



CENTRAL ZOO AUTHORITY

STUDY OF HIMALAYAN BLACK BEAR

APPLICATION FOR SMALL GRANT FELLOWSHIP
Please read appendix I for instructions (last page of this document)
Form must be filled in English

Internal Project Number (To be filled in by CZA):

1. GENERAL INFORMATION

Date: 29.08.06 of application:

Name of the Zoo / organization: PADMAJA NAIDU HIMALAYAN ZOOLOGICAL PARK

Contact person/ project leader: DIRECTOR, P.N.K.Z. Park, Darjeeling

2. CLASSIFICATION OF PROPOSAL

Improvement of the Zoo	Scientific Management	Ex-situ Conservation	Welfare of animals	the Any other, please specify
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3.. DATE OF INITIATION OF THE PROJECT: APRIL 2007

4. DURATION OF THE PROJECT: 2 YEAR

5. LOCATION OF THE PROJECT.

Region /State : EASTERN REGION, WEST BENGAL

Closest main city: KOLKATTA.

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

1. Name (+ title) + Zoo/Organization: MR. A. K. JHA., IFS

DIRECTOR, PNHZ Park Darjeeling
Period to be spent on the project from: to: (day/month/year) for
hours/week
Role / Function in the project:

2. Name (+title) + Zoo/Organization: DR. S. PRADHAN
SCIENTIFIC OFFICER, PNHZ Park,
DARJEELING.

Period to be spent on the project from: to: (day/month/year) for.....
hours/week
Role / Function in the project:

3. Name (+title) + Zoo/Organization: MR. K. MUKTAN
ANIMAL SUPERVISOR, PNHZ Park
DARJEELING

Period to be spent on the project from: to: (day/month/year) for
..... hours/week
Role / Function in the project:

7 PROJECT BUDGET

**Behavioural study for the conservation breeding of Himalayan Black Bear
(*Selenarctus thibetanus*) in the Padmaja Naidu Himalayan Zoological Park,
Darjeeling**

Eight species of bears is known to be present in the world, although a confusion on the subspecies of bears still continue to exist. Although bears are the world's most popular and familiar carnivore animals, still information on the species are insufficient. Out of these nine species, four species of bears are found in India and they are – the Himalayan Black Bear, the Brown Bear, Sloth bear and the sun bear. Except for the sun bear, all the other three species are found in captivity in the Indian Zoos. All the four bear species are threatened by habitat loss, fragmented distribution and ongoing killing for parts trade.

The Himalayan black bear is the most sought after for their gall bladder while the other species of bears in India, especially the sloth bear are domesticated as dancing bears and exploited by people to earn livings. The other two bears in India, the brown and sun bear are very valuable and endangered species. All the four species are categorized as endangered in the India.

The Himalayan Black bear is also known as the Asiatic black bear, Asian Black bear, and Tibetan black bear. The basic distribution of Himalayan Black bear Asiatic black bears is centered in southern Asia, extending through northern India into Pakistan. Two other populations exist; one at the intersection of China, the Soviet Union, and

Korea, and the other on the islands of Japan. (Brown, 1993). In India, Himalayan black bear is found in the Himalayan foothills from Kashmir to Arunachal Pradesh.

Currently CITES (Convention on International Trade of Endangered Species of Wild Fauna and Flora) lists the Asiatic Black Bear as an Appendix I species and categorized as Vulnerable by IUCN (2002). The IUCN/SSC Bear specialist group has also stated that the Asian bears are the group in most urgent need of detailed priority actions (Herrero and Servheen, 1991).

Darjeeling Zoo has been housing Himalayan Black bear (*Selenartus thibetanus*) since its inception and the institution ~~is~~ also falls within the natural distribution range of the species. However, this species has not so far received as much priority as many other species such as the snow leopard, red panda and other species in the Zoo. Darjeeling Zoo was established in 1958. The zoo has a commendable record and success with the upkeep, welfare and breeding of endangered species like the snow leopard, red panda, Tibetan wolf and Himalayan pheasant species.

The zoo now proposes through this project to take up Himalayan black bear as a priority species in-order to look into the physiological and psychological well being of the bear, and initiate breeding of the species which has not happened so far.

The project would look into what types of enrichment in addition or as an alternative to what is being presently provided that ^{may} be required for the Himalayan Black bears to maintain physically and psychologically healthy bears in captivity, and lead to their breeding success at Darjeeling Zoo.

Project: Applied behavioral study of Himalayan Black Bear at Padmaja Maidu Himalayan Zoological Park, Darjeeling
 Duration: 2 years (2007 - 2009)
 Total Budget: 411800 (Rupees Four Lakhs ^{thousand} ~~eleven thousand~~ eight hundred)

Budget for two years (2007 - 2008)

Sl. No.	Year 1 2007-2008	Year 2 2008 - 2009	Total	Justification
1	Honararium of Scholar 96,000	100,800	196800	The Scholar working in the project would be paid Rs. 8000/- per month as per the UGC norms (8000x12=Rs. 96,000). The second year, there would be a 5% rise on the honararium (8400 x12 = 100800).
2	Enrichment for bears 60,000	60000	120,000	Enrichment includes, procuring enrichment materials and also helpers/labours if there has to any type of minor enrichment constructions and modifications in the existing enclosures.
3	Books, papers 15000	5000	20000	Apart from the regular stationary, Stationary head also includes the costs for report preparation, data sheet, printer ink, CDs, etc.
4	Stationary 10000	10000	20000	
5	Contingency 5000	5000	10000	Miscellaneous would include the communication costs like postage, internet, photocopying, costs of mobile prepaid cards, along with other unforseen expenses.
6	Miscellaneous 35000	20000	55000	In the first year a desk top computer would be procured.
	TOTAL	221000	200,800	411800

411,800

[Signature]

The Zoo is annually visited by around 3.5-4 lakhs people.

The Zoo, at present has 16 species of mammals, 10 species of birds and 1 species of amphibia in the collection, which constitutes for 80 percent of the endangered species of the Wildlife Protection Act (1972). This offers an exclusive chance for the 3.5-4 lakh visitors annually to see, experience and learn about the rare Himalayan species, rarely seen anywhere else.

**PADMAJA NAIDU HIMALAYAN
ZOOLOGICAL PARK**

DARJEELING



AN OVERVIEW

7. a Background and History of the Project

Bears are the world's most popular and familiar carnivore animals, still information on the species are insufficient. Out of these eight bear species found in the world, four species of bears are found in India and they are – the Himalayan Black Bear, the Brown Bear, Sloth bear and the sun bear. Except for the sun bear, all the other three species are found in captivity in the Indian Zoos. All the four bear species are threatened by habitat loss, fragmented distribution and ongoing killing for parts trade. The Himalayan black bear is the most sought after for their gall bladder. All the four species are categorized as endangered in the India. Himalayan black bear is found in the lower reaches of the entire Indian Himalaya.

Currently CITES lists the Asiatic Black Bear as an Appendix I species and categorized as Vulnerable by IUCN (2002). The IUCN/SSC Bear specialist group has also stated that the Asian bears are the group in most urgent need of detailed priority actions (Herrero and Servheen, 1991).

Darjeeling Zoo has been housing Himalayan Black bear (*Selenartus thibetanus*) since its inception and the institution also falls within the natural distribution range of the species. However, this species has not so far received as much priority as many other species such as the snow leopard, red panda and other species in the Zoo. The zoo now proposes through this project to take up Himalayan black bear as a priority species in-order to look into the physiological and psychological well being of the bear, and initiate breeding of the species which has not happened so far.

7.b. Question:

Very little is known about the upkeep of the bears in the Himalayan condition as that of the Darjeeling Zoo. There is very little information on the optimal food and nutrition for the bears, their breeding behaviour and breeding season, their social behaviour etc. from the Darjeeling Zoo. Because of the lack of these information, appropriate management and enrichment has been inadequate for the Himalayan Black bear. As a result the bears have never bred in the Zoo.

Hence the project will conduct a preliminary study of the behaviour of the animals and assess the types of enrichment that would be required for the Himalayan Black bears to maintain physically and psychologically healthy bears in captivity, and lead to their breeding success at Darjeeling Zoo.

7.c. Aims and objectives of the Project

The proposed project aims to improve welfare and well being of the bears for their reproduction success in Darjeeling Zoo. The study would have the objectives to study the behavioral patterns of the Himalayan Black bears in Darjeeling Zoo and to provide and analyze the effectiveness of the enrichment that would be provided to them and their environment with special reference to their breeding.

7. d. Methodology and activities

Initially, there would be a consultation and review of literature and available records of the bears in the zoo, relevant to the study. After this an ad libitum observation of the bears would be done and an ethogram would be constructed. Based on this relevant data sheet would be prepared for the normal daily and seasonal behaviour study of the bears. Behaviour observation of the bears would be done following standard methods like scan and focal sampling. These observations would also include observations on daily diet and health patterns of the species. Social, dietary, novel, sensory and furnish enrichment of the captive environment of the bears would be done. Data and information collected would be compared and analysed to understand the effectiveness of the enrichment in the captive environment of the bear on the overall and reproductive well being of the bears. Statistically, parametric and non parametric statistics would be used for the analysis and reports would be prepared.

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

NGOs
 Ministries
 Universities
 Research Institutes/or any other

North Bengal University
 as Co-investigator.

Type of collaboration and support

8. a. 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)

Darjeeling Zoo has a well equipped laboratory, and scientific personnel for guidance.

9. Basic Time Schedule

The project would be of one year tenure.

1- 2nd Month = Literature consultation and *ad libitum* observations.

3rd Month - 5th month = Preparation of relevant data sheets for the observations and behavioural observations.

6th Month - 10th = Behavioural observations and enrichment, data entry.

11- 12th Month = Analysis of data and report writing.

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

The most important outcome of the project would be a systematic documentation of baseline information on the behavioral patterns of the Himalayan Black bears in the Zoological Park for the first time, and the impact of the enrichment of the overall well being and breeding enhancement of the species.

Reports and scientific publications would be the initial out put of the project. They would be published in popular magazines or journals for their dissemination.

10. b. Describe the relevance of this project for *ex situ* conservation and scientific management of the animals in general.

The project would be able to document the impact of the enrichments provided to the bears during the project tenure. The behavioral study would provide information based upon which informed decisions could be made for scientific management of the Himalayan Black bears in the Zoological Park. This project is directed towards improving animal well being and reproductive success, and maintenance of behaviors that may be required for survival in the wild. This makes the project directly relevant to the *ex situ* conservation of the project.

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

The basic information on the Himalayan Black bears in the Darjeeling Zoo that would be generated is in itself a measurable output, because till date no information on the species exist. The analysis of the enrichment of the bear's captive environment would also generate information within one year, which would allow the scientific management of the species. Finally as the aim is the reproduction success of the bear in the Zoo, any breeding signs or breeding success shown by the animals within the coming year would be a benchmark for the projects evaluation.

11. Feasibility: Feasibility of the project is good because this study is low cost and requires very little resources and logistics.

12. a. Other financial sources applied for and or guaranteed

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

Name Department /Institute : Self

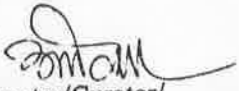
Address:

Not applicable


13. DECLARATION

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

SIGNATURE


Director/Curator/
Officer-In-charge of the Zoo
(Supervisor of the Research)

Research Project Leader

S. PRADHAN
SG. OFFICER


Chief Wildlife Warden/
Municipal Commissioner/
Owner/Zoo Operator

Signature:
Date:
Seal

Signature:
Date:

Signature:
Date:

Include with the proposal:

- A curriculum vitae of the applicant and individuals involved in the project
- Background information about the zoo involved (max. 1 page)
- Budget overview

Brief Background Information:

Padmaja Naidu Himalayan Zoological Park

Padmaja Naidu Himalayan Zoological Park, formerly known as Himalayan Zoological Park was established on 14th August, 1958 in Darjeeling (West Bengal). In 1975, Late Smt. Indira Gandhi the then Prime Minister of India, dedicated the Himalayan Zoological Park, Darjeeling in memory of Late Smt. Padmaja Naidu, ex-governor of West Bengal. The Zoo was thereafter, renamed as Padmaja Naidu Himalayan Zoological Park. The zoo is popularly known as Darjeeling Zoo.

Unlike many generalized zoos in India, Darjeeling Zoo is a **specialized Himalayan Zoo** keeping only **endangered Himalayan species** which are as far as possible suitable for the cool climate of the region. Some of the endangered Himalayan species in the Zoo are the Red panda, Snow leopard, Himalayan Tahr, Tibetan wolf, Musk deer and Himalayan pheasants. Historically, it is one of the oldest zoos in India, as old as the National Zoo in Delhi.

Objectives

Darjeeling Zoo strives for the conservation of the Himalayan species through captive breeding, education and research and has the following objectives :-

- (i) *Ex-situ* Conservation or Captive breeding of endangered Himalayan animal species for their conservation.
- (ii) Educating, and initiating awareness about their conservation.
- (iii) Initiating applied and basic research on animal biology, behavior and health care.

Achievements

In the last few years, the Zoological Park has done excellent work in the Planned captive breeding of Snow Leopard, Red Panda, Tibetan Wolf, Kallej Pheasant and Himalayan Newt etc. Three of its nationally and internationally acclaimed projects are - **Project Snow Leopard** (started 1983)

present population: 6 males 5 females), **Project Red panda** (started 1992) and the **Project Red panda** - Back into the wild (2003 -2004) wherein four captive bred red pandas were released back into the wild in the Singhailla National Park, Darjeeling. This has given the zoo the credibility of being a good captive facility for the endangered species. This initiative of the zoo being the first of its kind in South east Asia, has also won its appreciation from Central Zoo Authority of India as well as the International community.

The zoo has also been donating some of these species to different Indian Himalayan zoos such as Gangtok Zoo (Sikkim), Kufri (Himachal Pradesh) and Nainital (UP) zoos to start their respective breeding programs for the Himalayan species and assisting them by transfer of technology and expertise.

Regular education and training programs are held in the zoo for different target groups ranging from school children, to teachers, NGOs and the local public, and administrators.

Resources and Infrastructure

The Zoological Park falls under the category of small zoos as per Central Zoo Authority's classification but is the **largest high altitude zoo in the country**. This is the one of the few highly established Zoo in the country with sixty plus establishment headed by one full time Director who is assisted by Deputy director, Scientific Officer, Veterinary Surgeon, Estate Officer, Animal Supervisor and Storekeeper and other minstrel staffs.

The Zoological Park has well designed animal houses/enclosures; off display conservation breeding center for Snow Leopards and Red Pandas; fully equipped veterinary hospital with inpatient wards, operation theatre, endoscope, X-ray facility, pathological lab, dispensary, nursery for hand rearing; quarantine ward, Post Mortem room and electric Incinerator; well furnished animal diet kitchen; established research unit; well stocked Zoo library; fully equipped auditorium/conference hall; etc.