

## SNOW LEOPARD



Snow Leopard (*Uncia uncia*) is listed as “vulnerable” on the IUCN Red List, with an estimated population of between 4,000 and 7,500 individuals remaining in the wild. Snow Leopard is an extremely beautiful animal distributed along the habitat scattered throughout a vast region surrounding the Central Asian deserts and plateaus ranging from Afghanistan to Uzbekistan. Throughout most of its range, snow leopards are associated with arid and semi-arid shrub-land, grassland or steppe. The species is generally found at an elevation between 3000m-4600m, although they are known to go above 5,500 metres asl. in the Himalayas. Steep terrain broken by cliffs, ridges, gullies and rocky outcrops is preferred, although in certain parts like Mongolia and Tibetan plateau they can be found in relatively flat country. In India, the snow leopard is distributed in the Himalayan chain from Kashmir to Sikkim, northwards their territory extends into Tibet, and Central Asia in the region of stupendous rock and cliffs above the tree- line some 12,000 -13,000ft (3660-3965m) asl. The main threats faced by the species include hunting, habitat destruction, and fragmentation. The species have become extremely rare in many parts of its native habitat. In India, snow leopards occur on the southern slopes of the Himalayas. The species is listed as endangered under the Wildlife Protection Act (1972).

### HISTORY

The Snow Leopard Breeding Project at Padmaja Naidu Himalayan Zoological Park, Darjeeling is one of the most successful and only breeding programme of the species in South East Asia. The park started work on the captive breeding of this rare species in the year 1983 as a part of a global captive breeding programme. In 2007, the Park was designated as the coordinating zoo for the conservation breeding of the species by the Central Zoo Authority. All the record-keeping of the Planned Breeding Programme is not only done in the Zoo but is also recorded with the International Stud Book Keeper of the species.

A pair of unrelated snow leopards was acquired from Zurich Zoo in 1986. Another pair was acquired from U.S zoo in 1989. The first planned breeding occurred in 1989 with the birth of two female cubs. Another male was acquired from Hubstand, Sweden, and 2 wild rescued females were acquired from Leh Ladakh in 2000 to continue the breeding program. In 2004, a pair of snow leopard was sent from Darjeeling Zoo to Himalayan Zoological Park,

Gangtok, Pandit Govind Ballabh Pant High Altitude Zoo, Nainital and Himalayan Nature Park, Kufri, Shimla to start subsidiary snow leopard -breeding centres in Himalayan zoos.

In 2012, a female was acquired from Nuremberg Zoo, Germany, and another male was acquired from Jihlava zoo, the Czech Republic in 2014. Two females were acquired from Leipzig Zoo in 2013. The park also acquired one male snow leopard, Mulhouse Zoo, France, and another male snow leopard was acquired from Dudley Zoological Garden, London in 2016 in order to add a new bloodline to the breeding program. Padmaja Naidu Himalayan Zoological Park in 2003 had 18 Snow Leopards (9:9), one of the largest captive populations, in a single zoo, in the world.

In the park, breeding of the Snow Leopard is done at Conservation Breeding centre for Snow leopards and Red panda, 3rd Mile, Topkeydara, Darjeeling. 5 hectares of land in Topkedara block under Senchal Wildlife Sanctuary was handed over to Padmaja Naidu Himalayan Zoological Park for the construction of the off-display Conservation Breeding Centre for Snow leopard and Red Panda. The new off-display Conservation Breeding Centre for Snow leopard (*Uncia uncia*) and Red Panda (*Ailurus fulgens*) at Topkedara funded by the Govt. of West Bengal and Central Zoo Authority, MoEF was inaugurated on 08.10.2013 by the Honourable Minister in Charge (Forest) Shri. Hiten Barman along with North Bengal Development Minister Shri. Gautam Deb. The centre currently has 6 open enclosures for the snow leopards.

A total of sixty-seven snow leopard births have been recorded in the park. The table below depicts the birth at an interval of every five years and their survivability.

YEAR	SEX RATIO/TOTAL BIRTH						
	M	F	U	Total birth	M	F	Total survivability
1986-1991	0	2	2	4	0	0	0
1992-1996	6	3	1	10	1	2	3
1997-2001	8	5	0	13	1	2	3
2002-2006	11	7	1	19	5	4	9
2007-2013	6	4	0	10	0	1	1
2014-2019	2	1	0	3	1	0	1
2020-present	4	4	0	8	2	1	3
	<b>37</b>	<b>26</b>	<b>4</b>	<b>67</b>	<b>10</b>	<b>10</b>	<b>20</b>

At present, the park has 10 (5:5) Snow leopards.

## ENCLOSURES AND ENRICHMENT

Snow leopards have a shy, solitary, and elusive nature and a reputation for aggression between individuals of the same sex. The enclosures and enrichments are therefore designed keeping in mind the animal's natural habitat and behaviour.

The enclosures are terraced and sloped. Weather considerations such as rain cover, shade structures are also provided. The enclosures are furnished with rocky substrates, resting



platforms, and dens/ caves to provide shades from the sun. Logs are also provided for scratching to help reduce ingrown nails and natural substrates (mulch, turf, sod etc) are provided for digging and making scrapes. Small and poorly furnished enclosures can lead to problems such as agitation, boredom, self-mutilation, weight fluctuation, and lethargy. The night shelters are equipped with dehumidifiers, heaters, wooden platforms, and squeeze cages. All enclosures and night shelters are equipped with CCTV cameras.

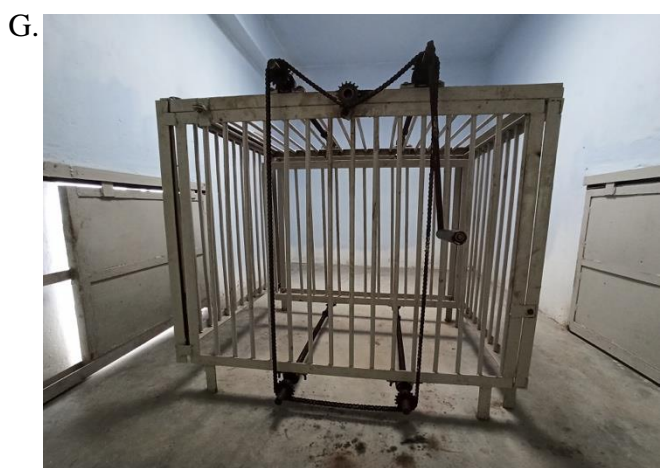


Fig: A. Snow leopard enclosure at Topkeydara , B. Crawl Area, C. Night Shelter, D. Resting Platform, E. Resting Shade, F. Cave & G. Squeeze Cage, H. Dehumidifier.

## RESEARCH STUDIES

Short-term research titled “Study of Snow leopards (*Uncia uncia*)”, funded by Central Zoo Authority, dealt with developing ex-situ husbandry aspects particularly to look into persistent problems that existed in the breeding programme like cub mortality and brittle bone diseases. The research work proved to be beneficial and provided recommendations for creating appropriate facilities for breeding, cub care, and survivability. The research also provided inputs during the establishment of the new breeding centre for the snow leopards where the night shelters, breeding dens, enclosures, and veterinary facilities have been developed based on the recommendations of the findings.

## FEEDING

Proper feeding management of wild animals in captivity incorporates both husbandry skills and applied nutritional sciences. As a basic foundation of animal management nutrition is integral to longevity, disease prevention, growth, and reproduction. The snow leopards are fed with freshly slaughtered meat after quality inspection by the Veterinarian. Thursday is observed as a fasting day for all carnivores and no feed is given.

Species	Feed item	Quantity		Day of fasting
		Winter	Summer	
Snow Leopard ( <i>Uncia uncia</i> )	i. Beef	2.5 kgs	2.5 kgs	Thursdays
	ii. Chicken	2.5 kgs	2.5 kgs	
	ii. Mutton	2.5 kgs	2.5 kgs	

## VETERINARY CARE

To prevent infections the enclosures are regularly cleaned and disinfected. The stool is collected and tested for parasites regularly, deworming is done every 3 months or when a parasite is detected during stool tests. Behavioral observation is done regularly to check for any symptoms of diseases.

## VACCINATION SCHEDULE

SPECIES	DISEASES VACCINATED	NAME OF THE VACCINE AND	PERIODICITY	REMARKS
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	<b>AGAINST</b>	<b>DOSAGE/QUANTITY USED</b>		
Snow Leopard ( <i>Uncia uncia</i> )	Panleukopenia, Calcivirus, Herpesvirus, rabies Injection	BiofelPCHR: 1 ml	16.12.2020-20.12.2020 (Annually)	Booster is given after 1 month

### DEWORMING SCHEDULE

<b>SPECIES</b>	<b>DRUG USED</b>	<b>MONTH</b>
Snow Leopard ( <i>Uncia uncia</i> )	Praziquantel, Pyrantel Pamoate, Fenbendazole Albendazole Fenbendazole	April- June & January – March July-September October- December

### DISINFECTION SCHEDULE

<b>SPECIES</b>	<b>TYPE OF ENCLOSURE</b>	<b>DISINFECTANT USED AND METHOD</b>	<b>FREQUENCY OF DISINFECTION</b>
SNOW LEOPARD	OPEN	1. Virkon S: 10% Solution Sprayed	Every Two Weeks
	NIGHT SHELTERS	1. Virkon S: 10% Solution Sprayed	Every Two Weeks
		3. Blow Flame: Flaming	Every Two Weeks
		4. Gluteraldehyde Concentrate.: 10% wash	Every day
		5. Potassium Permanganate: Foot bath	Every day