

**NOTICE FOR ENGAGEMENT & TERMS OF ENGAGEMENT (RESEARCH
SCHOLAR) FOR THE PROJECT TITLED**

“Assessment of the intensity of threats caused by -

1. Livestock grazing and tourism

2. feral dogs

3. bamboo collection and & flowering of bamboo

on Red Panda (*Ailurus fulgens fulgens*) and its habitat and the management of these threats through the course of the red panda augmentation programme in their habitat in Singalila National Park, Darjeeling and Neora Valley National Park, Kalimpong”

A. BACKGROUND

The PNHZP is implementing a project titled “Augmentation of Red Panda in Singalila National Park and Neora Valley National Park in West Bengal”. The project also includes assessment of various threats like cattle grazing, tourists, feral dogs, collection of bamboo and flowering of bamboo which are being faced by red pandas and its habitat in these areas. The current assignment is part of the Red panda augmentation programme.

The Red Panda occurrence has been noted in the forest areas of Singalila National park and Neora Valley National park areas of Darjeeling and Kalimpong districts respectively. Even though red pandas have no negative impact on humans (Glatston, 1994), they still face anthropogenic threats (Bista et al., 2017a; Panthi et al., 2017). There are several threats faced by the red pandas in both these national parks that include cattle grazing, tourism, collection of malingo (Bamboo), collection of medicinal & aromatic plants, tourists, cutting and collection of trees, flowering of bamboo, feral dogs, poaching and predation.

In both National Parks, livestock grazing is one of the major threat to red pandas. Red pandas are adapted to a specific realized niche as bamboo feeders. The impact of grazing therefore needs to be studied in these habitats.

Tourism is a major source of income for the local community. The resounding view of the Himalayan ranges and the presence of rare flora and fauna species has made these destinations popular, and there has been sharp growth in the tourist flow in these regions. Tourism, like many other forms of development, will always produce environmental impacts, even at low levels of intensity, and despite the best efforts of protected area

managers. Such impacts occur both at site level, and over larger areas. It is important to study such impacts and suggest measures to mitigate such threats.

Domestic dogs are considered invasive alien species when using or living in natural areas without human assistance. Feral dogs live in natural areas close to human dwellings and may occasionally feed on resources offered by humans, but are not dependent upon them. They have a generalist diet (Macdonald and Carr, 1995; Campos et al., 2007). Dogs usually chase and capture other species for fun; however, they may injure animals, leading to death, while not always feeding on them. Red panda kills due to dog attacks have been reported in Nepal (Yonzon and Hunter, 1991a; Williams et al., 2011; Bista and Paudel, 2014). Other threats caused by feral dogs to the native vertebrate species are transmission of pathogens causing diseases like canine distemper, parvovirus, rabies, leishmaniasis, heart worm etc. The presence of dogs in protected areas is therefore a threat to biodiversity including the survival of red pandas and needs to be treated with effective management actions targeted at specific dog profiles.

In addition to unrestricted livestock grazing, excessive harvesting of forest resource have created an unprecedented level of threat to red panda survival (Sharma et al., 2014a; Sharma and Belant, 2010; Williams, 2003; Roder et al., 2002; Gratzer et al., 1999). Red pandas are reported to prefer areas with dense forest (tree canopy cover over 30%), abundant bamboo cover (>37%) and bamboo height (2.9 m) and in close proximity to water sources (within 100–200 m), (Bista et al., 2017a; Dorji et al., 2012; Pradhan et al., 2001; Yonzon and Hunter, 1991a). Bamboo leaves and shoots constitute 83% of the overall diet of red pandas (Reid et al., 1991; Wei et al., 1999a, 1999b; Yonzon et al., 1991). Since bamboo has very low caloric value, the red pandas spend nearly 56% of their overall time budget on eating. These animals have been observed to have preferred habitat with higher bamboo cover avoiding areas disturbed by livestock or close to human settlements (Dendup, 2016). Yonzon et al. (1991) had also reported bamboo loss as one of the key threats to the red panda survival. Red panda diet consisted chiefly of bamboo leaves and both species of bamboo, *Arundinaria maling* and *A. aristata* predominantly present as understory in Singalila National Park and *Arundinaria maling*, *A. aristata* and *A. hookeriana* present as understorey in Neora Valley National Park. Illegal collection of bamboo and loss of bamboo by mass flowering can therefore have a negative impact on the red panda population in these habitats and need to be studied.

The aim of these studies is to assess the intensity of the threats faced by the red panda population in SNP and NVNP in regard to cattle grazing, tourism, feral dogs, bamboo collection and flowering of bamboo and evaluation of the management of these threats during the course of the augmentation programme titled “Red panda augmentation in Singalila National Park and Neora Valley National Park in West Bengal”. The studies will evaluate intensity of these threats, the causes and sources of threats, their positive and negative consequences and assess the success in removing these threats by the protective measures taken up within the national parks during the augmentation programme of red panda in order to conserve the red pandas after the release into these habitats.

B. OBJECTIVES OF THE STUDY

The proposed studies will evaluate the intensity of the threats to the red panda caused by

1. livestock grazing and tourism
2. feral dogs and
3. bamboo collection and flowering of bamboo

in Singalila National Park and Neora Valley National Park including impact of the measures taken to protect the status of the endangered red panda in both these habitats. Through these studies, Padmaja Naidu Himalayan Zoological Park will attempt to come up with a clear benchmark for determining the intensity of these threats and their management in the red panda habitat through present and past studies.

1. THREATS CAUSED BY LIVESTOCK GRAZING & TOURISM

A. LIVESTOCK/CATTLE GRAZING

- Estimate the number of cattle, distribution of cattle stations and home range of feral livestock, along with the distribution and home range of red pandas in SNP and NVNP through questionnaire survey and past and present studies.
- Assess the livestock grazing systems prevalent in Singalila National Park and Neora Valley National Park to study the broader role of livestock rearing on the economy of fringe population.

- Determine the extent to which livestock grazing is happening inside the preferred habitat of the Red Panda.
- Estimate the Impact of livestock herd on bamboo biomass to estimate the level of threats caused by grazing of livestock to the red pandas and its habitat.
- Evaluate the management measures taken up to phase off herders and grazing. Suggest measures to mitigate the impacts and to reduce the grazing.

B. TOURISM

- Estimate the number of tourists and segregate the type of tourists entering in SNP and NVNP through past and present studies records and studies. The segregation will help in behaviour prediction and better planning.
- Estimate the number of lodges, homestays, hotels and the services offered by them through questionnaire surveys and records.
- Study the incident of tourists venturing inside the preferred habitats of the Red Panda.
- Estimate the impact of tourism on bamboo biomass, collection of firewood and non-timber forest products and to estimate the level of habitat degradation caused by use of forest resources by tourism.
- Study the methods of waste disposal deployed in homestays/hotels/ lodges etc in the surroundings of the two national parks.
- Evaluate the management measures taken up to combat the threat caused by tourism to the national parks and to suggest mitigation measures.

2. THREATS CAUSED BY FERAL DOGS

- Estimate the dog population (domestic, stray and feral) and distribution within the national parks and fringe areas.
- To study the extent of dogs staying in the red panda habitat area and assess the disturbance caused by them.
- Evaluate the management measures taken up to contain threats caused by the dogs within the national parks. Also suggest mitigation strategies.

3. THREATS CAUSED BY COLLECTION OF BAMBOO & FLOWERING OF BAMBOO

- Estimate the extent of collection of bamboo from the national parks through questionnaire surveys.
- Study the usage of bamboo and its source. Assessment of the economic value of bamboo to the livelihood of the local population. Suggest measures to reduce dependence on forests.
- Evaluate the management measures taken up to control collection of bamboo within the national park.
- Study the instances of past flowering of bamboo in the National Parks.

C. PLACE OF WORK-

Singalila National Park, Darjeeling

The Red Panda occurrence has been noted in the areas of Darjeeling and Kalimpong districts. The forest areas of Singalila National park and Neora Valley National park are of particular importance.

The Singalila National Park lies within the latitude of 27°13'15" N and 22°1'46" N latitude and 83°01'91"-38°7'54"E longitude. The National Park is situated in the extreme North-western boundary of Darjeeling District, West Bengal with an area of 108.8km² (core area=78.6 km², buffer = 30.17 km²). It has a boundary with the State of Sikkim in the north and Nepal in the west. A motor able road identifies the international border between Nepal and India. Singalila National Park ranges from an altitude of 2400-3636m encompassing two broad vegetation zones, viz, the temperate and the subalpine with oak forest (2700 ± 2800m), broad leaf deciduous forest (>2800 ± 3100m), broad-leaf coniferous forest (> 3100 ± 3300m) and the coniferous forest (>3300 ± 3600m) (Pradhan et al., 2000). The physiography of the flora of both, the eastern and western side of the Singalila range is alike. It has subalpine anthropogenic grasslands that merge higher and higher up to the snowline beyond Singalila peak (Sikkim). Its temperate forests are contiguous with subtropical and tropical forests of Tonglu, Ghoom-simana and Senchal. The park houses many plant and animal species, some of which are endemic and endangered such as red pandas.

Singalila National Park (SNP) is surrounded by numerous settlements. The settlements that

lie on the eastern side, extending till the Sikkim border is known as buffer settlements whereas the settlements that lie on the western side, towards Nepal is known as border settlements. The buffer settlement encompasses more human population; however, the border settlements lie on the very red panda distribution zone. In Singalila National Park past report reveals the establishment of about 80-90 goths, each housing 30-50 cattle's, prior to the establishment of the national park. Later, grazing was restricted to an area above 2727m and 2879m in Tonglu after which the incidence of livestock grazing started declining. Singalila National Park shares International border with Nepal in West. Goths and cattle grazing are common in Nepal and these cattle enter the National Park. Cattle grazing and trampling of bamboo undergrowth in potential Red Panda habitat directly affect forest timber resources and also disturb the solitary species.

D. SCOPE OF WORK (FOR THE RESEARCH SCHOLAR)

- The incumbent will review the available literature by referring articles from journals, books and conference proceedings, past studies conducted by PNHZ Park, census data and other records available with Darjeeling Wildlife Division/Gorumara Wildlife Division and other forest offices and prepare a summary on the issues covered under the studies.
- The incumbent will prepare a framework and timeline for the studies so that each study covers different phases and seasons to meet the objectives of each the studies.
- The incumbent will be required to design questionnaire for collection of data
- The incumbent will be required to finalise the sample plots in the field for collection of data as required for the studies.
- The incumbent will be required to depict the sample points and extent of threats/impact on the maps for management purposes.
- The incumbent will be required to conduct structured interactions with Eco Development Committees (EDCs)/Joint Forest Management Committees (JFMCs) members, guides, taxi drivers, shop keepers etc. to assess the dependence on the forest resources.
- The incumbent will be required to design the sample for collection of data. It is to be ensured that studies are conducted in such a way that data of different seasons, different phases are recorded systematically.

- The incumbent will analyse the data and will prepare the report on the analysis. Also, the incumbent will be required to suggest various measures, on the basis of data analysis, to mitigate the threats.
- The incumbent will be required to document all surveys, questionnaires, interviews, structured meetings, collections of samples from field, field observations etc for inclusion in the final report.
- Incumbent will be required to prepare scientific reports, briefs, and presentations
- Maintaining all related files, registers and other related documents as guided by the research PI & with approval of the Director PNHZ Park.
- Involve and guide the Field Assistant in the above-mentioned work and take necessary assistance from the Field assistant
- Any other duties as assigned by the Director, PNHZ Park.

E. OTHER DETAILS

1. Duration: The employment/ contract is for a period maximum up to twelve (12) months. The appointee will be engaged on probation for one (1) month, engagement may be extended for a further period. The Park may not extend the engagement after probation period of one (1) month, the park need not assign any reason in such case. The engagement may be periodically renewed maximum up to eleven (11) months after the probation period, in case the Park & West Bengal Zoo Authority decide to continue with the engagement.
2. Working hours: The candidate will be expected to be on duty when in the field (Singalila National Park/Neora Valley National Park/ or Field Offices) at all hours. When working from PNHZ Park office, the working hours are from 9:00 am to 5:30 pm with half an hour break for lunch for 6 days a week. The candidate may be required to work on off days and beyond duty hours on the discretion of the Director, PNHZ Park.
3. Working in the field (Singalila National Park/Neora Valley National Park/ or Field Offices) will be required including periodic visits to other zoos/institutes and fields in regard to the project. The candidate should be ready to stay in the field, which is a forest area(Singalila National Park/Neora Valley National Park/ or Field Offices) for almost all the period of the project and work from any offices/places in the interest of the project.

4. The Research Scholar will be required to travel a lot of distance daily in the forest (a high altitude area) for observation and data recording purposes. It requires him/her to be physically very fit.
5. Remuneration: Rs. 15,000/- p.m. Remuneration is all inclusive of House Rent Allowance and other benefits. Expenses for travel, and lodging will be paid by Padmaja Naidu Himalayan Zoological Park as per the discretion of the Director for the project related travels.
6. The Park is under no obligation to continue the engagement and may discontinue the engagement with one (1) month notice without assigning any reason for discontinuation.
7. The Research Scholar will not use any data related to and collected for the study for commercial purposes. All scientific papers and reports will be owned by Padmaja Naidu Himalayan Zoological Park. No outside publication in any short of online/offline platform is allowed unless specially approved by the Director, PNHZ Park.
8. The Research scholar will not disclose any data related to and collected for the programme for commercial purposes. All scientific papers and reports will be owned by Padmaja Naidu Himalayan Zoological Park and the park should be acknowledged in any publications/ presentation/ research articles made regarding the study. All materials produced or acquired under the terms of engagement-written, digital, pictures, films, graphics or other forms, shall remain the property of PNHZ Park, West Bengal. The appointee shall not have any right to use such knowledge outside the engagement, without prior written permission of the Director, PNHZ Park. No such data should be copied by appointee without authorisation.
9. Any data in any form recorded in personal mobile phone/ camera should be immediately and as soon as possible transferred to a hard disk or computer of PNHZ Park and no data related to the Park and the project should be kept in personal mobile phones and cameras.
10. The Research Scholar will not disclose any information related to the Park and the research project to outside personnel. All knowledge and information not within the public domain which may be acquired during the project, shall be, for all time and for all purpose, regarded as strictly confidential and held in confidence, and shall

not be directly or indirectly disclosed to any person whatsoever, except with the written permission of the Director, PNHZ Park.

11. The engagement is subject to the conditions specified in the agreement to be signed by the selected candidate.

F. ELIGIBILITY

1. Educational Qualification: The applicant must have MPhil/MSc in Bio Sciences/ Zoology/ Wildlife Science with minimum 50% marks or equivalent CGPA from a recognized University/ (attach a copy of the scorecard).
2. Be proficient in computer skills like Microsoft Office including excel, use of GPS, camera trap, camera, and related software. A good knowledge of statistics is required.
3. Proficiency in English communication for report writing, presentations etc.
4. Good knowledge of Hindi/Nepali for interaction with EDC/JFMC members
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6. Experience: Candidates having exposure to wildlife research are encouraged to apply. Freshers may also apply.

G. SELECTION

The selection of the applicant will be based on the qualification, academic performance, experience, exposure and merit of the applicant. The shortlisted candidates will be interviewed on the above criteria and the best suited candidate will be engaged.

H. GENERAL INSTRUCTIONS:

1. Interested candidates are required to send their CV as per attached format with a passport size photograph along with signed photocopies of candidate's professional certificates to the **Email: pnhzp@yahoo.com** latest by **18.06.2021(5 p.m)**.
2. Only shortlisted candidates will be communicated to appear in the interview and no other communications in this regard will be entertained.
3. No TA/DA will be paid for appearing in the interview.