

Captive rearing of a wild snow leopard cub in the Xining Zoo, China

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The snow leopard is a rare and first-priority protected animal in China. It is a nocturnal animal with a ferocious disposition, living in high and cold mountainous areas at elevations of 3200 m to 5300 m. Snow leopards have difficulty giving birth under artificial breeding, hence it is quite important to protect and rear cubs from the wild.

On August 21, 1991 the Xining Zoo received a snow leopard cub from the rangelands in Qinghai Province and I was asked to take care of the cub. When it arrived, this 2.5 kg, ca. 2 mo.-old female cub was in good general health and spirits, with colorless dishevelled hair, good bowel and bladder function and the ability to chew meat slowly with its molars. The following is a report on her care and growth.

CAGE AND GROUNDS

For the first three months in the zoo we kept the cub in a 4 x 3 x 3 m room in which there was a wire net cage about 0.5 m high for climbing and jumping, and a basketball for chasing and playing. At night we moved it into a wire net cage of 1.0 x 0.5 x 0.5 m about 7 cm above the ground and put lime under the cage for its urine and excrement. We sterilized the cage and playroom with lysol disinfectant once a month. Once the weather was good we built the cub a room outside for sunshine. Because the snow leopard dislikes strong heat we put it in a place with half shade and half sunshine and let the cub choose its proper place. After three months we moved the cub into a large cage of 3.5 x 2.7 x 2.7 m within a playground of 5 x 4.5 x 3.5 m. There were two wooden boxes of 1.5 x 0.7 x 0.7 m for resting, sleeping, jumping and climbing. In the large cage the cub could shelter from the wind, especially in winter.

FOOD AND FEEDING

Before coming to the zoo, the cub was fed cooked food by a herdsman. In the beginning I fed it raw meat at the zoo, but it soon became sick and I then changed to feeding with sliced and cooked meat for 30 days. During days 31-40 I added a bit of raw soft bone in addition to the cooked meat. After 40 days it was fed with raw and sliced meat and up to 80 days both meat and bone were included. In addition I supplemented its food with salt, cod-liver oil and trace elements (Se and other compound elements) once a day. When the cub became sick, such as with alimentary problems, the supply the cod-liver oil and trace elements was stopped.

The cub's food quantity was generally increased with the increase of days, but once the weather got cold or changed suddenly (between 90 and 160 days) its food intake would decrease and it sometimes refused to have anything for 2-3 days. Daily food intake (grams) was as follows (days after arrival in parentheses): 500* (1-3), 250* (4-6), 500* (7-12), 250* + 250 (13-20), 500* (21-30), 500* + cartilage (31-40), 700 + cartilage (41-65), 900 + cartilage (66-80), 1750 + bone (81-90), 400 + bone (91-160), 1750 + bone (161-190). An asterisk (*) indicates cooked food, otherwise it was raw.

The number of daily feeding times was gradually decreased with age. During the first 20 days I fed it three times a day, from 21-80 days, twice a day, and after 80 days, once a day. The cub was supplied with plentiful fresh water every day, with K_2MnO_4 in a solution of about 1 ppm in order to prevent disease of the alimentary canal. I usually washed the cub's basin and other utensils with K_2MnO_4 at about 100 ppm to insure good sanitation.

GROWTH OF THE CUB

Through diligent nursing and care the cub maintained a good state of growth and physical development. During the first four months we weighed the cub every five days and regularly measured its body size (Table 1), including tail girth (Table 2).

Measured at 5-day intervals starting at day 1 and continuing up to day 90, the cub's body weight in kilograms was as follows: 2.5, 2.0, 2.75, 3.2, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 6.5, 7.0, 8.0, 9.0, 10.0, 10.5,

11.5, 11.3. Three additional measurements were made at 98 days (12.0 kg), 110 days (14.0 kg) and 140 days (16.0 kg).

Several significant relationships associated with the cub's growth are apparent:

- 1) When the cub became sick and decreased its food intake its body weight also decreased, but when it was fine, even with low food intake, its body weight showed an increase.
- 2) During the first 35 days the cub's tail length increased at the same rate as its body length. After 35 days, as the body size increased rapidly the tail length increased more slowly; but when the body length increased slowly the tail length increased rapidly.
- 3) The distance between the cub's ears increased very rapidly during 48-65 days, after which the distance increased very slowly with little change.
- 4) The rear feet increased in size more rapidly than other parts of the cub's body.

TABLE 1. Body measurements (cm) for the captive-reared cub.

Day	Body length	Tail length	Chest girth	Distance between ears	Neck girth	Rear foot length	Ear width	Ear length
2		43.0	27.0	33.5			10.0	3.8
35		48.0	39.0	38.0	4.8			4.8
48		55.8	39.4	40.0	5.0			5.0
65		59.5	41.0	48.0	9.8	23.0	15.4	5.9
80		60.0	48.8		10.1	25.0	16.0	6.0
110		69.8	53.0	62.5	10.3	27.4	19.2	6.1
140		73.5	67.0	68.0	10.9	35.4		6.8

TABLE 2. Tail girth measurements (cm) for the captive-reared cub.

Day	Girth at base	Girth in middle	Girth at tip	Average girth
48	11.0		8.0	4.0
65	13.0		11.0	5.8
80	14.2		13.1	6.5
110	17.2		13.4	7.8
140	21.5		16.3	9.2

BODY TEMPERATURE

After the cub arrived at the zoo I measured its body temperature six times, three of which were during illness (described below) when its temperature was higher than the normal. Otherwise, the three normal body temperatures measured were 38.2°C at 3 days after arrival, 38.3°C (6 days) and 38.1°C (12 days), giving an average body temperature of 38.2°C.

DISEASES AND TREATMENT

During the course of its rearing the cub became sick three times. The first time was 4-6 days after its arrival. Its spirits, appetite and activity were all low. It appeared to have abdominal pain and showed a fever of 39.5°C on day 4, with a more normal 38.4°C on day 5. Its excrement was blackish green and yellowish brown with some intestine mucus and much blood. Our diagnosis was enteritis with blood, and treatment included digestive ferment and antidiarrheal medicines, antibiotic infusion, antibiotic enema and hemostatic intramuscular injection. Reasons for its illness were the sudden change in food and circumstances, and this was remedied by changing the food from raw to cooked and keeping the cub in a quiet room.

The second time the cub became ill was between 13 and 20 days after arrival. Its spirits and appetite were normal, but its activity was low. It appeared to have a shocked expression. On day 14 its temperature was 38.7°C. Its excrement was black, grayish white or blackish green with little blood. Our diagnosis was diarrhoea, and treatment included digestive ferment and antidiarrheal medicines. The reasons for its illness included having raw and cooked meat at the same time and its being shocked by visitors. This was remedied by giving only cooked meat and keeping it in a quiet room alone.

The third time the cub became sick was between 88 and 90 days after its arrival. Its spirits and appetite were good and its activity was normal. Its excrement was yellowish brown. Our diagnosis was diarrhoea and no special treatment was given. The reasons for its illness were the weather suddenly becoming cold and the fact that its food was frozen.

CONCLUSIONS

A decrease in food intake did not necessarily lead to a decrease in body weight. If the cub got sick and was in low spirits its body weight would decrease, otherwise it was in the state of increase. When the cub's body length increased rapidly its tail length increased slowly, whereas when the body length increased slowly its tail length did so rapidly. Raw and cooked meat could not be fed at the same time, for the cub would get diarrhoea. Although the cub was very young its cold resistance was high. In winter it could live well even in -20°C without any special installment for warmth. But its cage must be sheltered from the wind. The cub could not be fed with frozen meat and water.

Because there have been few cubs in Xining Zoo our experience and information is limited, and these conclusions need further research and development.