

# A preliminary study on the care and breeding of snow leopard in Jinan Zoo, China

## Full Text:

There are now two snow leopards in Jinan Zoo, Shandong Province, China. One is a male snow leopard named Xiaoxi, captured in June 1983 in Haixi Prefecture of Qinghai Province and taken to Jinan Zoo from Xining Zoo, Qinghai Province on June 22, 1984. It was estimated that he was four years old at that time. The other is a female named Xiaoning who was born in June 1985 in Xining Zoo was taken to Jinan Zoo on October 25, 1985.

When these snow leopards arrived in Jinan city, we first tamed and trained them to become adapted to the circumstances in our zoo. When Xiaoxi arrived, it was much hotter in Jinan (ca. 35°C) than in Xining, and because feeding circumstances and animal keeper were not the same he was not well-adapted and refused to eat during the first three days. We therefore installed an electric fan and sprinkled water three times a day indoors, thus making the indoor temperature 4-6° below that outdoors. We provided him with live chickens and gradually fed him with mutton (0.5-1.0 kg/day). He did not get used to the new circumstances until the first ten-day period in July, when he began to shed. In about a month he had lost his winter hair. When Xiaoning arrived in Jinan it was cool, so the surroundings suited her and she adapted rapidly.

## PRELIMINARY STUDY ON BREEDING

Today there are few snow leopards in Chinese zoos, and no one has reported having successfully bred them so far. The circumstances between our zoo and the snow leopard's native habitat are quite different, so we have carried out studies on breeding snow leopard in captivity. Although we failed the first time, the work is still hopeful. Xiaoning had her first estrus behavior in April 1988, but the expression of estrus was not obvious; she cried out and rolled about and was lame and docile. In spring 1989 she showed estrus behavior again. It was more obvious than the first time but Xiaoxi made no response and they did not mate.

We thought the first problem that should be solved was the short period of illumination. The snow leopard hall in our zoo was built in the early days of the founding of our park. It faced north and the sunlight did not shine indoors. The sun shone upon an outdoor exercise ground for three hours in spring, five hours in summer, and 1-2 hours during fall and winter at about four o'clock in the afternoon. The total sun illumination time in the hall was only about 845 hrs/yr. Moreover, the ventilation condition of the hall was not well-developed. The average annual temperature is 14.2°C and the elevation of our zoo is 26 m above sea-level.

Snow leopards in nature live at elevations over 2275 m where the average annual temperature is about 5.5°C, average summer temperature is 17.2°C, sun illumination time is 2688-2800 hrs/yr and annual solar radiation reaches 139-171 kcal/cm<sup>2</sup>. Jinan Zoo does not have these conditions, but we made every effort to improve the circumstances. In 1990 we raised funds (\$200,000) by ourselves and built a new snow leopard exhibit. The new hall faces south so that the sun shines upon it all day. The sun illumination time increased to 2780 hours per year. To prolong the illumination time further we adapted the techniques used in Xining Zoo and installed daylight and ultraviolet lamps in our indoor birthing cases.

Xiaoning and Xiaoxi showed breeding courtship behavior at the same time on Feb. 19, 1991. We closed the two together on the afternoon of 21 Feb. but, although the two frequently snorted at each other, they did not mate. In the early morning of 22 Feb. Xiaoning showed more courtship behavior and they mated successfully. We closed them twice a day (morning and evening) and they mated 14 times with durations of 25-30 seconds. Over a three-day period they mated 37 times. Xiaoning went into estrus twice in 1991 but she did not become pregnant. She also went into estrus during the months of February, April and June in 1992 but again did not become pregnant.

## DISCUSSION

Snow leopards can be kept and adapted to captivity in summer at low elevations. Kaunas Park Zoo in the original USSR reported in 1976 that captive snow leopards could live only 1.5-2 years in low elevation areas. Xiaoxi has, however, been kept for nine years in our zoo and has not fallen ill.

### **Analysis of Reasons Why Xiaoning Did Not Become Pregnant**

1) Xiaoxi was probably too old; he was captured from the wild in June 1983 at about four years of age and he is now fourteen. According to some data the life-span of snow leopard was about 20 years, and tigers stopped breeding at 15 years. We suggest that Xiaoxi had lost his reproductive ability by June, 1992. We examined the quality of his seminal fluid with a microscope and did not find any spermatozoa.

2) Xiaoning first passed water with blood in April, 1990. Under a microscope we found its red cell count was "+ + +", with very few white cells. She passed water with blood again on Dec. 25, 1990, and by April 17, 1992 there occurred eight episodes of urine with blood, four of these after her estrus and mating. Once when she passed urine with blood we treated her with antibiotic and after 3-5 days she returned to normal. We have not discovered the reason for her urinating with blood but we think that it might be one of the reasons affecting her failure to become pregnant.

3) The food prescription was insufficient. Although we fed snow leopards with live chickens and rabbits before mating, the food was still dull compared with other rations supplied by zoos at home and abroad where snow leopards have bred.

With access to both theory and practice, we have not been successful in breeding snow leopard. We will learn from colleagues at home and abroad on their success in breeding snow leopard in low elevation areas.

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