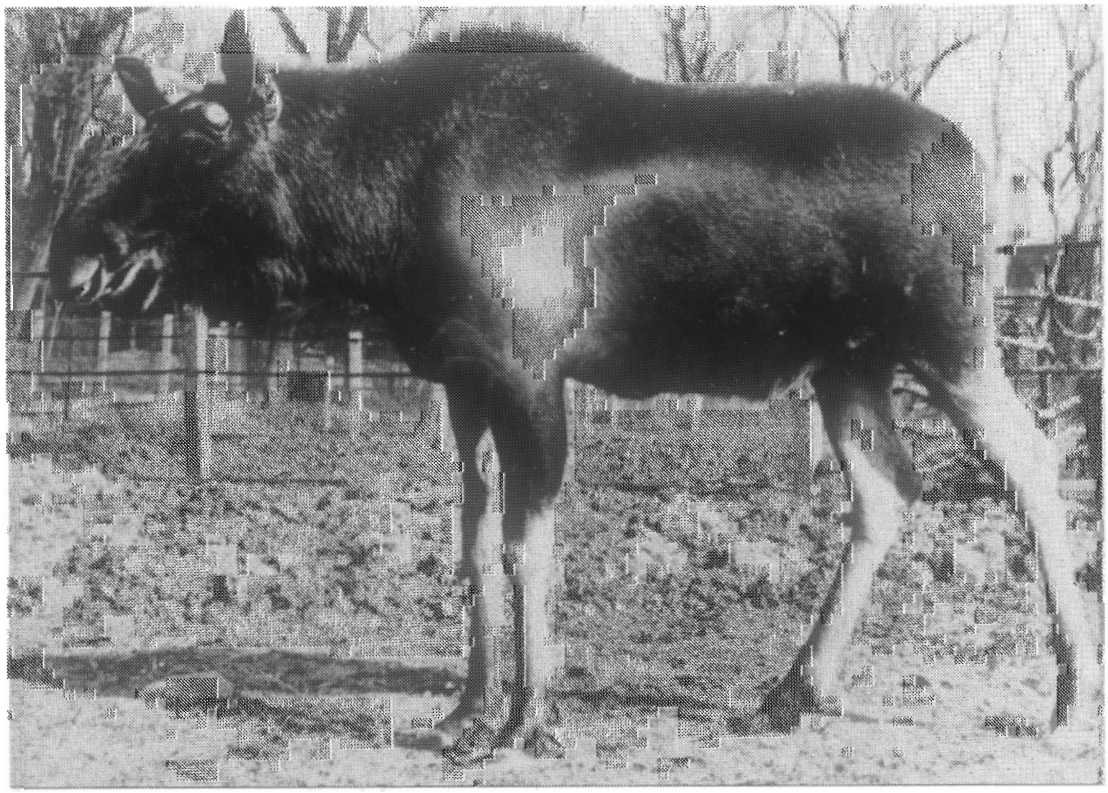

Fig. 2. Unantlered male Manchurian moose *Alces alces cameloides*, Peking Zoo 1978.

protected species, and hunting was forbidden. At that time, a few quotas were approved for minorities by the provincial government. However, poaching was still serious. For that reason, policies restated in 1979 and 1984 emphasized conservation of moose (Ma and Jia 1990). The Wildlife Conservation Law (WCL) of 1989 legally protected moose and hunting was only allowed by special permit from the provincial government. In 1992, detailed regulations of the WCL were published which stipulated that a census would be done every 10 years.

These conservation measures have been effective because moose populations are recovering and even increasing in some places. It is not known whether moose can eventually return to their historical distribution in the Wanda Mountain area.

ACKNOWLEDGEMENTS

I would like to extend sincere thanks to Professor Yiching Ma for his help in obtaining materials for this study, to Dr. Ari Lääperi and Mr. Risto Heikkilä for their encouraging me to write something about the moose in China. I am grateful to Dr. Kari Löyttyniemi, Professor Pekka Nuorteva and Dr. Pekka Niemelä for their valuable comments on the manuscript, and to Co-editor H.R. Timmermann for providing the photo.

REFERENCES

ELLERMAN, J.R. and MORRISON-SCOTT, T.C.S. 1951. Checklist of palaearctic and Indian mammals. Brit. Mus. Nat. Hist., London.

GEIST, V. 1987. On the evolution and adaptations of *Alces*. Swedish Wildl. Res. Suppl. 1:11-23.

JIN, LIANG. 1925 (in Chinese). Outline of general annals in Amur valley.

LOUKASHIKIN, A.S. 1939 (in Japanese). Mammals in northern Manchuria. Yaxing Press, Tokyo. 473 pp.

MA, JIANZHANG and JINGBO JIA. 1990 (in Chinese with English content). Wildlife management. Northeast Forestry University Press. Harbin, 450 pp.

MA, YICHING (ed.) 1986 (in Chinese with English summary) Fauna heilongjiangica, Mammals. Heilongjiang Science and Technology Press, Harbin. 520 pp.

_____. (ed.) 1989 (in Chinese). Wildlife of giant xing an mountain. Northeast Forestry University Press, Harbin. 139 pp.

MORI, T. 1942 (in Japanese). Mammals native in Manchuria. Acad. of Sci. Continent. 74 pp.

PETERSON, R.L. 1974. Moose: yesterday, today and tomorrow. Naturaliste can. 101:1-8.

SOWERBY, A.C. 1923. The naturalist in Manchuria. Tientsin Press Limited, Tientsin. Vol 2: 111.

WANG, YUXI. 1983 (in Chinese). On the ecology of moose. J. of Northeastern For. Inst. 11 (4): 133-141.

WEI, SHU (ed.) 1736 (in Chinese). General annals of China Vol.27.

XI, CHING 1810 (in Chinese). Anecdote of Amur. Vol.8.

ZHANG, BOYING (ed.) 1933 (in Chinese). Annals of Amur Vol.15.

ZHAO, CHUNFANG 1911 (in Chinese). Report of officer in chief in the border of Zhuergan River. Vol.5.