

Central Zoo Authority

(Ministry of Environment & Forest)

APPLICATION FOR SMALL GRANT FELLOWSHIP

Please read the instructions on the last page of this document
Internal Project Number (To be filled in by CZA)

1. GENERAL INFORMATION:

Date of application: 28/07/2009

Name of the Zoo/organization: Padmaja Naidu Himalayan Zoological Park,
Darjeeling

Contact person/project Leader : Sri A K Jha IFS, Director, Padmaja Naidu
Himalayan Zoological Park, Darjeeling

2. CLASSIFICATION OF PROPOSAL----

Improvement Of the zoo	Scientific Management	Ex-situ Conservation	Welfare of the animals	Any other please specify.
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Ex Situ Conservation

3. **DATE OF INITIATION OF THE PROJECT:** Immediately after sanction of Project
or 1st October 2009, whichever is earliest

4. **DURATION OF THE PROJECT:** Two years, but can be extended for three years

5. LOCATION OF THE PROJECT.

Region/State: West Bengal

Closest main city: Darjeeling

6. STAFF INVOLVED IN PROJECT (please include Curriculum Vitae of the individuals).

1. **Name (title)---**Main Research associate to be selected after advertising , from
suitable candidates,

Zoo/Organization

Padmaja Naidu Himalayan Zoological Park, Darjeeling, West Bengal

Period to be spent on the project from:

(day/month/year) for

48 hours/week for two years

7. PROJECT PROPOSAL

7a. Background and history of the project (max. 300 words)

The strikingly beautiful snow leopard remains one of the world's most mysterious cats. Snow leopards are smaller than the other big cats but like them, exhibit a range of sizes, generally weighing between 27 and 54 kg (60–120 lb). Body length ranges from 74–130 cm (29–51 in) with a tail of nearly the same length. The snow leopard's range in central and south Asia is rugged mountainous regions of approximately 1,230,000 square kilometers, which extends through 12 countries: Afghanistan, Bhutan, China, India, Kazakhstan, the Kyrgyz Republic, Mongolia, Nepal, Pakistan, Russia, Tajikistan, and Uzbekistan.

The major threat to its survival is loss of prey base, conflict with herders, trade and financial gain, poaching for zoos.

The Padmaja Naidu Himalayan Zoological park, dedicated to the conservation of endangered Himalayan fauna, took the initiative of working towards captive breeding project of this rare species, the first instance of an Asian zoo participating in the Snow leopard Master Plan which was conceptualized by Mrs. Helen Freeman in 1986.

The project was initiated with a pair of Snow leopards flown from Zurich Zoo in the year 1986. To add to the collection another pair came to Darjeeling Zoo from US zoos in 1989. This pair gave birth to two females in the year 1989, the first successful breeding of Snow leopards in Darjeeling Zoo. In the last twenty years there are in total 40 births of snow leopards in captivity marking the zoo as one of the most successful and only breeding programme of the species in South east Asia.

7 b. MAIN PROBLEM OR QUESTION (MAX 200 WORDS)

- Stabilize the captive population in a way that is not generally possible without careful analysis of the population and co-ordination of breeding.
- Loss in genetic representation allowing the population to go unmanaged.
- Lack of enlightened husbandry practices.
- Absence of co-operation among all zoos concerned with breeding of this particular species.

7c. AIMS AND OBJECTIVES OF THE PROJECT (MAX 200 WORDS)

The zoo against all odds having been breeding this species successfully till date yet

Problems have arose regarding cub mortality, absence of genetic variability amongst the existing population, and various veterinary problems proper which might be originating from genetic history ,scientific management of the present population. Thus the project would be focused into all these aspects and to prepare a Conservation breeding Management Plan of this species in Indian conditions.

Further aim would be to make a comparative study of the behaviour of the present Snow leopard (*Uncia uncia*) in captivity, and then correlate it to the wild population and then implement the factors possible in captivity for the animals well being and for the breeding success.

7d. METHODOLOGY AND/OR PROPOSED ACTIVITIES:

- Population study of the Snow leopards in captivity: behaviour, compatibility (seasons should be kept in mind while conducting this study)
- Study of husbandry techniques- cage, enclosure design and sizes, hygiene.
- Environmental enrichment for the species to enhance normal behaviour.
- Diet: types, quantity, preferred diets, rejected feed and its quantity.
- Norms for the Introduction of the unknown pair to be studied.
- Study of the breeding pair (breeding biology)
- Post breeding study:
 - Recording the cub's growth rate – weight, height, length.
 - Feeding: intervals, quantity, preferred feed, water intake.
 - Weaning: time, behaviour of the cub after weaning.
 - Cub behaviour.
- Study the medical history of the population of the zoo-past and present.

The parameters would be ----

- ❖ Individual Identification Method: visual method/transponders/tag
- ❖ Restrain method: Physical/ Chemical. How often done, Purpose of doing so, If chemical then doses of medicine used, recovery time,
- ❖ Transport Procedure: cage size, caretakers, feed provided during transportation.
- ❖ Diet: Quantity, nature of the feed, nature of feed during illness, frequency of the feed.
- ❖ Environmental Enrichment provided for Snow leopard: Dietary/non-dietary forms. Frequency of change,
- ❖ Housing – Exhibits and holding enclosures, sizes and the furnishing provided in the holding enclosures. Size of open enclosure, size of feeding cell, Height of Fencing, Nature of wire used,
- ❖ Measures for pest control: traps/ other methods.
- ❖ Records on behavioural observations: method used for observation.

- ❖ Social organization: behaviour when all the animals are kept together-groom, play, court, feeding, marking territory or engaging in social behaviours.
- ❖ Group composition: Number of animals in a group/ gender
- ❖ Behaviour when male and female Interacts.
- ❖ Behaviour between the male and the offspring.
- ❖ Behaviour between the female and the offspring.
- ❖ When are the cubs weaned and when do they start to live independently?

- ❖ Communication
 - Vocalization.
 - Markings.

- ❖ Behavioural indicators of stress: pacing etc.
- ❖ Relationship between the keepers and the animals: how frequently do the keepers interact themselves with the keepers? How friendly are the animals to their keepers?
- ❖ Whether the introduction protocols are followed or not if yes, kindly provide information's on:
 - Acclimatization: methods used for acclimatization.
 - Visual Introduction: How are the animals kept in visual contact? / time period/ days.
 - Tactile introduction: are there any facilities where the animals are allowed to feel each other? / time period/ days.
 - Physical Introduction: when are the animals introduced and how long are they kept with each other?
 - Introduction of pairs: are the unknown pairs introduced only during breeding time or in other times too?

8. COLLABORATION (IF ANY): please specify with which institutions/organizations will collaboration take place and type of the collaboration & support should also be indicated.

NGO'S	NAME	LOCATION
Ministries		NIL
Universities		
Research institutes/or any other		
Type of the collaboration and support		

8a. support from host zoo: (please specify what support the host zoo will be providing, it could be in the form of laboratory, equipment, space or personnel).

The existing laboratory, veterinary facility, old records and manpower shall be utilised for the successful study.

9. BASIC TIME SCHEDULE:

2 years can be extended upto 3 years.

10. OUTPUT.

10a. Describe which output can be expected from this project (reports, scientific publications, management plans, educational tools, etc.) and how they will be disseminated.

The data collected from the above proposed study would help in understanding the animal in a more scientific way. Their Oestrus period, breeding season, gestation period, etc, their behaviour particularly breeding behaviour in comparison to normal behaviour, behaviour during illness, diurnal patterns records, choice of food, dependence on wild food when slated for release, exposure to risks after release etc, can be used further in the proper management of the species in captivity and subsequent reintroduction.

Further the outcome can also be used for different purposes such as preparation of Conservation breeding management Plan and ,in the form of educational tool for the keepers and the students.

10b. Describe the (practical) relevance of this project for ex-situ conservation and scientific management of animals in general.

Wildlife habitat is under pressure and a large number of species of wild animals have become endangered. For the Red Pandas habitat threat is the biggest threat facing Red Pandas today. There are six negative land management practices that threaten the survival of the species. Cash Cropping, Fodder and firewood, Timber, medicinal Plants, illegal Hunting. Captive Management Breeding Programs or ex-situ Conservation will not only strive to augment natural population size and enable some populations to be periodically released into the wild to help maintain numbers and genetic variability.

The study will also help in the scientific management of the species in captivity by studying its various aspects such as behaviour, diet, health etc. and to take relevant measures for its proper management in captivity whenever required and moreover in reintroduction of the animal..

10c. Describe how results/outputs will be evaluated (timelines and benchmarks).

The basic information generated shall itself be a shall be a measurable output , particularly in view of the facts that earlier studies on the species in India has been of nascent in nature and they have not been carried forward. The analysis is bound to

generate initial result within one year time, as they shall have support of old records as well. The complete result within the period of two years shall be a benchmark study in itself.

11. FEASIBILITY (How well is the execution of the project guaranteed? Possible risks such as logistics, permits, other finances and how these risks are dealt with).

Feasibility of the project is very good as the study is of low cost, and is concentrated in small geographical area.

12. FINANCIAL ASPECTS (please include budget overview (in Rs.) in an appendix)

Year 1

Sl No	Items	Budget	Justification
1	Scholar's Honorarium Rs 12000/month including HRA, in LS	1,44,000.00	Honorarium of the Scholar inclusive of House rent
2	Cost of Computer	45,000.00	Cost of purchase of a computer for working
3	Cost of Books, periodicals	36,000.00	To cover the cost of purchase of books, periodicals etc
4	Stationary, CD etc	25,000.00	To cover the cost of purchase of CD, internet, paper, pen etc etc
5	Postage and Communication	20,000.00	Cost of communicating with experts
6	Cost of Travel etc	50,000.00	To visit Zoos having captive population
	Total	3,20,000.00	

Year 2

Sl No	Items	Budget	Justification
1	Scholar's Honorarium Rs 12000/month, in LS	1,44,000.00	Honorarium of the Scholar inclusive of House rent
2	Cost of Books, periodicals	36,000.00	To cover the cost of purchase of books, periodicals etc
3	Stationary, CD etc	25,000.00	To cover the cost of purchase of CD, internet, paper, pen etc etc
4	Postage and Communication	20,000.00	Cost of communicating with experts
5	Cost of Travel etc	50,000.00	To visit Zoos having captive population
6	Cost of Workshop	75,000.00	Cost of workshop with 6-8

			experts for evaluation of the work before preparing final draft
7	Publication of report	1,50,000.00	Publication of Report in a book form
	Total	5,20,000.00	

Total cost $-3,20,000.00 + 5,20,000.00 = 8,40,000.00$ for two years

12a. other financial sources applied for and /or guaranteed

NIL

- In case of Forest Dept./Corporation/Trust: Please also mention the details
- Indicate if source is applied for or already guaranteed.

2. Name Department/Institute: Self

Address:

Amount applied for or guaranteed:

Rs.

3. Name Department/Institute:

Address:

Amount applied for or guaranteed:

Rs.

13. DECLARATION

The information submitted in this application is true, to the best of my knowledge. Should any significant developments arise after the application is made, I shall notify the member Secretary, Central Zoo Authority.

SIGNATURE:

Director/Curator/
Officer-In-Charge of the Zoo
Municipal Commissioner/
(Supervisor of the Research)
Owner/Zoo Operator

Research Project leader

Chief Wildlife Warden/

Signature:

Date

Seal

Signature:

Date:

Signature

Date: