

REPORT: THE SNOW LEOPARD STUDY
Part One
by Judee Hansen

Between November 1, 1979 and April 1, 1980, six Brookfield docents participated in a study of snow leopard social behavior as part of a cooperative project with four other zoos. The project was coordinated by Helen Freeman, Director of Research Operations at Woodland Park Zoological Gardens in Seattle, Washington. The aim of her research is to add to our understanding of these elusive animals and to promote their breeding in captivity.

One part of her study involved an analysis of the birthdates of snow leopards born in zoos world-wide. First, she attempted to determine to what extent these dates were affected by latitude, altitude, and frost or low temperatures. Only latitude proved to be a mildly significant factor as snow leopards in northern zoos tended to have litters earlier in the year; but over all, zoo location seems to have little effect on the timing of a snow leopard birth. So we do not yet know what environmental influence, if any, triggers estrus.

Secondly, she compared the snow leopard birthdates to those of spotted leopards, and there was a significant difference between the dispersion of dates for the two species. The vast majority of snow leopard births occurred in May and June. Spotted leopard births, on the other hand, were spread throughout every month of the year. The ecology of the species could explain this finding. Due to their harsh environment, snow leopards would be wise to coordinate reproduction with peak periods of good weather and prey availability. But again, the timing mechanism involved remains a mystery.

Virtually no one has observed adult snow leopard social interaction in the wild, mainly because of the nature of the habitat and the low density of the populations. So, at present, we must rely on observations of captive cats as a way to learn about their behavior. Therefore, the second part of the Freeman project involved intensive behavioral observations on a pair of snow leopards at Woodland Park.

Based in part on these observations, and on information from other zoos, Ms. Freeman believes that snow leopards form long-term pair-bond relationships. Moreover, based on what is known about the reasons for monogamy in nature, she feels that (because of the ecology) the snow leopard's fitness could be enhanced by the pair-bond strategy. First, she reasons, since their density is low and estrus occurs during a limited time, it would be to the pair's advantage to always be in close proximity so a reproductive opportunity would not be missed. Secondly, the harsh environment may mean that the cooperation of two committed adults in the rearing and feeding of the young would best enhance the fitness of the offspring.

Ms. Freeman also believes that, like other animals who invest their whole reproductive future in one mate, snow leopards require a long courtship period to be sure they are choosing a fit partner. And the observations she made at Woodland support this idea as interactive behaviors increased during the winter months prior to early spring mating. So, in snow leopards, familiarity does not breed contempt, she says. It just breeds!
(To be continued.)

--NEXT MONTH, PART TWO OF THE SNOW LEOPARD STUDY - BROOKFIELD GETS INVOLVED!

Brookfield Zoo

TABLE 1: Semen characteristics and testicular size in snow leopards, Chinese leopards, and clouded leopards.

ANIMAL	IDENTIFICATION	DATE OF SEMEN COLLECTION	AGE (YRS.)	VOL. (ml)	TOTAL SPERM COUNT (10^6)	PERCENT* MOTILITY	SPEED OF** PROGRESSION	TESTICULAR SIZE	
								RIGHT (cm)	LEFT (cm)
SNOW LEOPARD	Ikaz	March 31, 1980	19+	1.5	0	--	--	L ⁺ 2.2 W ⁺⁺ 1.5	L 3.2 W 2.1
	Ikaz	April 8, 1980	19+	7.9	0	--	--		
SNOW LEOPARD	Yeti	March 31, 1980	13	<0.1	Few Immature Spermatozoa	--	--	L 2.2 W 1.3	L 2.9 W 1.4
	Yeti	Sept. 7, 1980	13 1/2	<0.2	0	--	--	L 1.9 W 1.0	L 2.1 W 1.0
SNOW LEOPARD	Shiva	Sept. 7, 1980	4 1/2	0.25	0.5	1%	0	L 2.2 W 0.9	L 2.3 W 1.1
SNOW LEOPARD	Boris	Nov. 6, 1979	9	1.5	13.5	65%	5	L 3.2 W 2.1	L 3.6 W 2.0
CHINESE LEOPARD (1 collection)				6.3	101	65%	5		
CLOUDED LEOPARD (16 collections)				0.6-2.5	1-80	5-80	2.5-5		

*Based on % motile sperm at 100X.

**Based on 0 to 5 scale, 5 being rapid forward progression.

+L=Length

++W=Width