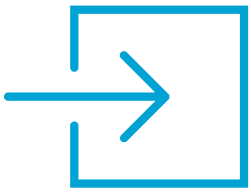

ANNUAL REPORT 2016-17

WILDLIFE INSTITUTE OF INDIA

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CONTENTS

From the Director's Desk…

I am very pleased to state that the Annual Reporting Period 2016-2017 saw initiation of several new initiatives for strengthening natural resource conservation in the country. Efforts to secure the conservation of 4 wild animal species viz. the Great Indian Bustard, Gangetic Dolphin, Dugong and the Manipur Deer received a boost with the launching of 'Endangered Species Recovery Programme' sponsored under National Compensatory Afforestation Fund Management Planning Authority (CAMPA) in May, 2016. The need to conduct in-depth studies on Himalayan ecosystem and to study the interrelationships between species distribution/ abundance and climate change led to the organization of the 'First Himalayan Research Seminar' in September, 2016.

As part of the activities under the National Action Plan for Climate Change, a state-of-the-art 'Landscape Ecology and Visualization Laboratory' was established in December 2016 to facilitate environmental decision-making in the area of biodiversity and climate change.

The newly established UNESCO Category 2 Centre on 'World Natural Heritage Management and Training for Asia and the Pacific Region' at Wildlife Institute of India received the honour of hosting the 5th Annual Coordination Meeting of the UNESCO World Heritage-related Category 2 Institutes and Centres in which 19 representatives from 7 countries including the Director, UNESCO World Heritage Centre, Paris participated.

The Institute's commitment towards further promoting a green environment was manifested in the commissioning of a 85 Kw capacity rooftop solar energy system in the campus.

The Institute continued to build capacity of natural resource professionals in the country and in the region through training, research, academic programmes and by providing a range of advisory services to its stakeholders.

I would like to acknowledge the very valuable professional inputs provided by the Institute's governance and administrative committees; stakeholders and faculty colleagues; staff, researchers and students that have enabled us to successfully fulfil the Institute's mandate and responsibilities.

26 December, 2017

(Dr. V.B. Mathur)
Director

ROLE AND MANDATE

Introduction

In the early 80s of the last century, there was a realisation all over the world, including India, that natural resources were diminishing and that the environment was being degraded. At the same time, the understanding of environmental issues was still a little hazy, and the initial remedial responses to complex environmental problems had mixed outcomes, with both successes and failures.

The limitations of the early initiatives also brought into focus the inadequacy of skilled human resources for wildlife management and of wildlife biologists to conduct research and overcome the paucity of researched information for promoting proper conservation planning. A need was felt for establishing an organisation that, through multi-disciplinary research at the field level, could help respond to the challenges of biodiversity conservation and develop holistic approaches for managing wildlife and habitats across the country and the region. This led to the setting up of the Wildlife Institute of India (WII), at Dehradun, in 1982.

In 1986, WII was granted the status of an autonomous institution of the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India. WII is a premier training and research institution in the field of wildlife and protected area management in South Asia. Since its inception, WII has had the benefit of collaboration with international organisations such as UNDP, FAO, USFWS, IUCN and UNESCO. These partnerships have helped the institute build up a qualified faculty and staff through rigorous training and exposure to modern research and analytical techniques.

The institute's vast array of capacity building programmes provides a practical and realistic direction to the concept and practice of wildlife conservation by seeking the involvement and cooperation of local communities. By learning from its own and others' experiences, WII is traversing a path of hope and aspiration, which will help strengthen it in finding answers in addressing wildlife conservation issues and challenges in the country as well as in the South Asian region.

Our Mission

Our mission is to “nurture the development of wildlife science and promote its application in the field in a manner that accords with our economic and socio-cultural milieu”.

Aims and Objectives

- Build up scientific knowledge about wildlife resources.
- Train personnel at various levels for conservation and management of wildlife.
- Carry out research relevant to management, including the development of techniques appropriate to Indian conditions.
- Provide information and advice on specific wildlife management problems.
- Collaborate with international organisations on wildlife research, management and training.
- Develop as a regional centre of international importance for conservation of wildlife and natural resources.

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RESEARCH

X-mas Bush Frog *Raorchestes shillongensis* (Pillai and Chanda, 1973) Conservation Project, Meghalaya, India

- Funding Source
  Mohamed Bin Zayed Species Conservation Fund
- Investigator
  Dr. Abhijit Das
- Researcher
  Mr. Bitupan Boruah

COMPLETED PROJECTS

- Date of Initiation
  March 2016
- Date of Completion
  January 2017

Objectives

The objectives of the project were to (1) document the distribution and population status of *Raorchestes shillongensis;* (2) study the habitat ecology and breeding ecology of the species; and (3) create awareness about the conservation significance of the species.

Progress

The research team added 82 new localities to the distribution of *Raorchestes shillongensis* (within East Khasi Hills), which covers a 531 km^2 area. This distribution includes protected forests, community conserved sacred grooves, tourist spots and areas around human settlements. The species was found to be occurring within the elevation range between 1000 m and 1900 m asl. Earlier it was known to occur up to an elevation of 1400 m asl. The species was found to be relatively common in and around Shillong city and to be a peri-anthropic species restricted to the Shillong plateau. The species was frequently encountered along forest edges and around human settlements where dense shrubs are abundant. A molecular phylogenetic study showed that the species is more closely related to the South Asian Clade *(Raorchestes)* than to the East Asian Clade *(Philautus)*. The species was found to be highly variable in colour. The axial amplexus of the species lasts for 9–11 hours. The clutch size of the species is relatively small (8–17 eggs), and the developmental period is longer (30–31 days) than those of other known species of bush frog in India. The species lay eggs under leaf litter on moist soils. The females mix the eggs with moist soil, presumably to counter the risk of desiccation. The team observed male–male combat behaviour that lasted 27 minutes. The breeding biology of the species was found to be similar to that of the Sri Lankan bush frog, a *Pseudophilautus* species, rather than congeneric Indian species.

Milestones

This project provided information for the first time ever on the distribution of a Critically Endangered rhacophorid frog from the Northeast, a hotspot region of India. Further, the team re-described the species on the basis of fresh material and determined its phylogenetic position. The team studied the reproductive biology and compared it with those of South Asian lineages.

© *Abhijit Das*

Causes of Avian Diversity Gradient along the Himalayas

- **Funding Source**
  Department of Science & Technology
- **Investigators**
  Dr. R. Suresh Kumar,
  Dr. Pratap Singh,
  Dr. Dhananjai Mohan and
  Dr. S.K. Gupta
- **Researchers**
  Mr. Ashutosh Singh and
  Mr. Suresh Kumar Rana

- **Date of Initiation**
  August 2013
- **Date of Completion**
  December 2016

Objectives

The objectives of the project were to (i) understand distributions, densities, and habitat associations in the western and eastern parts of the Himalayan range for a select group of closely related birds; (ii) study genetic differentiation across the range of species shared between the east and west; and (iii) combine results in an evaluation of the ecological and historical hypotheses to explain the diversity gradients in the Himalayas.

Progress

The fieldwork was carried out on genetic analysis and the report writing was completed. This was for the first time that a detailed and fine-scale sampling of vegetation across an elevational gradient and across the east and west Himalaya has been carried out. This has provided new insights on the vegetation diversity across the Himalaya. Intensive efforts were also made for studying the population level genetic and vocalization differences between the cryptic species of flycatchers occurring across the wide range of east to west Himalaya.

Outputs and Outcomes

The results show that out of the 22 species in the study, 8 are found in both the east and west, 11 are confined to the east and 3 are confined to the west. Along the elevational gradient the number of flycatcher species peaks at about 2,000 m in the east, and to plateau from about 2,000m – 3,000m in the west. The higher number of flycatcher species in mid-elevations were found to correlate well with the estimated foliage density. Further, vegetation sampling in the eastern Himalaya showed maximum tree species at 500 m elevation (102 species), maximum tree density at 1000 m (45.8 trees/ha) and maximum basal area at 2000 m (65.71m^2/ha). Basal area being an indicator of productivity correlates with the higher flycatcher numbers. Foraging behaviour and morphology showed maximum morphometric differences among flycatcher species occurring in the mid-elevations indicating expansion of niche space resulting in higher species diversity.

© Ashutosh Singh

Milestones

A new avian taxa was discovered. The comparisons of songs of *Ficedula superciliaris* populations, which occurs in both eastern and western Himalaya showed significant differences. The findings suggest that the mid-elevation peaks in flycatchers are likely a result of maximum niche expansion since the morphological and foraging diversification is much higher in this zone. This is also supported by the results on habitat association, which suggested higher productivity in this zone. This is again the cause for the flycatcher diversity gradient from east to west Himalaya.

Preparation of Marine Turtle Recovery Plan for Puducherry

- **Funding Source**
  Puducherry Forest Department
- **Investigators**
  Dr. K. Sivakumar and
  Dr. R. Suresh Kumar
- **Researcher**
  Ms Prachi Hatkar

- **Date of Initiation**
  January 2015
- **Date of Completion**
  August 2016

Objectives

The project has the following objectives (i) Mapping existing and potential turtle nesting areas along Puducherry coasts; (ii) Identification of existing threats to marine turtles and their habitats, and measures to mitigate the same; (iii) Preparation of community based species recovery program for the next five years; and (iv) Capacity building of the Department of Forests and Wildlife towards implementation of proposed Marine Species Recovery Plan.

Progress

Five of the seven species of sea turtles found worldwide are reported to occur in the Indian sub-continent, including the Olive ridley *(Lepidochelys olivacea)*, Green *(Chelonia mydas)*, Leatherback (Dermochelys coriacea), Hawksbill *(Eretmochelys imbricata)* and Loggerhead turtle *(Caretta caretta)*. Except for the loggerhead, the remaining four species are known to nest along the Indian coastline. Olive ridleys nest along both the east and west coasts of India, with globally significant nesting sites at Gahirmatha and Rushikulya in Odisha. Olive ridleys and Green sea turtles are known to nest along the coast of Puducherry sporadically. Their sporadic nesting is at peak during November to February along Puducherry. However, turtle populations and their habitats are under threat due to fisheries and other anthropogenic related activities along the coast including Puducherry.

Outputs and Outcomes

Wildlife Institute of India and the Ministry of Environment, Forests and Climate Change, Government of India has prepared a guidelines and frameworks for the 'Marine species recovery plan' that would be used for preparation of 'Marine Turtle Recovery Plan of Puducherry'. Further, WII with support of Government of Puducherry would later organise a short-term capacity building programme for the staff of Department of Forests and Wildlife, Government of Puducherry to successfully implement this plan. Two year data on sea turtles nesting along Puducherry coasts were used to prepare this plan. Further, various stakeholders have been consulted while drafting the plan. Moreover, the land-use and land-cover changes in past three decades along Puducherry coasts were detected and incorporated in the plan with recommandations to recover the turtles and their habitats in Puducherry. The final draft Plan had been submitted to the Puducherry Forest Department for their comments.

© K. Sivakumar

Development of Integrated Management Plan of the Thane Creek Flamingo Sanctuary 2016-25

- **Funding Source**
  Maharashtra Forest Department
- **Investigators**
  Dr. K. Sivakumar,
  Dr. J.A. Johnson and
  Dr. Gopi G.V.
- **Researchers**
  Mr. Sumant Mali,
  Ms. Arundathi Mohanty and
  Mr. Aditya Singh Chauhan

- **Date of Initiation**
  March 2016
- **Date of Completion**
  October 2016

Objectives

Wildlife Institute of India would develop this 10 year Management Plan for the TCFS addressing the issue of: (i) Conservation of Biodiversity and ecological integrity of the TCFS through protection, restoration and management of biodiversity and its ecosystem in the Thane Creek Flamingo Sanctuary. (ii) Integrated and sustainable development around the TCFS region maintaining the ecological integrity of the coastal and marine eco-systems to ensure the wise use of common ecological goods and services for the benefit of the local inhabitants and community. (iii) Integration of multi-sectoral plans in managing the globally important fragile coastal and marine ecosystem and its biodiversity of TCFS.

Progress

The Government of Maharashtra has established the Thane Creek Flamingo Sanctuary (TCFS) under the provision of the Indian Wildlife (Protection) Act, 1972, encompassing about 16.905 sq.km area of Thane Creek vide their Notification No.WLP-0315/CR-76/F-1, dated 6th August, 2015 by the Government of Maharashtra. The Sanctuary will be located on the western bank of the Thane Creek, between the Airoli and Vashi bridges that connect Mumbai with Navi Mumbai. The primary objective of the establishment of the TCFS is to conserve flamingos along with their habitats and associated coastal biodiversity of the Thane creek region by providing protection and through management and restoration of the degraded coastal habitats and their fauna and flora.

Outputs and Outcomes

This management plan was prepared using the participatory approach involving various stakeholders of TCFS. Information related to status and distribution of various habitats and taxa of TCFS were gathered from secondary sources and threats would also be identified with conservation perspectives. Series of consultative discussions/meetings would be conducted to formulate conservation actions to minimize or remove prevailing threats and Conserve biodiversity and ecological integrity of the TCFS through protection, restoration and management. Adequate attention was provided for the active involvement of local communities and other stakeholders in the preparation process of the Management Plan. Landscape and seascape level spatial planning was emphasized while mainstreaming the biodiversity conservation into the production sectors in the Thane Creek to maintain the ecological integrity of TCFS. Integration of the Management of Plan of TCFS with other ongoing development plans at the regional level has also been emphasized. The final draft Plan has already been submitted to the Maharashtra Forest Department.

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Phylogeography and Population Genetic Structure of Whale Shark, Rhincodon typus, Smith, 1828 around Gujarat Coast, India

- **Funding Source**
  Wildlife Trust of India, Noida, India
- **Investigators**
  Dr. S.P. Goyal, Dr. K. Sivakumar, Dr. J.A. Johnson (WII) and Mr. B.C Choudhury, Senior Advisor, Mr. Sajan John, Manager and Regional Head (Wildlife Trust of India)
- **Researcher**
  Mr. Bheem Dutt Joshi

ONGOING PROJECTS

- **Date of Initiation**
  February 2016
- **Date of Completion**
  April 2017

Objectives

The objective of the project was to generate the DNA profile of the population of the Indo-Pacific whale shark off the coast of Gujarat, India using mitochondrial and nuclear markers.

Progress

Twenty samples collected during 2010–2016 were provided by the Wildlife Trust of India for the study. The research team also attempted to collect one sample from the east coast of India. All the samples were verified on the basis of their DNA sequences, and 18 were found to be of the whale shark (n=18). The remaining two samples were not of this species. Therefore, the team excluded these two samples from further analysis. Of the confirmed whale shark samples used in the study, 18 were from the west coast of India (n=18) and one was from the east coast (n=1). Of the 18 samples from the west coast, 33 per cent were confirmed to be male and 44 per cent to be female, and the sex of the other samples (n=3) was not known. DNA was extracted from all the samples, and gel-based quantification was done to assess the quality and DNA template size. The team used the control region (CR) and cytochrome oxidase c subunit-I (COI) gene of the mtDNA genome to understand the maternal lineages in the whale sharks from the west coast (n=18) and east coast (n=1) of India. The research team used primers developed by Castro *et al.* (2007) and Folmer *et al*. (1994) for obtaining the sequences of CR and COI, respectively. Twelve microsatellite markers were also used.

Outputs and Outcomes

The research team generated the DNA profiles of all the 19 samples of whale shark using the two mitochondrial regions (COI gene and control region). Analysis of the COI gene revealed the presence of two haplotypes, H1 (n=18) and H2 (n=1), and the genetic divergence between these two haplotypes was 0.002. Data compiled from the sequences available for this gene from NCBI as well as the sequences generated in this study indicated the presence of six haplotypes, having low genetic divergence. This low genetic divergence or lack of structuring among different aggregation sites at global level, especially in the Indo-Pacific region, indicates expansion from the same founder population as COI is less evaluated to understand the regional level population genetic structure. In the control region, the team found a total of 13 haplotypes with 68 variable sites in the whale shark samples (n=19) from the Indian coast. The maximum likelihood (ML) tree indicated that these 13 haplotypes were distributed in four clades. The haplotype H12 was highly diverged (0.029–0.032) from the rest of the haplotypes of the two coasts (0.001–0.017). In the global context, there are a total of 208 haplotypes in our sequences and those available online, with most of these haplotypes shared across locations. In the nine microsatellite loci used, the number of alleles per locus ranged from two to 10, whereas the mean effective number of alleles was 2.4. The mean observed heterozygosity (Ho) and mean expected heterozygosity (He) were 0.4 and 0.5, respectively.

Milestone

The team identified conservation implications and suggested that more samples be collected all along the Indian coast in the future to get a better insight into the species so that effective conservation strategies may be planned and the final report submitted to the funding agency.

Monitoring Source Population of Tigers in Kanha Tiger Reserve

- **Funding Source**
  National Tiger Conservation Authority
- **Investigators**
  Dr. Y.V. Jhala and Mr. Qamar Qureshi
- **Researchers**
  Ms Neha Awasthi, Mr. Jayanta Kumar Bora and Mr. Shravana Goswami

- **Date of Initiation**
  June 2009
- **Date of Completion**
  December 2019

Objectives

The project objectives are to (1) monitor the source population of the tigers in Kanha Tiger Reserve and subsequently (a) estimate the tiger population within selected areas of the reserve and (b) obtain survival and mortality information through a mark–recapture study; (2) monitor prey and co-predator populations and the condition of the habitat in the tiger reserve; and (3) gain an understanding of tiger dispersal patterns.

Progress

The research team sampled the 777 km^2 core area and 502 km^2 buffer area of Kanha Tiger Reserve with an effort of 19,710 camera trap nights in the current sampling session. The team gathered 3,810 images of a total of 95 tigers, among which 70 are adults (37 females and 33 males) and 25 are cubs.

Outputs and Outcomes

The tiger density was computed to be 5.0 (SE 0.64)/100 km^2, while the leopard density was estimated at 9.79 (SE 1.03)/100 km^2 in the Kanha core area during the 2016 camera trap sampling.

Line-transect based distance sampling was used to estimate the status of the prey in Kanha Tiger Reserve. Sampling was conducted in both the summer and winter of 2016. A total effort of 1,200 km was invested in sampling 200 spatial transects, with three temporal replicates each. The results of this distance sampling effort are shown in the table below. Chital, *Axis axis* had the highest density amongst all the ungulate species, followed by sambar, Rusa unicolor and gaur, *Bos gaurus*.

Ungulate Density (SE) in 2016

Species	Winter	Summer
Chital, *Axis axis*	31.68 (7.07)	31.12 (4.81)
Sambar, *Rusa unicolor*	9.8(1.25)	8.55 (1.05)
Gaur, *Bos gaurus*	5.42 (1.24)	6.79 (1.21)
Wild pig, *Sus scrofa*	7.93 (1.55)	5.65 (1.29)
Barking deer, *Muntiacus muntjak*	2.48 (0.35)	2.3 (0.27)

Milestone

Information on the distribution patterns of rare and elusive mammals like the rusty-spotted cat *Prionailurus rubiginosus*, Asiatic wild cat *Felis silvestris ornata*, mouse deer *Moschiola indica*, smooth-coated otter *Lutrogale perspicillata*, hyaena *Hyaena hyaena* and four-horned antelope *Tetracerus quadricornis* was gathered from the camera trap surveys. This gives us an insight into the rich mammalian diversity that the Kanha landscape harbours.

© Jayanta Kumar Bora

MSTrIPES—Monitoring System for Tigers: Intensive Patrolling and Ecological Status

- **Funding Source**
  National Tiger Conservation Authority
- **Investigators**
  Dr. Y.V. Jhala and Mr. Qamar Qureshi
- **Researchers**
  Mr. Ashok Kumar, Ms Aanchal Bhasin, Ms Ahana Dutt, Mr. Anup Kumar Pradhan, Mr. Ashish Prasad, Mr. Ayan Sadhu, Mr. Debranjan Laha, Ms Kainat Latafat, Mr. Ninad Mungi, Ms Papori Khatonier, Ms Krishna Mishra

- **Date of Initiation**
  March 2012
- **Date of Completion**
  July 2018

Objectives

The objectives of the project are to (1) design a new version of the software to include user-friendly protocols, applications, modules and data archiving and (2) implement MSTrIPES and orient field staff in using modern field techniques, patrolling and ecological data collection protocols, which will be useful in wildlife conservation.

Progress

Following the success of MSTrIPES phase I in six tiger reserves of India, the National Tiger Conservation Authority (NTCA) mandated its implementation in all the tiger reserves. MSTrIPES phase II was initiated to address the modern technical needs and to implement the system in a way such that it reaches the grassroots level of the stakeholders involved. The research team has developed (1) three mobile applications for collecting data during the daily patrolling, seasonal ecological surveys and conflict events; (2) desktop software for archiving and report (spatial and statistical) generation and a web interface for monitoring live patrolling; and (3) a web server for data integration and archiving at different administrative units.

During the past year, the team has trained and sensitised more than 270 forest officials on the new mobile application for assisted smart patrolling and ecological surveys. For this, the institute organised four regional workshops (Bandipur, Kanha, Corbett and Simlipal) and three training sessions (Bhagwaan Mahaveer Wildlife Sanctuary—Goa, Bar Navapara—Chhattisgarh and Valmiki—Bihar), involving forest officials from seven different tiger reserves and NGOs to initiate the implementation of MSTrIPES in their areas.

Outputs and Outcomes

MSTrIPES has brought about a cultural change in the forest department's attitude of reporting illegal activities. A daily patrol record is compiled systematically at various administrative divisions, akin to the log-book maintained at each forest *chowki*. More than 120,000 km of annual foot patrol is being done in a single range of Kanha and other sites. The use of mobile apps was readily welcomed and appreciated by the frontline forest staff during the regional workshops and the feedback and suggestions from them were incorporated in the program subsequently.

The MSTrIPES program is generating interpretable reports and maps that are more useful for management and policy decisions and assessing the park health quantitatively compared with the existing subjective rating. Changes in field conditions can be integrated in decisions, thus channelising adaptive management. A database for species distribution and occupancy, human impact intensity and patrol coverage is being prepared at each site. The patrolling team with the highest effort is being rewarded in the park. This has enhanced the protection status of the park.

Milestones

Multi-lingual mobile apps. In addition to English, the mobile apps are available in nine different Indian languages, making them easier and more accessible to the frontline forest staff.

Open and free access. All the applications are developed for Android mobiles and are openly accessible. The mobile apps can be used online as well as offline, while report generation at any administrative unit is independent of connectivity and is based on an open-source GIS program.

The conflict module. It enables recording of negative human–wildlife interactions in and around a tiger reserve, mapping the conflict 'hot-spots' and cataloguing compensation for enhancing transparency in the process of dealing with conflict.

The presence of a panic button on the MSTrIPES mobile app. It helps during medical or other emergencies, by sending an alert message to the range and division offices.

Collective responsibility. If implemented as designed, the system reduces the response time to detrimental events like poaching or habitat degradation and becomes a comprehensive tool in keeping a finger on the pulse of a tiger reserve. It also provides a platform for collective responsibility for park protection.

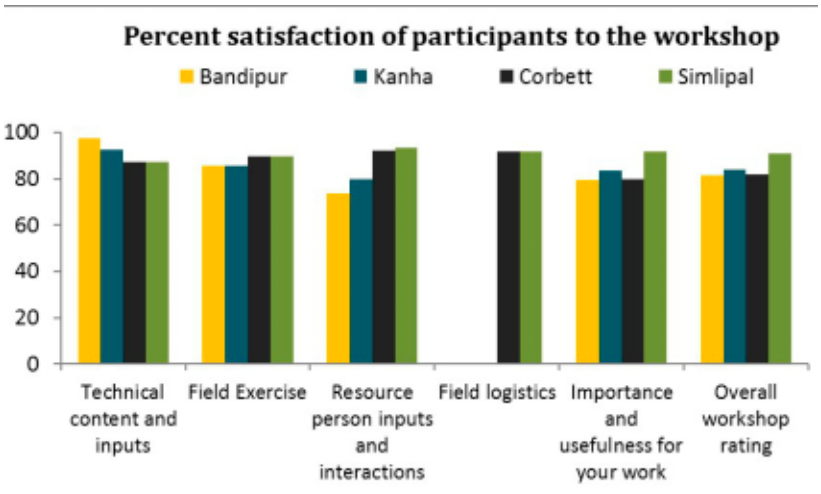

Figure 1: *Response from the participants at the training workshops conducted at regional level to use MSTrIPES program*

Figure 2: *Response from the participants at the training workshops conducted at regional level to use MSTrIPES program*

Development and Maintenance of Studbooks for Selected Endangered Species in Indian Zoos

- **Funding Source**
  Central Zoo Authority
- **Investigator**
  Dr. (Capt.) Parag Nigam
- **Researchers**
  Ms Neema Sangmo Lama and Dr. Anupam Srivastav (Project Consultant)
- **Date of Initiation**
  July 2012
- **Date of Completion**
  June 2018

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Objectives

The project was initiated with the objective of maintaining a centralised database for providing a decision support system for scientific management of species identified for *ex situ* conservation in Indian zoos. It involves development and maintenance of studbooks of 34 species threatened with extinction and held in captivity across the country. It also involves development of population management plans for managing the species in captivity.

Progress

During the reporting period, studbooks were initiated for the cheer pheasant, *Catreus wallichii*, Himalayan monal, *Lophophorus impejanus*, and Himalayan serow, *Capricornis thar*, and the studbooks of the grey peacock-pheasant, *Polyplectron bicalcaratum*, Indian wild ass, *Equus hemionus khur*, one-horned rhinoceros, *Rhinoceros unicornis*, and Asiatic wild dog, *Cuon alpinus* were updated.

Analysis carried out on the basis of information received from holding zoos revealed that the captive population of cheer pheasants shows an increasing trend while all the remaining populations show declining trends. The analysis also revealed that all populations retain low levels of genetic diversity, originating from a small number of founders. The findings indicate the need for induction of additional founders in each of the populations and regulating mating choices for optimum genetic and demographic management.

Outputs and Outcomes

The major output of the project included updating and initiation of studbooks for the identified seven species held in Indian zoos. These studbooks include a review of the literature relevant for managing the species in captivity and pedigree information of the species in Indian zoos. The pedigree information forms the basis for detailed demographic and genetic analyses.

Support to *ex-situ* conservation initiative in India through development of population management plan for identified species that include breeding recommendations and population targets for the species.

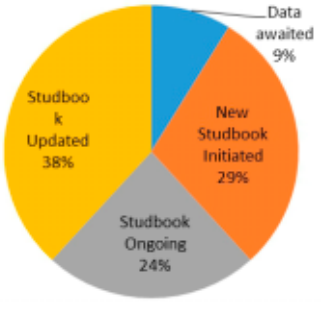


Figure 1: *Quantum of work accomplished*

Long-Term Monitoring of Tigers, Co-predators and Prey Species in Tadoba Andhari Tiger Reserve and Adjoining Landscape, Maharashtra, India

- **Funding Source**
  National Tiger Conservation Authority, Maharashtra Forest Department
- **Investigators**
  Dr. Bilal Habib,
  Dr. (Capt.) Parag Nigam,
  Mr. G.P. Garad and
  Dr.Vinay Sinha
- **Researchers**
  Mr. Anil Kumar Dashahre,
  Ms Madhura Davate and
  Mr. Nilanjan Chatterjee

- **Date of Initiation**
  April 2013
- **Date of Completion**
  March 2018

Objectives

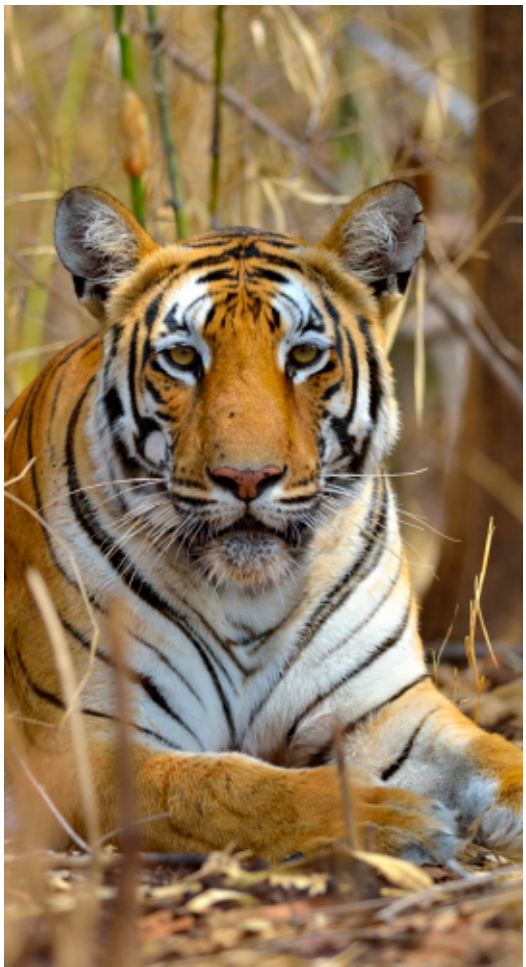
The objectives of the project are (1) mapping the current land use pattern, infrastructure, mining areas, villages, roads, power transmission lines, demographic profile, livestock population, dispersal corridors, prey and predator occupancy, within the landscape surrounding Tadoba Andhari Tiger Reserve (TATR); (2) determining the spatial distribution and temporal dynamics of the habitat occupancy of the tigers, co-predators and prey species and the relationship of these parameters to habitat-related variables; (3) determining the population density, abundance and demographic structure of tigers and co-predators in the landscape; (4) estimating the population density and abundance of key prey species in the landscape; (5) estimating vital rates (survival, recruitment, temporal emigration, dispersal,) of tigers and co-predators; (6) studying the human-tiger/leopard conflict and socio-economic aspects; (7) monitoring village translocation sites; (8) investigating the food habits of tigers and co-predators in the TATR landscape complex; and (9) training the field staff in managing human–wildlife conflicts and emergency situations.

Progress

The focus of this long-term monitoring programme during the current year was on the (1) status of prey species in TATR; (2) status of tigers and co-predators in TATR; and (3) the activity patterns of tigers and co-predators in TATR.

(1) Distance sampling: Distance sampling is the most established method to estimate the density of ungulates in an area using the line-transect method. Line transects were laid randomly over the total forest area, and sightings of prey species were recorded along with habitat and terrain features.

A total of 57 transects in the 34 beats of the core zone and 63 transects in 58 beats of the buffer zone, of 2 km length each, were marked in TATR. The transects were spread out well over an area of 1700 km^2 of TATR, covering almost all the vegetation types in the area. A total effort of 1518 km has been invested on line transect surveys, generating a total of 812 observations of all types of prey species.



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(2) Camera trapping: The success of camera trapping depends on the selection of ideal locations to deploy the camera traps so as to maximise the number of captures. Prior to camera placement, a survey is done along the forest paths, animal trails, dirt-tracks and dry stream bed to record the presence of carnivores through indirect signs (pugmarks, tracks, scats, scrapes, rake marks, scent deposits and kills). Since there is a system of routine patrolling already in place in Tadoba, there is a record of the animal movements in each beat in TATR. However, the locations selected for camera trapping in 2012, 2013, 2014 and 2015 were again referred and revised if there was any change in the movement patterns of the animals. The potential locations of camera trap stations were then mapped. A total of 381 sites were selected for deployment of camera traps in the core area and buffer area of TATR. A pair of camera traps was placed opposite each other so as to photograph both flanks of tigers and leopards simultaneously during the camera trap exercise. Cameras were tied up on tree trunks or poles at a height of 25–35 cm opposite each other.

The camera trapping exercise was carried out from 1 February to 30 May, for around 120 days. The total area was divided into four blocks, and the sampling period was 22–25 days for each block. An effort of 9528 camera trap nights was used during the 2016 Phase IV monitoring in TATR.

(3) Activity pattern of tiger and co-predators from camera trap: The photographs captured, with the date and time stamp, of any species can be used to determine the activity pattern of the species. The research team tried to calculate the overlap in time among tigers and co-predators in the camera trapping season. The kernel density estimator was used to draw the activity graph of an animal.

Outputs and Outcomes

Table 1: *Species reported from core and buffer areas of TATR during phase IV monitoring in 2016*

	Core			Buffer		
Species recorded	**Number of sightings**	**Individuals recorded**	**Average group size (min-max)**	**Number of sightings**	**Individuals recorded**	**Average group size (min-max)**
Sambar	62	167	3 (1-10)	24	46	2 (1-6)
Chital	66	570	9 (1-60)	45	178	4 (1-12)
Nilgai	24	49	2 (1-6)	25	46	2 (1-4)
Gaur	51	176	3 (1-18)	39	135	3 (1-12)
Wild boar	41	263	6 (1-25)	25	202	8 (1-25)
Langur	37	350	10 (1-26)	24	285	11 (1-25)
Barking deer	32	36	1 (1-2)	19	27	1 (1-2)
Hare	23	24	1 (1-2)	27	27	1
Peafowl	59	110	2 (1-5)	32	56	2 (1-3)
Grey jungle fowl	41	80	2 (1-9)	20	27	1 (1-2)

Table 2: *Comparison of ungulate density with previous estimates of the core area of TATR, Maharashtra, India*

Species	**2013**	**2014**	**2015**	**2016**
Sambar	3.9 (± 1.1)	4.68 (± 0.76)	5.27 (± 1.16)	1.99 (± 0.33)
Chital	6.3 (± 1.5)	5.10 (± 1.22)	7.42 (± 2.36)	2.20 (± 0.37)
Gaur	1.7 (± 0.3)	2.03 (± 0.56)	1.58 (± 0.45)	1.97 (± 0.39)
Langur	-	9.47 (± 1.90)	9.70 (± 2.42)	3.31 (±0.69)
Wild boar	3.7 (± 1.5)	5.42 (±2 .08)	4.49 (± 1.73)	2.02 (± 0.57)
Nilgai	1.3 (± 0.5)	1.09 (± 0.36)	1.01 (± 0.37)	1.91 (± 0.33)
Barking deer	-	0.96(± 0.23)	0.98 (± 0.21)	1.82 (± 0.41)
Black-naped hare	-	1.70 (± 0.36)	2.23 (± 0.65)	2.22 (± 0.45)
Peafowl	-	3.92 (± 0.72)	3.36 (± 0.81)	3.31 (± 0.59)
Grey jungle fowl	-	1.43 (± 0.53)	2.58 (± 0.78)	4.85 (± 1.61)

Table 3: *Density estimates of tigers using spatially explicit capture–recapture models in Tadoba Andhari Tiger Reserve, Maharashtra, India, for the years from 2014 to 2016*

Parameters	2014	2015	2016
Model	Heterogeneity	Heterogeneity	Heterogeneity
Detection function	Half-normal	Half-normal	Half-normal
Density estimate	5.609	5.673	5.648
Standard error	0.773	0.698	0.713
Confidence interval	4.285-6.340	4.461-6.214	4.935-6.361
g0 estimate	0.305	0.498	0.407
Standard error	0.022	0.098	0.091
Confidence interval	0.264-0.352	0.340-0.731	0.313-0.689
Sigma estimate	4.283	3.309	3.354
Standard error	0.305	0.239	0.431
Confidence interval	3.725-4.925	2.871-3.814	2.716-3.972

Table 4: *Comparison of density and population estimates of tigers across the years 2010–2016 for Tadoba Andhari Tiger Reserve, Maharashtra, India*

Year	Effective trapping area	Species	Number of individuals captured	Estimate	Density per 100 km^2
2010	321	Tiger	15	17 (SE 3.6)	5.29 (SE1.12)
2012	603	Tiger	47	49 (SE 4.6)	5.40 (SE 0.60)
2013	603	Tiger	50	51 (SE 7.5)	5.62 (SE 0.82)
2014	1170	Tiger	65	72 (SE 5.37)	5.60 (SE 0.77)
2015	1310	Tiger	71	88 (SE 4.91)	5.67 (SE 0.69)
2016	1310	Tiger	69	86 (SE 8.7)	5.64 (SE 0.71)

Table 5: *Temporal activity overlap among the major predator species from camera trap capture timings in Tadoba Andhari Tiger Reserve, Maharashtra, India*

Species pair	Temporal activity overlap	Standard error
Tiger-leopard	0.945041	0.015732
Jungle cat-rusty-spotted cat	0.86657	0.015365
Tiger-jungle cat	0.852182	0.008952
Leopard-jungle cat	0.832942	0.009138
Rusty-spotted cat-tiger	0.807883	0.005213
Jungle cat-honey badger	0.748587	0.010453
Rusty-spotted cat-honey badger	0.734266	0.005695
Tiger-dhole	0.605325	0.003244
Leopard-dhole	0.601629	0.018404
Dhole-honey badger	0.343896	0.02369

Movement Pattern and Inbreeding Status of Swamp Deer at Uttarakhand, India

- **Funding Source**
  Uttarakhand Forest Department, INSPIRE Programme (Department of Science and Technology)
- **Investigators**
  Dr. Samrat Mondol and Dr. Bivash Pandav
- **Researcher**
  Mr Shrutarshi Paul

- **Date of Initiation**
  March 2016
- **Date of Completion**
  February 2018

Objectives

The objectives of the project are to (1) ascertain the current swamp deer distribution in the upper Gangetic plains; (2) assess the movement patterns of swamp deer within this landscape; and (3) determine the genetic status and level of inbreeding of swamp deer.

Progress

The research team conducted extensive surveys in the upper Gangetic plains for direct and indirect swamp deer evidence. The team used the program MaxEnt to predict the swamp deer distribution using all field-collected presence points and relevant environmental covariates and subsequently validated the predictions through surveys. During the survey, biological samples (antlers and pellets) were collected for genetic work.

Outputs and Outcomes

The surveys revealed a number of previously unreported areas harbouring swamp deer, thereby extending the species' distribution. Grasslands found around both banks of the river Ganges and its tributaries Solani and Banganga retain swamp deer. During validation of MaxEnt-predicted areas, the team discovered swamp deer evidence in different parts of Hastinapur Wildlife Sanctuary. In the laboratory, the team developed a novel molecular assay to exclusively identify swamp deer and other cervids found in this region from their pellets. The team also standardised a panel of 16 microsatellites for identification of individual swamp deer.

Milestone

The research team reported a completely new swamp deer population along the Ramganga river near Afzalgarh during the surveys. One manuscript from this work has been communicated to the international journal *Oryx*.

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Assessment and Monitoring of Climate Change Effects on Wildlife Species and Ecosystems for Developing Adaptation and Mitigation Strategies in the Indian Himalayan Region

- **Funding Source**
  Department of Science & Technology under the National Mission on Sustaining the Himalayan Ecosystem (NMSHE) Programme

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- **Date of Initiation**
  August 2014

- **Date of Completion**
  July 2019

Objectives

The main goal of the project is to develop strategies to mitigate climate change effects on wild animal species and ecosystems in the Indian Himalayan Region (IHR). To achieve the above goal, the following research/task components have been put forth under the theme 'Fauna and Ecosystems': (1) identify the drivers of landscape change (climatic and anthropogenic) in the IHR (Ganges River Basin) and their effects on the ecological and social systems; (2) conduct focused research on wildlife aspects (terrestrial and aquatic fauna, micro flora and their habitats) and human dimensions in the IHR (Ganges River Basin) for framing evidence-based policy measures; (3) develop monitoring and decision support systems (DSS) for indicator species in the IHR (Ganges River Basin); (4) undertake climate change scenario analyses and visualisation for predicting potential effects on the fauna and ecosystems as a strategy to communicate with stakeholders and to influence policy and decision making; (5) develop a spatial and inter-operable database to facilitate policy and decision making; and (6) build capacities within WII and among stakeholders for sensitisation and development of action plans for climate change impact mitigation and to enhance capabilities for negotiations at national and international forums.

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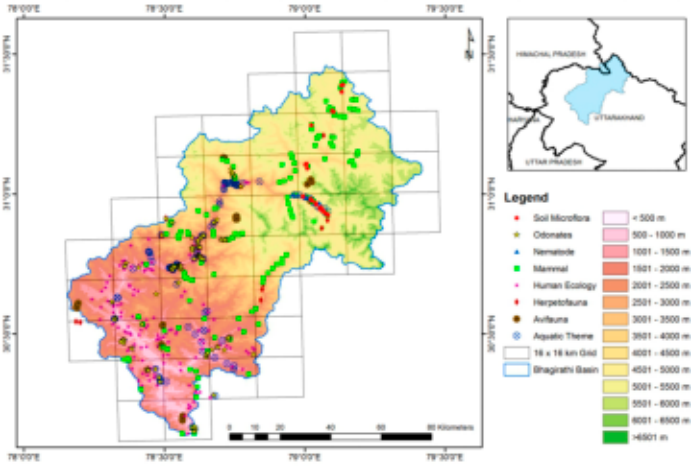
Progress

The aim of this project, under the National Mission for Sustaining the Himalayan Ecosystem (NMSHE), is to develop strategies to mitigate climate change effects on wild animal species and ecosystems in the IHR. A detailed reconnaissance survey was carried out in 2015, and primary data collection is currently being carried out, covering an elevation extent from 500 m to 5000 m in the two Himalayan landscapes. The survey will be extended to the Teesta basin in 2017. The project objectives have been divided into four thematic groups: (1) Terrestrial Ecology, which includes soil microflora, soil microfauna, invertebrates, herpetofauna, birds and mammals; (2) Aquatic Ecology; (3) Human Ecology, covering socio-economic aspects; and (4) Spatial Ecology for (a) development of a spatial database, identification of the drivers of landscape change, modelling and scenario analysis, development of a support system for indicator species and 2D and 3D visualisation and (b) providing capacity building/training/professional inputs including an internship and exchange programme.

Currently, for the purpose of generating baseline species richness data, the landscapes are subdivided into cells of extent 256 km^2 (16 km × 16 km) according to the average home range of the largest mammal found in the area, the Himalayan brown bear, *Ursus arctos isabellinus.* Each of these cells is further subdivided into 4 km × 4 km grids, and sampling is going on in three or four such 4 km × 4 km grids within each 256 km^2 cell. Thematic group-specific standard methodologies have been developed and followed. Secondary data collection has been completed for both terrestrial and aquatic themes. Preliminary analysis of species distribution and inventory preparation has been carried out. Research trend and knowledge gap analysis have been completed for all the terrestrial and aquatic themes. Building the capacity of the scientific community within the institute and other stakeholders outside has also been carried out and is going on.

To create a fine-scale temperature and precipitation surface model for the two basins, data loggers have been deployed in different habitats along the elevation gradient. The above-mentioned grid structure was followed to deploy at least one data logger in a 256 km^2 grid, and the number of data loggers in a particular grid was increased according to the diversity of the habitat and elevation classes in that grid. For this purpose, the research team is using HOBO U23 Pro V2, which can accurately measure the temperature (accuracy level ±0.2°C) and relative humidity (accuracy level ±0.2%).



Outputs and Outcomes

Terrestrial Ecology. The presence of 82 lichens, eight major nematode families, 84 odonate species, 78 butterflies, 18 reptiles, 17 amphibians, 212 birds, including nine galliforms, and 37 mammal species has been recorded so far from the Bhagirathi Basin. Using the camera trap photo-captures (n=267, ~10,000 photos), the altitudinal distributions of carnivores (n=17, ~7000 photos), ungulates (n=9, ~1000 photos) and galliforms (n=5, ~400 photos) have been documented from the Bhagirathi Basin. Data collection has been initiated in the Beas Basin of Himachal Pradesh.

To obtain fine-scale temperature and humidity records, 91 data loggers have been deployed in the Bhagirathi and Teesta basins, covering an elevation gradient from 500 m to 5000 m. Six open top chambers (OTCs) equipped with climatic data loggers have been deployed inside Gangotri National Park. Two species of crustose lichen (*Xanthoria, Rhizocarpon*) have been identified and marked for lichenometry studies.

More than 4500 publications have been compiled into a database on the fauna and micro flora of IHR and published in the form of a bibliography.

Aquatic Ecology: Till date, a total of 128 point locations have been taken on the perennial streams distributed in the seven sub-basins of the Bhagirathi River Basin from elevations ranging from 459 m to 3944 m. A total fish diversity of 17 species was recorded, with the highest diversity being found in the Balganga Sub-basin, followed by the Bhilangana Sub-basin. The highest relative abundance (%) amongst all the species was found for *Schizothorax richardsonii*, followed by *Tor putitora*, and the lowest values were those of *Schistura gangeticus, Schistura beavani* and *Pseudechenesis sulcatus*. The physico-chemical parameters of all the streams have been noted and will be analysed for habitat suitability indices modeling in the future.

Human Ecology: Out of 800 villages in the Bhagirathi Basin, 33 villages have been selected to document the impact of climate change on ecosystem services. Data collection and processing has been completed for 27 villages in Uttarkashi District and 13 villages in Tehri Garhwal District.

Spatial Ecology: The existing spatial database has been updated with 1 km global land cover data on land use/land cover, USGS LCI 0.5 km MODIS-driven data on land cover and HydroSHED data on global river and drainage systems Compilation of the field data is in progress. The analysis for identification of spatial drivers of landscape changes for the state of Uttarakhand has been completed. New methodological frameworks for identifying the drivers of land change at multiple spatial scales and a regression model for different climatic and anthropogenic variables affecting the change have been developed.

Climate change projections have been completed for all six Indian Himalayan states, namely, Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Sikkim and West Bengal. Census of India data on population as well as socio-economic parameters have been collected and modelled along with the relationship between human well-being and ecosystem services in the Bhagirathi catchment of Uttarakhand.

Milestones

From the camera-traps monitored till March 2017, the presence of at least seven snow leopard individuals in Gangotri National Park has been confirmed. The first photographic evidence of the Tibetan sand fox in the Uttarakhand Himalaya has been obtained. The ranges of a few species have been extended.

Population Genetic Structure, Gene Flow in Brown Bear, *Ursus arctos isabellinus* in India (Jammu and Kashmir, Himachal Pradesh and Uttarakhand) and Assessment of Extent of Gene Flow between Populations of India and Pakistan: Conservation and Forensic Implications

- Funding Source
  Department of Science and Technology, Government of India
- Investigators
  Dr. S. Sathyakumar and Dr. S.P. Goyal
- Researchers
  Mr. Sujeet Kumar Singh, Mr. Shahid Ahmad Dar and Mr. Vinay Kumar

- Date of Initiation
  November 2014
- Date of Completion
  October 2017

Objectives

The objectives of the project are to (1) determine a spatial distribution and occupancy model for the brown bear in Jammu and Kashmir, Himachal Pradesh and Uttarakhand; (2) determine the genetic diversity and genetic differentiation within and between and population sub-divisions, if any, in brown bear populations in Jammu and Kashmir, Himachal Pradesh and Uttarakhand; (3) determine the level of gene flow between brown bear populations in India and Pakistan by utilising the genotyping data of Bellemain *et al*. (2007); (4) estimate the genetic drift, genetic assignment, first generation migrants, effective population size (Ne) and gene flow (Nm) of the brown bear populations of Jammu and Kashmir, Himachal Pradesh and Uttarakhand and between the brown bear populations of India and Pakistan; and (5) identify geographical barriers to the gene flow between brown bear populations of India and Pakistan and Forensic application by assignment of poaching cases to the population.

Progress

The research team surveyed the Himalayan brown bear (HBB) distribution range in Gangotri National Park (GNP) and the adjoining areas of Harsil and Bhatwari, in the state Uttarakhand (UK), between July and August 2016. The protected areas of the Himachal Pradesh (Sechu-Tuan Nalla Wildlife Sanctuary (STNWS) and Great Himalayan National Park (GHNP)) and regions of Kargil District, of Jammu and Kashmir (Wakha and Parkachik), were also surveyed from May 2016 to March 2017. During the field visit, the team recorded the presence of many species of wild animal including mammals, birds and reptiles. They found comparatively low indirect encounter rates of the HBB in GNP (0.17 signs/km) and GHNP (0.43 signs/km) compared with Kargil District (2.13 signs/km), and STNWS (1.92 signs/km). A total of 153 scat samples were collected from Uttarakhand, Himachal Pradesh and Jammu and Kashmir. The team also received one scat sample from the Nanda Devi Biosphere Reserve (NDBR), collected by the Uttarakhand Forest Department.

The team extracted DNA from a total of 133 scat samples (n=14 from Uttarakhand, collected this season, and n=119 collected previously, during 2015–2016, from Himachal Pradesh, Jammu and Kashmir and Ladakh). After amplification and sequencing with a 259 bp mitochondrial control region and performing rigorous quality analysis using the program Sequencher, the team was

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able to find good-quality DNA sequences (n=48). The team also used 25 sequences of the brown bear that were generated earlier in 2015. Overall, the team used 73 (48+25) brown bear sequences to estimate the genetic diversity indices and determine the Bayesian-based phylogeny and the median-joining (MJ) network. The Bayesian-based phylogenetic analysis revealed the presence of five haplotypes (four in the wild and one in captive HBB) in five different lineages, and all these were in the Gobi-Pakistan clade, with a high posterior probability value of 0.93. One haplotype of these was shared between Jammu and Kashmir (Ovra-Aru and Ladakh) and Himachal Pradesh (Kugti Tundah and Pin Valley National Park (PNP)). UK shared a haplotype with PNP. The MJ network analyses of the reported and observed mtDNA haplotypes (Gobi–Pakistan–India) indicate the presence of the core haplotype of Ladakh, JK-PNP. The genetic diversity of the HBB in India is moderate—the nucleotide diversity (π) and haplotype diversity (h) diversity were 0.693 and 0.0039, respectively. The mtDNA-mediated Fst was significant and high (from 0.209 to 1.00), indicating high genetic differentiation between the populations in India. The neutrality test and Bayesian skyline plot suggested that the population of the HBB has declined in the last 5000–10,000 years, while the unimodal mismatch distribution plot showed a population expansion though the plot was not exactly unimodal.

The team also assessed the nuclear genetic variation in the HBB and optimised a multiplex of five microsatellite markers. The optimised panel of five microsatellites was used for amplification of HBB samples (n=90). Of these, 70 samples were amplified with the four microsatellite markers of a multiplex panel of five markers. Between all the 70 amplified samples, the team found 63 unique genotypes, and all these 63 unique individual genotypes were used for further genetic analysis. The microsatellite markers indicate that the overall levels of allelic richness (A_R=2.85) and genetic variation (H_O=0.64, H_E=0.74) in the Indian population were higher than those reported for the HBB population in the Gobi Desert (H_O=0.47, H_E=0.50) and similar to those of the HBB population in Pakistan (H_O=0.64, H_E=0.70). The overall HBB population in India showed a positive F_{IS} value (F_{IS}=0.138), a sign of inbreeding. The microsatellite-based F_{st} was high among the populations, but it was not statistically significant. The research team did not observe any strict genetic subdivision between the sampling sites, and the program STRUCTURE suggested that there are two genetic structures in the HBB population in India.

In this study, the team also explored how the species distribution model could predict a gradient of bioclimatic conditions for the HBB. The AUC value of the model was 0.93±0.04. Among the 19 variables, nine bioclimatic variables explained the most variation. They provided the probability of occurrence of the brown bear.

Therefore, the present study led to the conclusion that the HBB populations in India, Pakistan and Gobi constitute an ancient clade of the brown bear and that the PNP–Ladakh area has the core haplotype for the other HBB populations. The higher mtDNA-mediated and lower microsatellite-mediated genetic differentiation in the HBB might be due to the strong female philopatry. Probably the four microsatellite markers alone are inadequate to distinguish the level of the population structure. Therefore, the team suggests that increasing the number of microsatellite loci will help decipher the actual population structure of the HBB in the Western Himalaya.

Outputs and Outcomes

The HBB in India has moderate mtDNA genetic variation in comparison with other brown bear subspecies. PNP has the greatest number of haplotypes and has the core haplotype for the other HBB populations in the northwestern Himalayan ranges. The haplotypes identified in the present study are within the reported basal clade for all other brown bear populations. The decline in the HBB population during the last 5000–10,000 years might have been because of the Last Glacial Maximum (LGM), emergence of pastoralism and habitat destruction.

Milestone

Over the remaining project period, the research team will estimate the abundance of the HBB in the Greater and Trans-Himalayan regions in India. The team will also collect biological samples (scats, hair and tissues of naturally dead animal) from Jammu and Kashmir, Himachal Pradesh and Uttarakhand and generate data from 10–13 microsatellite markers to identify individuals, determine genetic characteristics across landscapes and assess the extent of gene flow between different populations of India and Pakistan using mtDNA and nuclear data.

Documentation of Traditional Ecological Knowledge among Indigenous Ethnic Communities of Pithoragarh District, Uttarakhand

- **Funding Source**
  Department of Science and Technology, Government of India
- **Coordinating Institution**
  Department of Environmental Sciences, JNU, New Delhi
- **Investigators**
  Dr. G.S. Rawat and Dr. S. Sathyakumar
- **Researchers**
  Mr. Naveen Chandra Joshi and Mr. Pradeep Kumar

- **Date of Initiation**
  2015
- **Date of Completion**
  2020

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Objectives

The main goal of the project is to document the existing and publicly available traditional ecological knowledge (TEK) related to agriculture, natural resource use patterns and management and conservation practices among selected indigenous ethnic communities (IECs) of Pithoragarh District, Uttarakhand; and to study the pattern of TEK among various age and gender classes of these communities.

Progress

The research team has selected the Barpatiya and Van Raji communities for the study. Household surveys were conducted in five Barpatiya villages (total population, 861) and three Van Raji villages (population, 309). In the study villages, about 9% of the Barpatiya population was above 60 years of age, while only about 3% of the population of the Rajis was above this age. It was observed that the use of medicinal herbs for health care was much higher among the Rajis (55% of the households were dependent on herbal medicines), whereas only 35% of the Barpatiya households were heavily dependent on local herbs for primary health care.

Outputs and Outcomes

The results suggest that the Barpatiya community still holds a considerable TEK related to farming and livestock rearing, whereas the Rajis have better TEK related to wood carving, hunting and gathering of NTFPs. Rapid socio-economic transformations were observed in both the communities. Nearly 30% of the Barpatiyas have out-migrated to nearby towns, but there is minimal out-migration among the Rajis.

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Space Use and Dispersal of Tigers in Corbett Landscape

- **Funding Source**
  National Tiger Conservation Authority
- **Investigators**
  Dr. Y.V. Jhala, Mr. Qamar Qureshi and Dr. Bivash Pandav
- **Researchers**
  Mr. Sudip Banerjee and Ms. Shikha Bisht

- **Date of Initiation**
  2015
- **Date of Completion**
  2020

Objectives

The objectives of the projects are to (1) gain insights into tiger ecology–dispersal patterns and the land tenure system via radio telemetry; (2) obtain robust estimates of vital rates of tigers and prey density estimation; and (3) monitor tiger movements in peripheral potential conflict zones.

Progress

Radio-collaring could not be started due to delays in obtaining the appropriate permissions. As a part of objective (2), 68 line transects encompassing 68 beats in 11 ranges were walked. The densities of all the prey species of the tiger were estimated using conventional distance-sampling. A preliminary exploration of the density surface modelling (DSM) approach was performed on the same line transect data set to understand the relationship between the spotted deer distribution pattern and significant environmental covariates. Using the covariates, a density surface map of the spotted deer was generated. The research team also initiated a camera trap-based density estimation technique named Random Encounter Sampling (REM) for enumerating the prey density. REM enables the density of individually identifiable animals to be estimated by linearly scaling the trapping rate of animals with the density by modelling the underlying process of contact between animals and cameras. The team placed 52 one-sided infra-red Reconyx camera traps randomly with respect to the movements of the target animals.

Outputs and Outcomes

Distance sampling. The accompanying table shows preliminary density estimates of the prey species of the tiger in Corbett Tiger Reserve from line transect-based distance sampling.

© Camera Trap Image

The DSM-based mean density of spotted deer was 100/km^2. Among the covariates, terrain ruggedness, NDVI and distance to water showed a significant relationship with the spotted deer distribution.

Milestone

The REM exercise yielded 1,649 independent encounters with spotted deer and 436 independent encounters with sambar. Analysis to estimate the ungulate density is in progress.

Species	Obs	Best model	Chi square value	ESW (SE)	p (SE)	DS (SE)/ km^2	D (SE)/ km^2
Chital	166	Hazard/ Hermite	0.92	43.9(3.3)	0.2(0.02)	4.8(0.6)	70.9(10.2)
Sambar	119	Uniform/ cosine	0.86	43.3(3.1)	0.4(0.03)	3.5(0.4)	10.7(1.4)
Wild pig	46	Hazard/ Hermite	0.78	38.5(6.8)	0.4(0.06)	1.5(0.3)	12.2(3.4)
Barking deer	69	Uniform/ cosine	0.65	47.3(3.6)	0.5(0.04)	1.9(0.2)	2.8(0.4)
Langur	32	Uniform/ cosine	0.92	37.6(5.6)	0.6(0.1)	1.1(0.2)	22.3(7.1)

Obs, number of clusters detected; ESW, effective strip width; p, detection probability; DS, group density; D, individual density.

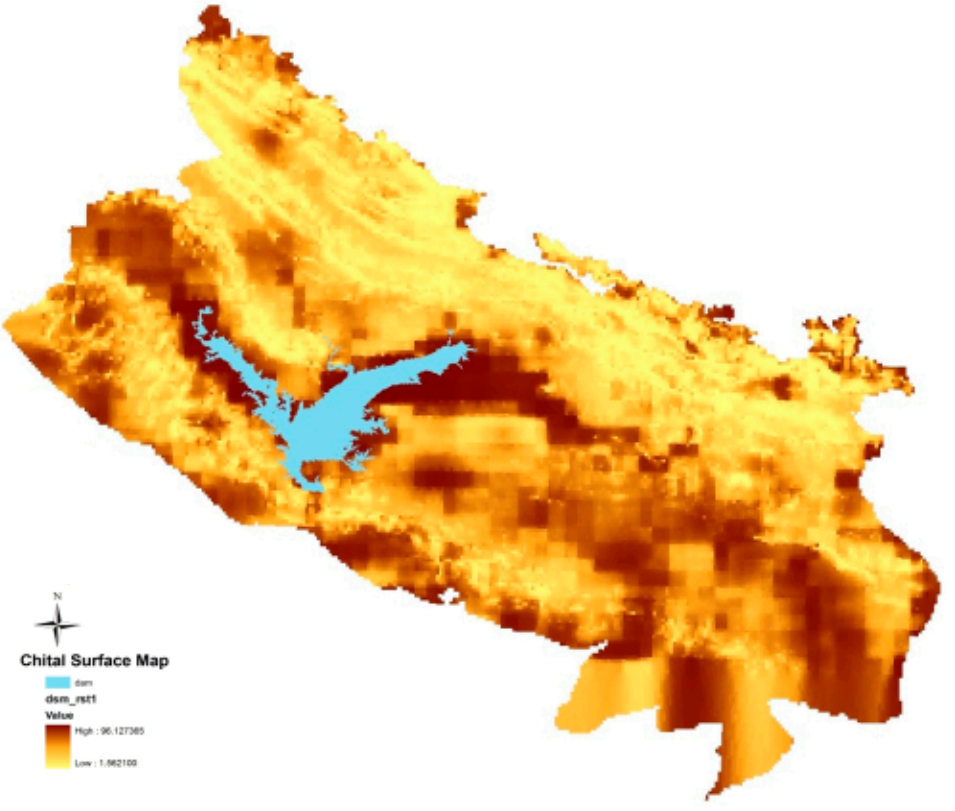

Figure 1: *Map showing density surface of spotted deer in Corbett Tiger Reserve.*

Monitoring of Reintroduced Tigers in Sariska Tiger Reserve, Rajasthan Phase-II

- **Funding Source**
  National Tiger Conservation Authority
- **Investigators**
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  Dr. Bilal Habib and
  Dr. K. Sankar
- **Researchers**
  Mr. Dibyendu Mandal and
  Mr. Debaprasad Sengupta

- **Date of Initiation**
  April 2015
- **Date of Completion**
  March 2018

Objectives

The objectives of the project are to (1) study the home range and dispersal patterns of the re-introduced tigers and cubs with respect to relocated villages; (2) assess the use of the habitat by the re-introduced tigers and cubs with respect to relocated villages; (3) study the food habits of the re-introduced tigers; (4) estimate the populations of the prey species; and (5) suggest management recommendations for effective conservation of tigers in the tiger reserve.

Progress

All the tigers were monitored in Sariska Tiger Reserve (STR) through ground tracking, camera trapping, direct sightings and pugmarks. The minimum convex polygon (100% MCP) technique was used for calculating the home range, and habitat variables such as terrain, broad vegetation type and distances to nearest water body, road and human settlement were recorded at each radio-collared location to evaluate the habitat use patterns.

A total of 4,124 locations were recorded for all the individuals during the reporting period using a hand-held Global Positioning System (GPS) unit. The diet and food preference of the tigers were determined through scat analysis as well as from kills. A total of 79 scat samples were collected, and 154 tiger kills were recorded during the year.

Outputs and Outcomes

All the tigers were monitored periodically. A total of 316, 365, 450, 376, 461, 360, 301, 382, 401, 151, 116, 248 and 197 locations were recorded, respectively, of ST2, ST3, ST4, ST5, ST6, ST7, ST8, ST9, ST10, ST11, ST12, ST13 and ST14 between April 2016 and March 2017. Additionally, 124 locations were recorded for the cub of ST9. The annual home ranges were estimated respectively as 20.3, 128, 470, 115.40, 274, 33, 53.40, 96.20, 123.23, 520.12, 87.05, 1240 and 70 km^2 for the 13 adult tigers in order from ST2 to ST14. The average annual home range of an adult male tiger was 626.25±183.07 (SE) km^2 and that of an adult female tiger was 80.30±11.10 (SE) km^2. The estimated home range of the cub of ST9 was 76.38 km^2.

Seven prey species, namely sambar, chital, nilgai, wild pig, langur, hare and livestock, were recorded in the tiger scats. Of these, the sambar contributed the maximum to the tiger's diet (53.13%), followed by the chital (27.08%), livestock (10.42 %), wild pig (6.25%), nilgai (1.04%), langur (1.04%) and hare (1.04%), which contributed only small proportions. It was re-established that the sambar is the main prey species of the tigers in the study area, as it has been throughout the study period of 2008–2016.

A total of 154 tiger kills of seven prey species by all the tigers were recorded during 2016–2017. Among the kills of wild prey, sambar (44.83%) was most numerous, followed by chital (24.14%), nilgai (17.24%), wild pig (6.90%) and porcupine (3.45%), the last two occasional. Livestock constituted a considerable proportion of the kills.

The major peak of tiger activity was observed at midnight (2229 hours to 0018 hours), whereas the leopard's major activity peak was observed just after the tiger's activity peak (2321 hours to 0353 hours). The major activity peak of the leopard was broader, extending from midnight to early morning. The striped hyaena showed a very narrow temporal activity period (0003 hours to 0048 hours). The tiger was observed to be

Camera Trap Image

Figure 1: *ST13 (Male) photographed in Rajgarh area*

crepuscular, whereas the leopard and striped hyaena were nocturnal. The jackal was diurnal (0648 hours to 0951 hours).

Milestone

All the tigers were monitored regularly during the last year, and a total of 4124 locations were recorded for all the tigers. A total of 79 scat samples were collected, and 154 tiger kills were recorded.

The present study showed that ruggedness and human disturbance significantly influenced the breeding and spatial dynamics of the tigers in Sariska. While ruggedness had a positive influence, the human disturbance negatively influenced tiger breeding. Terrain complexity appeared to have masked human disturbance at some breeding sites. On the basis of the areas suitable for breeding, the research team prioritised two separate blocks consisting of six villages for relocation to achieve optimum conservation success by creating an inviolate space for tigers to breed in and for the population to recover.

Population Genetic Structure of Nilgiri Tahr, *Hemitragus hylocrius* in Western Ghats, India: Conservation and Forensic Implications

- **Funding Source**
  Ministry of Science and Technology, Department of Biotechnology
- **Investigators**
  Dr. Bivash Pandav,
  Dr. S.P. Goyal and
  Dr. (Capt.) Parag Nigam
- **Researchers**
  Mr. Predit M.A. and
  Mr. Bheem Dutt Joshi

- **Date of Initiation**
  May 2015
- **Date of Completion**
  May 2018

Objectives

The objectives of the project are to (1) determine the distribution pattern in relation to sex and estimate the minimum number of individuals of the Nilgiri tahr, *Hemitragus hylocrius*, in the Western Ghats, India; (2) estimate the genetic diversity in the Nilgiri tahr populations; (3) estimate the genetic differentiation and subdivision within and between populations; (4) estimate the genetic drift, gene flow (Nm), genetic assignment and number of first-generation migrants; (5) estimate the effective population size (Ne) and minimum viable population (MVP) for *ex-situ* conservation; (6) identify geographical barriers and their effect on the gene flow; and (7) assign poaching cases to the respective populations.

Progress

The animal with the common name 'Nilgiri tahr' (old name, Hemitragus hylocrius; new name, *Nilgiritragus hylocrius*) is an endangered species of mountain sheep distributed across the Western Ghats, India. The present study focused on estimating the population across the entire distributional range and the habitat linkages between and within the populations. On the basis of preliminary surveys and the connectivity between tahr habitats, the study area was sub-divided into five blocks or groups. A total of 16 areas in Mukurthi National Park were surveyed during the calving season. The research team collected 266 faecal samples from the surveyed areas for genetic assessment. A collaborative census with the Tamil Nadu Forest Department was carried out during the post-calving season in May 2016, and a total of 418 individuals were recorded. The team also conducted censuses.

© *Predit M A*

Almost all the areas/blocks surveyed for the Nilgiri tahr had populations except for the Bangitapal–Labour Shed, Madippumalai and Anguinda Malai areas. The largest congregation of tahr (170) was recorded in the Ellamalai and Nilgiri Peak areas, and the smallest (2) was recorded on the Kinnakorai slopes. Parts of Ellamalai fall within Gudalur Forest Division and Nilgiri South Forest Division, and Nilgiri Peak is located in Mukurthi National Park and Gudalur Forest Division. Faecal samples were collected as per the data sheet with all required details like GPS, and 317 samples were collected from Block-IV, mostly from Grizzled Giant Squirrel Wildlife Sanctuary, 228 samples from Mukurthi National Park and Nilgiri South Forest Division in Block-I, 207 samples from Block-III, mainly from Anamalai Tiger Reserve, and 104 samples from Kalakkad–Mundanthurai Tiger Reserve of Block-V.

The team has planned to undertake surveys in Block (Group)-II as well as in the populations of Nilgiri tahr outside protected areas. DNA was successfully extracted from 124 of the samples collected from the different areas, and mtDNA (cyt b and control region) was used to understand the population genetic structure.

Outputs and Outcomes

A total of five blocks were identified within the distribution range of the Nilgiri tahr, and a total of 856 genetic samples were collected non-invasively from the different protected areas. The team observed the habitat characteristics for population and landscape genetics. The length, width and weight of pellets were used to distinguish age categories (fawn, sub-adult and adult) using cluster analysis for population demography on the basis of the gene flow. For genetic-based analysis, DNA extracted from the 124 samples and two mitochondrial (cytochrome b gene and control region) and 12 nuclear loci was optimised. Out of these two mitochondrial primers, the team generated data for 26 samples from north and south of the Palghat Gap (PG) and performed genetic analysis. Data were also generated for an additional 45 samples from the different blocks using the Cyt b gene, but these data were not analysed. All the samples phylogenetically clustered north and south of the PG. The PG acts as a physical barrier for the Nilgiri tahr populations. Besides, observed Forensically Informative Nucleotide Sequencing (FINS), each from north and south of PG would enable to assign any individual poached from these regions, which has implication in wildlife forensics.

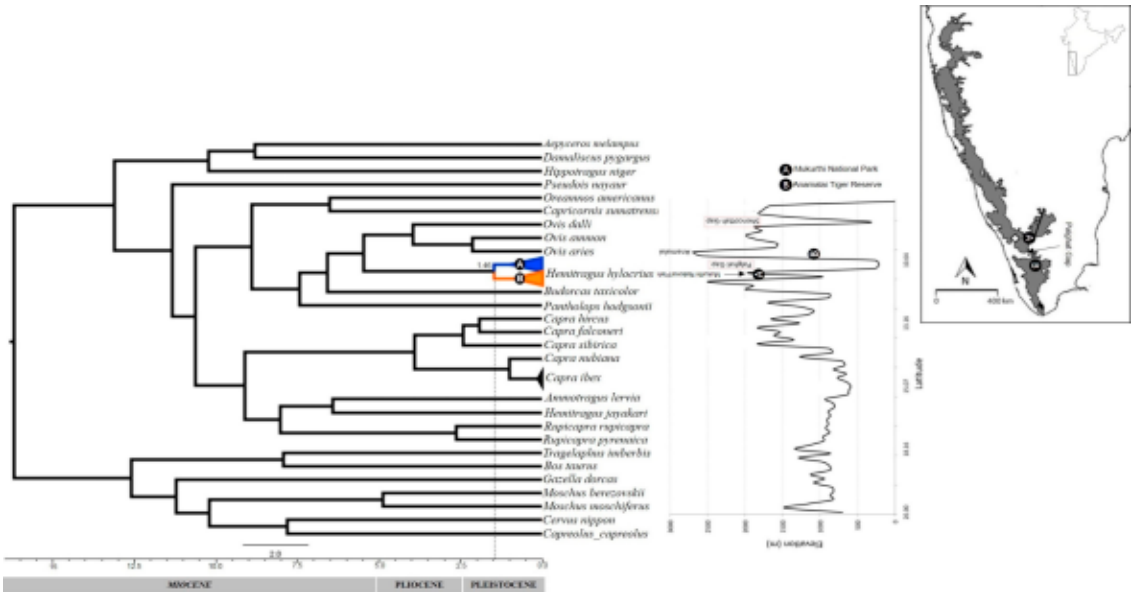


Figure 1: *. Phylogenetic tree (Bayesian) showing divergence between two populations (A and B) of Nilgiri tahr in the Western Ghats, India (Elevation profile adapted from Robin et al. 2010).*

Milestone

A population genetics database covering the range of the Nilgiri tahr was established and the information therein was used for effective conservation planning, tracking poaching and ex-situ conservation.

Establishing Ecological Baselines for Long-Term Monitoring of Tigers, Co-predators and Prey Species in Dibang Wildlife Sanctuary and Its Adjoining Landscapes in Arunachal Pradesh, India

- **Funding Source**
  National Tiger Conservation Authority, New Delhi
- **Investigators**
  Dr. G.V. Gopi,
  Dr. Y.V. Jhala and
  Mr. Qamar Qureshi
- **Researcher**
  Ms. Aisho Sharma Adhikari

- **Date of Initiation**
  April 2015
- **Date of Completion**
  March 2018

Objectives

The objectives of the project are to (1) determine the distribution and abundance of tigers, co-predators and their prey species in different land use, land cover types and disturbance regimes in and around Dibang Wildlife Sanctuary; (2) evaluate the effects of environmental features and anthropogenic pressure on the tigers, co-predators and their prey species occupancy patterns; (3) determine the factors governing the niche differentiation among tigers, co-predators and their prey species; (4) assess the local people's knowledge, beliefs, attitudes and perceptions about conservation of tigers, co-predators and their prey species; and (5) identify areas that have high conservation value as well as those that are under threat for tigers, co-predators and their prey species, with the ultimate aim of planning future long-term monitoring and conservation strategy.

Progress and Outputs

In all, an effort of 6,264 traps nights was operated both inside and outside the protected area. The research team has so far obtained 28 photographs of tigers. From these the team has identified four individuals (one adult male, one adult female and two cubs), which were captured at different grids and altitudes. One tiger was photo-captured inside the protected area, while three were photo-captured in the community-managed lands. The highest occupied area was at a height of 1,923 m as determined through camera traps and 2,593 m as determined through signs. The sign survey encounter rates were higher for tigers in Dri, followed by Angi Pani, Malinye and Mathun valleys. The takin, the major prey species of tigers, was captured frequently from Dri and Mathun Valley, where tigers were also frequently photo-captured. The preliminary questionnaire survey results suggest that all the respondents were positive about tiger conservation; however, they all expressed concerns about mithun depredation by tigers and dhole and felt that it was a major problem for them.

Milestone

This year has helped the team to document and identify key areas for tiger-occupied areas and its co-predators and prey species. The carnivore relative abundance and occupancy estimation will be carried out using camera trap data. Systematic long-term research and monitoring of the entire landscape in the future is being planned.

© Camera Trap Image

Ecological Impact Assessment of Existing and Proposed Road Infrastructure in Important Wildlife Corridors in India for Strategic Planning of Smart Green Infrastructure

- **Funding Source**
  National Tiger Conservation Authority, New Delhi
- **Investigators**
  Dr. Asha Rajvanshi and Dr. Bilal Habib
- **Researchers**
  Ms Akanksha Saxena and Mr. Adrian W. Lyngdoh
- **Date of Initiation**
  December 2015
- **Date of Completion**
  December 2018

Objectives

The objectives of the project are to (1) assess the ecological impacts (direct, indirect and cumulative) of road infrastructure on selected wildlife taxa and their habitats within three landscapes in India; (2) evaluate the cumulative impacts of existing multiple road developments on the conservation values of the landscape and the integrity of the wildlife corridors in the landscapes; (3) assess the implications of future road development in the landscape, with special emphasis on wildlife corridor function; and (4) provide a regional road development plan based on current and future road development plans to be implemented in the landscape to avoid, reduce and mitigate impacts on areas critical for promoting conservation in the identified landscape.

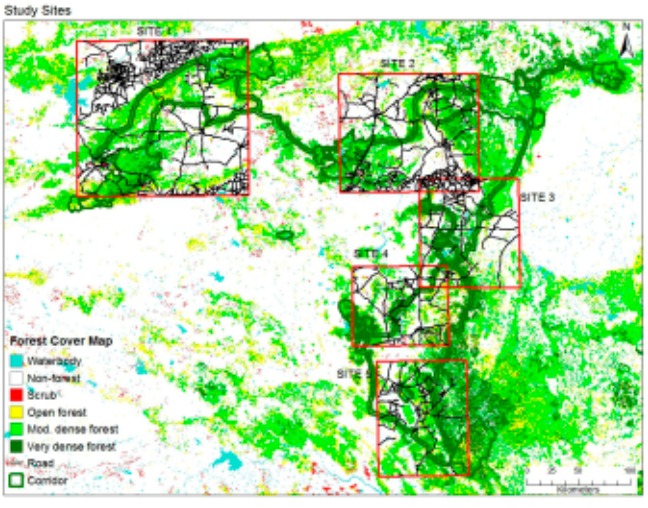
Progress

Literature survey on relevant subjects had been completed. Using GIS, the finalisation of intensive study sites stands completed. Road and rail density estimates, distances to roads, and landscape metrics such as patch density and forest cover were calculated and these were used to narrow down focal areas of study.

Preliminary studies suggested that Pench-Satpura-Melghat, Pench-Kanha, Kanha-Nawegaon-Indrabati and Kanha-Achanakamar were identified as the most important corridors for maintaining landscape connectivity. Most fragmented corridors are Pench-Satpura-Melghat, Nawegaon-Tadoba, Tadoba-Indrabati and Nawegaon-Indrabati. Pench-Satpura-Melghat, Nawegaon-Indrabati, Kanha-Nawegaon and Kanha- Pench corridors are most vulnerable to fragmentation, by linear developments at multiple locations.

Outputs and Outcomes

Work is under progress on select corridors to evaluate the impacts of road induced fragmentation on different species.



Studying the Dispersal of Tigers across the Eastern Vidarbha Landscape, Maharashtra, India

- **Funding Source**
  Maharashtra Forest Department
- **Investigators**
  Dr. Bilal Habib and
  Dr. (Capt.) Parag Nigam
- **Researchers**
  Mr. Zehidul Hussain and
  Ms Pallavi Ghaskadbi

- **Date of Initiation**
  December 2015
- **Date of Completion**
  December 2017

Objectives

The objectives of the project were to (1) study the movements of dispersed tigers that drive population connectivity on a landscape scale; (2) study the effect of environmental features on dispersal and its processes; and (3) study the various types of disturbances and the intensity of disturbance faced by dispersing individuals.

Progress

As part of the project, in the Eastern Vidarbha Landscape (EVL), the research team radio-collared four tigers to understand the movements of dispersed individuals. Of these, two sub-adult males (T9 and T10) from the same litter were radio-collared from the Umred Karhandla Wildlife Sanctuary (UKWLS). The second phase of collaring will be carried out during June 2017 in a human-dominated landscape of the Brahmapuri Forest Division. The two individuals, T10 and T9 from UKWLS, started dispersing in early July and August, respectively. They used corridors modelled previously to disperse using different habitats across the landscape. After 10 months of data were received from the radio collars, both the individuals were re-collared in December 2016 (T10) and January 2017 (T9). In the Brahmapuri Division, the male was injured in a territorial fight. He later succumbed to the injuries. The female was translocated and is now in the Chhaprala Forest Division.

Outputs and Outcomes

Two sub-adult male tigers in UKWLS started dispersing after a few months of collaring and moved across various landscapes, *viz.*, a mosaic of protected areas, plantations, agricultural fields, railway lines, canals and roads. Both the

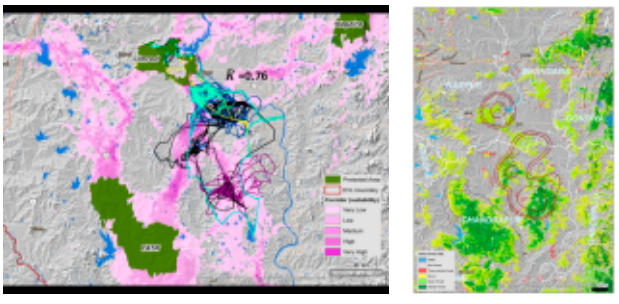


Figure 1: *(a) Movement of T9 and T10 using functional corridors (b) home range of T9*

individuals used an extensive area of more than 2000 km^2 to establish their territories. Moreover, from the relocation data of the collared tigers, the research team was able to validate the functional corridors in the landscape.

Milestone

From the movement paths of the collared tigers across various features and barriers, the team identified four sensitive crossing zones on the state highways for effective conservation and management of tigers beyond the protected area system in the EVL. Protecting such critical zones would maintain the current habitat and connectivity, which forms corridors. The team also identified sensitive areas near major power transmission lines which dispersing individuals have to negotiate while moving across the landscape.

Developing Genetic Database to Understand Meta-population Dynamics and Connectivity of Tigers and Other Large Predators across Tiger Landscape of Maharashtra, India

- **Funding Source**
  Maharashtra Forest Department, Council for Scientific and Industrial Research, NTCA
- **Investigators**
  Dr. Bilal Habib and Dr. Samrat Mondol
- **Researcher**
  Ms Shrushti Modi

- **Date of Initiation**
  March 2016
- **Date of Completion**
  February 2019

Objectives

The objectives of the project are to (1) develop an exhaustive genetic database of individual tigers, leopards, dholes and sloth bears; (2) determine the population structures, relatedness and sex ratios of these large carnivores; (3) determine the population connectivity rates and direction of gene flow at the meta-population scale; (4) identify landscape features, if any, affecting the connectivity in this landscape; and (5) understand the social dynamics of all these species within this landscape.

Progress

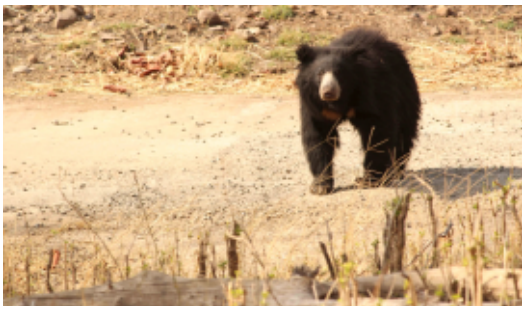
The first phase of scat collection has been done in Navegaon–Nagzira Tiger Reserve, Pench Tiger Reserve, Umred Karandhla Wildlife Sanctuary and Tadoba–Andhari Tiger Reserve. After the collection, standardisation of protocols for DNA extraction was done. Species-specific primers for wild dogs were designed. Primers for molecular sexing of the wild dog, tiger and leopard have been standardised.

Outputs and Outcomes

For the first objective, baseline data generation requires species-specific primers as well as microsatellite primers for individual identification. Species-specific primer standardisation has been done. For individual identification, a set of microsatellite primers—12 for the leopard and 13 for the tiger—has been standardised.

Milestone

For the next year, after generation of baseline data, different software needs to be used for determination of population connectivity, if there is any, and the direction of gene flow.



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Meta-population Dynamics of Tigers in the Terai-Arc Landscape, India

- **Funding Source**
  WCT-Panthera Global Cat Alliance, Department of Science and Technology, Government of India
- **Investigators**
  Dr. Samrat Mondol, Dr. Bivash Pandav and Dr. Gautam Talukdar
- **Researcher**
  Mr. Suvankar Biswas

- **Date of Initiation**
  November 2014
- **Date of Completion**
  November 2019

Objectives

The project has the following objectives: (1) To determine the extent to which tigers occupy unprotected areas in the Terai-Arc Landscape. (2) To identify the source and sink tiger populations. (3) To ascertain the population connectivity, by estimating the rates and direction of tiger dispersals at the meta-population scale. (4) To assess what landscape features, if any, affect connectivity in this landscape. (5) To assess the social dynamics and tiger population structure within this landscape.

Progress

During this year, the research team intensively collected fecal samples from previously unsampled areas of Terai East Forest Division, Terai West Forest Division and Haldwani Forest Division of Uttarakhand and Kishanpur Wildlife Sanctuary, Dudhwa National Park, Katerniaghat Wildlife Sanctuary and Pilibhit Tiger Reserve of Uttar Pradesh. Molecular analyses, including standardisation of identification of individual tigers, have been completed, and identification of individual leopards has been completed. Using the molecular data generated, the team conducted preliminary population genetics analyses at a landscape level.

Outputs and Outcomes

The research team collected a total of 1125 faecal samples from the study area and identified 462 of them to be tiger samples and 364 to be leopard samples. Following individual identification in the laboratory, the team identified 131 unique tigers across Uttarakhand and Uttar Pradesh. The calculated probability of identity for sibling value was 5.5×10^{-6}, assuring unambiguous individual identification of tigers. The allelic richness or number of alleles per locus varied from 5 to 14 (mean 10.846±2.413), allelic size range (mean 33±11.741) and observed heterozygosity (mean 0.30711±0.15264) in these individuals. Subsequent analysis revealed two distinct genetic subpopulations divided by the Gola river corridor across the western and central Terai-Arc Landscape. This genetic division is driven by severe anthropogenic disturbances along the corridor.

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Milestone

The analyses indicated a dysfunctional corridor along the Gola river, resulting in two genetic subpopulations in this landscape. These results were communicated to the Uttarakhand Forest Department for further management action.

Genetic Connectivity at Landscape Scales for Large Carnivore Populations in Tiger Habitats

- **Funding Source**
  National Tiger Conservation Authority, Delhi
- **Investigators**
  Dr. Y.V. Jhala and Mr. Qamar Qureshi
- **Researchers**
  Ms Shweta Singh and Ms Vishnupriya Kolipakam

- **Date of Initiation**
  January 2016
- **Date of Completion**
  January 2018

Objectives

The objectives of the project are to (1) carry out genetic identification of leopards, *Panthera pardus,* dholes, *Cuon alpinus*, and sloth bears, Melursus ursinus in the study area, from their scat DNA extracts; (2) investigate the meta-population structure of the large carnivores including the tiger, *Panthera tigris*, in the country using microsatellite loci genotypic data; (3) investigate the level of genetic structuring between local populations and across the country; and (4) identify any ESUs or isolated populations that merit special conservation attention.

Progress

Using the genetic data on tigers reported in the All India Tiger Estimation, the population structure of tigers and genetic connectivity between populations was investigated. From these analyses it has emerged that tigers from the Northeast are different from those of the other tiger populations in the country and that central Indian tigers harbour the highest genetic diversity seen in India today. The population structure analysis also suggested that the Valmiki and Odisha populations harbour unique genetic diversity, but this needs additional investigation. Discriminant analysis also revealed that populations are genetically structured at landscape scales, and while central India seems to be at the crossroads of tiger migration, there is still substantial structure present within each landscape that needs to be taken into account while taking management decisions regarding translocations and reintroductions.

As part of the project, a leopard-specific primer based on the variable region of the cytochrome b region was designed to amplify a region of 277 bp, and the results were subsequently published. A total of 1147 putative leopard/tiger scats were chosen for extraction of DNA. Out of these, 718 scats successfully amplified with tiger- and leopard-specific primers, and they yielded a total of 432 leopard-positive scats. On the basis of the distribution of the leopard-positive samples and the quantity of DNA present in the extracts, out of the 430 scats, a total of 178 leopard-positive samples were chosen for genotyping with a set of 11 microsatellite loci. A total of 300 sloth bear scats and 275 putative wild dog scats were also chosen for extraction of DNA, and their extraction and genotyping is going on.

Outputs and Outcomes

The leopard-specific primer (LSP) designed is the first non-cross-amplifying leopard-specific primer designed in India. The previous primers designed are known to cross-amplify with other sympatric carnivores. There is a visual misidentification rate of about 61% between tiger and leopard scats. By using LSP, the research team was able to unambiguously identify leopard scats from tiger scats. The wild dog-specific marker designed (SS2) in the study is the first wild dog-specific primer available to date. It was able to differentiate wild dog scats from those of domestic dogs and other sympatric carnivores through gel-based electrophoresis. With the completion of analysis for all three species, the team hoped to have a dataset to compare the genetic structure and gene-flow of these major species, alongside tigers. This would give an insight into how effective current management practices are for non-tiger species and if specific inputs need to be adapted for conservation of leopards, wild dogs and sloth bears.

Communications: Maroju PA, Yadav S, Kolipakam V, Singh S, Qureshi Q, Jhala Y (2016). **Schrodinger's scat: A critical review of the currently available tiger, *Panthera tigris* and leopard, Panthera pardus specific primers in India, and a novel leopard specific primer.** BMC Genetics, 17(1):1.

Milestone

The tiger population structure published in Kolipakam *et al*. (2015) and the analysis of this dataset form the basis of genetic cluster-based management of tigers in India. On the basis of this analysis, the NTCA has published the standard operating procedure for supplementation, genetic rescue and reintroduction of tigers in India.

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Tiger Recovery Strategy and Long-Term Monitoring in Sahyadri Tiger Reserve, Maharashtra

- **Funding Source**
  Sahyadri Tiger Foundation, Maharashtra
- **Investigators**
  Dr. K. Ramesh, Dr. Gopi G.V., Dr. Sonali Ghosh and Dr. V. Clement Ben
- **Researchers**
  Mr. Shah Nawaz Jelil, Mr. Avinash A. Gaykar, Mr. Goutham Choutri Raja A., Ms Kamana Pokhariya, Mr. Rabi Sankar Pal and Mr. Nazrukh Sherwani

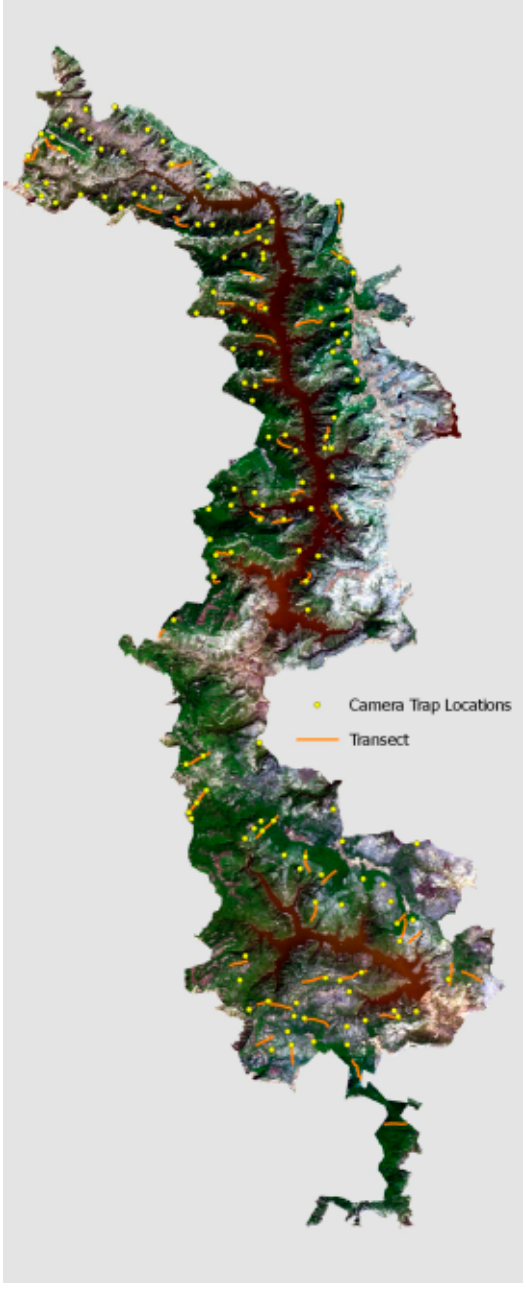
- **Date of Initiation**
  January 2016
- **Date of Completion**
  March 2021

Objectives

The objectives of the project are to (1) undertake a feasibility study and promote habitat recovery and prey augmentation towards preparing the inviolate core area with adequate prey for tiger reinforcement, if needed; (2) ensure a demographically, genetically and physically (health-wise) optimal population of tigers and their offspring by undertaking population management by strengthening existing connectivity options and considering translocation of tiger from other suitable sites if natural colonisation is absolutely not possible; (3) devise and execute a monitoring strategy of founder individuals (prey species and tigers, if trans-located) involving radio telemetry and GPS-satellite/GSM tracking technology; (4) study the prey–predator relationships and undertake population estimation and monitoring as per the NTCA Phase IV monitoring protocol; and (5) undertake a conservation education programme for local people and a capacity building training for the field staff towards social acceptability and technical skill development, respectively, for effective implementation of a tiger recovery programme.

Progress

The fieldwork started in January 2017. The feasibility assessment of Sahyadri Tiger Reserve (STR) was carried out this year. The feasibility assessment included habitat assessment, prey density estimation, determination of tiger and co-predator presence and status and conducting a social acceptance survey of the project and tiger-recovery in the Sahaydri among the local villagers.



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Outputs and Outcomes

A total of 10 carnivore species were recorded through a sign survey and camera trap sampling, but the presence of tigers could not be established. The camera capture rate was highest for the sloth bear (0.022/trap night), and it was lowest for the grey mongoose (0.0003/trap night). The wild ungulate density was 9.5 (2.79 SE) per km^2, the livestock density was 10.81 (6.00 SE) per km^2 and the primate density was 11.18 (5.00 SE) per km2. As for habitat conditions, the tree density was 14.93 (±7.72 SD) per plot, the canopy cover was 54.31% (±9.20 SD) per plot, there were 0.13 cutting signs (±0.31 SD) per plot, there were 032 lopping signs (±0.46 SD) per plot, and the livestock density was 0.76 (±0.73 SD) per plot.

Milestone

The feasibility assessment has been completed, and this will lay the foundation for the tiger recovery strategy in STR. Although the project is in its initial stage, with only 7 months of fieldwork put in, this project is progressing with significant logistic and financial support from the Maharashtra Forest Department and is certain to achieve many milestones in the future.

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Distribution Pattern, Habitat Use and Movement of Breeding Water birds with respect to Black-Necked Cranes and Bar-Headed Geese Using Telemetry in Changthang Cold Desert Sanctuary, Ladakh and Gharana Wetland Conservation Reserve, Jammu (J&K)

- **Funding Source**
  Department of Wildlife Protection, J&K
- **Collaborating Agency**
  WII - Dept. of Wildlife Protection, J&K
- **Investigators**
  Dr. S.A. Hussain,
  Dr. Bilal Habib and
  Dr. Gopi G.V. (WII)
  Mr. Jigmet Takpa (DWP, J&K)
- **Researcher**
  Mr. Neeraj Mahar

- **Date of Initiation**
  July 2012
- **Date of Completion**
  August 2017

Objectives

The objectives of the project are to (i) quantify the current status of water-birds with special reference to Black necked crane and Bar headed goose in the Changthang Cold Desert Sanctuary in Ladakh and Gharana Wetland Conservation Reserve in Jammu; (ii) examine the habitat use and movement pattern of Black necked crane and Bar headed goose in the Changthang Cold Desert Sanctuary in Ladakh and Gharana Wetland Conservation Reserve in Jammu; and (iii) use this information to devise an effective management strategy for wetlands in the wintering grounds of the cranes and bar-headed geese as well as their nesting or feeding and roosting sites.

Progress

During the reporting period we have studied first objective of the project. *Abundance of Water birds in Changthang Wildlife Sanctuary (CWLS):* In Changthang, counts were conducted during morning to afternoon hours by following sampling protocol. The minimum distance of 600 meters was maintained between two points at small wetlands. However, keeping logistic constraints in mind large lakes were sampled maintaining the minimum distance of 1200-2000 meter. The research team fixed these distances on the basis of previous reconnaissance surveys. The team systematically clicked photographs instead of counting birds and, later identified and counted birds from photographs. The exercise was conducted during months of May, July and October, 2016. Seasonal abundance and site

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specific abundance of water birds were calculated. The team used Kruskal-Wallis test to examine seasonal variation in the abundance of water birds. A different method was used for counting Black-necked Cranes. All potential wetlands were covered on foot or vehicle and intensively searched for individuals and nesting sites. Total counts were conducted with the help of two observers across three seasons and maximum recorded numbers were used for counts during each exercise.

Outputs and Outcomes

Water bird Abundance in CWLS: During three seasons, total of 1,406 water bird individuals in

spring, 3,550 in summer and 4,590 were recorded during autumn in CWLS. No significant difference in the abundance of water birds was found across the seasons (Kruskal-Wallis test chi-squared 2, df=2, p=.3679). Overall, Statsapuk Tso (710.66±300 SE) was most abundant wetland and Kyun Tso II (6±4.58 SE) was the least abundant across all study sites. The team recorded total 26 species of water birds belonging to 10 families, where most diverse wetland was Statsapuk Tso (13 sp.), and least diverse wetland was Mirpal Tso (2 sp.).

Seasonal variations in flock size and abundance of water birds: Large flocks were recorded mostly during autumn season perhaps owing to post-breeding and early migration time, where birds congregated in larger flocks. During spring, mostly bar-headed goose (8.68±2.25 SE), brown headed gull, *Chroicocephalus brunnicephalus* (11.14±5.39 SE), common goosander, *Mergus merganser* (6.83±5.64 SE) and northern pintail (8±6 SE) were observed in flocks. Only bar headed goose (13.49±3.39 SE) and common goosander (7.46±1.99 SE) were seen in flocks during summer. During autumn, gadwall, *Anas strepera* (16.39±4.65 SE), bar headed goose (15.34±4.94 SE), Eurasian coot, *Fulica atra* (15.68±2.32 SE) mallard, *Anas platyrhynchos* (5.5±2.96 SE), and ruddy shelduck, *Tadorna ferruginea* (3.77±0.33 SE) were recorded in large flocks and a single flock of common sandpiper, *Actitis hypoleucos* (n=56) was recorded during autumn.

Table 1. *Status of Black necked Crane in Changthang Region*

Season Site	Spring (May)		Summer (July)		Autumn (October)	
	A/SA	J/C	A/SA	J/C	A/SA	J/C
Yaya Tso	2	-	2	-	-	-
Puga	2	-	2	-	2	2
Tso Kar	8	-	6	2	6	4
Statsapuk	2	-	4	-	2	-
Lam Tso	2	-	2	2	-	-
Hanle	11	-	13	-	12	-
Lal Pahari	2	-	4	-	2	-
Rongo	2	-	2	-	2	-
Staklung	2	-	2	-	2	-
Loma	3	-	2	-	2	-
Phuktse	2	-	2	1	2	1
Dungti	-	-	5	-	2	-
Chushul	14	-	12	-	14	2
Parma/Harong	4	-	6	-	-	-
Kyun Tso	2	-	-	-	-	-
Tso Morriri	2	-	-	-	-	-
Tsegam Tso	-	-	3	-	-	-
Chumik Tsalte	2	-	2	-	-	-
Total	**62**	**0**	**68**	**5**	**48**	**9**
Grand Total	**62**		**73**		**57**	

**A: Adult, SA: Sub Adult, J: Juvenile, C: Chick*

The team recorded fewer species (26 species) than previous study. However, one common output from all studies was that Statsapuk reported as the most abundant and diverse wetland among all wetlands of CWLS. Apart from known habitats of black-necked crane in the sanctuary, the team surveyed three additional wetlands Mirpal Tso, Tsegam Tso and Chumik Tsalte in the year 2016. Contrary to a previous study, the team found 57-73 cranes during different seasons, maximum during July and minimum during October. The team recorded feeding sites of crane in Tsegam Tso, Chumik Tsalte and Kyun Tso for the first time. One pair each in Tsegam Tso and Chumik Tsalte attempted unsuccessful nesting during summer season.

Conservation of Manipur's Brow-Antlered Deer or: An Integrated Approach

- **Funding Source**
  Compensatory Afforestation Fund Management and Planning Authority (CAMPA)
- **Investigators**
  Dr. S.A. Hussain and Dr. Ruchi Badola
- **Researchers**
  Ms Chongpi Tuboi, Mr. Manoharmayum Vikramjit Sharma, Ms Malemleima Ningombi, Ms Anjali Achom, Mr. Akoijam Santikumar Singh and Mr. Yumnam Neeraj Singh

- **Date of Initiation**
  March 2016
- **Date of Completion**
  March 2021

Objectives

The objectives of the project are to (1) strengthen the existing population in Keibul Lamjao National Park (KLNP); (2) establish the second population in the wild; (3) improve the habitat condition and protection measures; (4) enhance community participation in conservation; (5) promote awareness and capacity building; and (6) conduct applied research and monitoring.

Progress

(1) Capacity building for forest guards and local volunteers. (2) Consultation meetings at different levels. (3) Awareness and outreach programmes in and around KLNP. (4) Liaison with Manipur Forest Department. (5) Rescue and rehabilitation centre for sangai and its sympatric species. (6) Revision of KLNP Management Plan. (7) Research and monitoring work in KLNP.

Outputs and Outcomes

Capacity building. A training programme for forest staff and local volunteers in census techniques was conducted during March–April 2016 in Keibul Lamjao National Park (KLNP) and neigbouring areas at LaiphumPhumlak and YawaLamjao.

Consultation meetings at different levels. (1) CAMPA launch workshop on 16 May 2016 at WII. (2) An MoU was signed between the Forest Department, Manipur and WII on 23 July 2016 at the Forest Office Headquarters at Sanjenthong, Imphal, Manipur. (3) 'International Workshop on Eld's Deer Conservation' conducted in Imphal, Manipur from 24 to 26 November 2016 as an initiative of the forest department and co-organised by WII. More than 50 national delegates and 100 local participants took part in the workshop. (4) Village-level sensitisation and consultative meetings held between 29 May and 18 June 2017 at 15 sites covering all the 36 villages around the park. (5) Site-level consultative workshops held at eastern and western parts of the park on 20 and 21 June 2017 to discuss the management plan of KLNP and conservation of sangai. (6) Sensitisation workshop for forest guards held at Second IB, KLNP on 20 June 2017 to sensitise and encourage the forest personnel. (7) State-level consultative workshop held at Imphal on 23 June 2016 for management planning of KLNP and the conservation of the sangai in Manipur to identify future strategies for the long-term conservation of the sangai and the role of stakeholders therein.

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Awareness and outreach programmes. (1) Information on the local flora and fauna, socio-economy and wildlife in general were made into brochures, booklets, posters, banners and notebooks in English and Meitei, the local language, for information dissemination. (2) Schools around the park were visited for an awareness programme during June–August 2016. Activities such as painting competitions, quizzes and essay writing focused on the sangai were conducted. (3) World Environment Day, World Wetland Day and World Nature Conservation Day were celebrated during the reporting year with the local school children and youths. (4) Participatory Rural Appraisal (PRA) meetings with the local communities in five fringe villages of KLNP, viz., Khordak, Nongmaikhong, Keibul, Sagram and Chandapur, were held in August 2016 in collaboration with the Manipur Forest Department for development of EDCs.

Liaison with Manipur Forest Department. The research team of WII has liaised with the forest department in matters pertaining to incidences of poaching, resource extraction by local communities and rescue of animals from the park and the surrounding area.

Rescue and rehabilitation centre. The Forest Department of Manipur has acquired 10 ha of land in the area adjoining KLNP for establishment of a conservation breeding cum rescue centre for the sangai and has fenced the area. This area has been mapped, and a rough layout of the centre has been designed. A veterinary centre has been assigned in one of the buildings inside the park.

Revision of KLNP Management Plan. The management plan of KLNP is being updated. The first draft, comprising 12 chapters and an annexure dealing with various aspects of management inside the park have been written and are under revision.

Research and monitoring work in KLNP. (1) Habitat monitoring of the park for the winter and pre-monsoon. (2) Habitat use of the sangai and the sympatric hog deer. (3) Collection of genetic samples. (4) Monitoring the population of the sangai and the sympatric hog deer. (5) Behaviour study of the sangai and the sympatric hog deer. (6) Human foot trail monitoring around KNLP. (7) Socio-economic household survey around KLNP.

Milestones

(1) Government agenda to ban air guns to protect wildlife. (2) Initiation by the government of decommissioning of the Ithai barrage to safeguard and rejuvenate the ecosystem of KLNP and neighbouring areas.

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Capacity Building for Participatory Management of Coastal and Marine Protected Areas in India with Special Reference to Forests Sectors

- **Funding Source**
  GIZ Indo-German Biodiversity Programme
- **Investigators**
  Dr. K. Sivakumar, Dr. J.A. Johnson, Dr. G.V. Gopi and Dr. C. Ramesh

- **Date of Initiation**
  September 2014
- **Date of Completion**
  December 2017

Objectives

The objectives of the project are to customize the existing Capacity Needs Assessment (CNA) tool and to prepare the "Conceptual and Situation Analysis" of the capacity development systems, structures and tools relevant to marine protected areas (MPA's) in India with special reference to forest sectors, and building capacity for participatory management of coastal and marine protected areas in India.

Progress and Outcomes

Based on the field assessment studies, the major gaps in the capacities of the forest sectors of all the coastal states are inadequacy in baseline data of biodiversity, infrastructure and leadership qualities to involve all the stake holders in policy making; lack of inter-sectoral coordination and adequate skills for the effective management of MPA's; and lack of necessary infrastructure and equipments to carry out the applied research and development of research framework for the improved conservation of coastal and marine protected areas in all the four coastal states.

The major possible interventions of the HCD measures of forest sector and youths of local populations of all the project states have been identified as: they require a conducive environment to consult, debate, understand and mutually agree for a common goal *i.e.* conservation of marine protected areas with the involvement of identified stake holders including the participation of local communities; intervention in existing policies to enhance the participatory approaches in the PA management; capacity building of resource organizations towards the emerging issues such as climate change, endangered species and invasive

species with better linkage and understanding; issues related to lack of funds and manpower for the applied research; and training for leadership development and establishment of knowledge based system with participatory approaches for effective management of marine protected areas.

Further, a *"Special Certificate Course on Coastal and Marine Biodiversity and Protected Area Management"* for field-level staff of the Forest Departments during December 2015 at Havelock Island and Port Blair was jointly organized by the Wildlife Institute of India and *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ) GmbH. This course was intended to enable the participants to have a sound understanding of the concepts and issues related to managing coastal and marine biodiversity, coastal and marine protected areas, ecological and socio-political context, conservation approaches and legal-policy framework between terrestrial and coastal marine PAs, as well as to acquire necessary skills to conduct assessment and monitoring of coastal and marine habitats and species and prepare field reports, and develop-under supervision-operational plan for MPAs based on management effectiveness guidelines. Further, one week IFS Officers Training Course on 'Integrated Management of Coastal and Marine Biodiversity in India' was also organized at Port Blair with help of MoEFCC and GIZ. Forest Department of Andaman and Nicobar Islands have provided all logistic and technical helps in organizing these courses as a partner. Two more training courses for the frontline staff and officers of both Forest Department and Fisheries Department of Gujarat had been organized in collaboration with CMFRI at Veraval.

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Long-term Monitoring of Antarctic Wildlife and their Habitats in Antarctica

- **Funding Source**
  National Centre for Antarctic & Ocean Research (NCAOR), Goa, Ministry of Earth Sciences & WII Grants-in-Aid
- **Investigators**
  Dr. K. Sivakumar, Dr. S. Sathyakumar and Dr. S. Mondal
- **Researcher**
  Mr. Anant Pande
- **Date of Initiation**
  September 2013
- **Date of Completion**
  May 2017

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Objectives

The main aim of this programme is long-term monitoring of selected fauna that are indicators of Antarctic and Southern Ocean ecosystems in connection with climate change and therefore, strengthen the biological data base of the NCAOR. The objectives of this programme are: (i) Monitor indicator species such as penguins and birds in the Indian sector of operation in Antarctica using satellite telemetry; (ii) To understand the movement of avifauna in and around the Indian sector of operation in Antarctica; (iii) To assess habitat use by the tagged individuals and determine key habitats for the species; and (iv) To monitor any changes in the movement patterns over years correlated with climate change.

Progress and Outcomes

WII had participated in the XIV, XV and XVI Indian Scientific Expeditions to Antarctica (1994-95 to 1996-97) to initiate and implement the Monitoring Programme entitled *"Developing a Long-term Monitoring Programme for Birds and Mammals in the Indian Ocean and Antarctica"*. During these three years participation, WII could collect baseline data on status and distribution of mammals and birds of India Bay, Antarctica and also standardized the methodology for long term wildlife monitoring. During the 28th, 29th , 33rd, 34th and 35th In SEA, WII could collect the baseline data on status and distribution pattern of birds and mammals in Larsemann Hills areas and continued the wildlife survey along Princess Astrid Coast. During the last expedition, detailed nesting ecology, behaviour and habitat of certains birds have been studied in Larsemann Hills. Genetic samples of birds (feathers) have also been collected during the last expedition that would be analysed for their site fidelity and population genetics.

Apart from Antarctica, the WII also monitoring the changes in abundance and distribution of wildlife in the Southern Oceans both Indian and Atlantic. WII in its last seven expeditions could collect most valuable data on birds and mammals in the Indian Southern Ocean which could be used as a baseline data to detect changes in the wildlife populations in this region in relation with climate changes. Some of the research findings have been published as paper and chapter in book.

Recovery of Dugongs and their Habitats in India: An Integrated Participatory Approach

- Investigators
  Dr. K. Sivakumar and
  Dr. J.A. Johnson
- Researchers
  Dr. N. Marimuthu,
  Mr. PVR Premjyothi,
  Ms Devanshi K. and
  Ms Swapnali G.

- Date of Initiation
  September 2015
- Date of Completion
  March 2020

Objectives

The project has the following objectives: (i) Assess dugong population status through advanced census techniques and determine its abundance and distribution, identify critical habitats, classify threats and develop site-specific monitoring plan to reduce hunting and incidental entanglements. (ii) Characterize the critical dugong habitats, reduce direct and indirect threats, control modifications in and around the habitat and improve habitat quality through management interventions and participatory approaches. (iii) Raise awareness on the species and encourage the participation of the local communities; include other stakeholders like fisheries department and religious heads in conservation efforts; enhance Dugong conservation program by spreading awareness on a national scale. (iv) Enhance the capacity of the State Forest Department staff and develop/implement smart patrolling tools to improve protection enforcement; train forest staff and local communities in underwater surveys for long-term habitat monitoring.

Progress

Sea Cow *Dugong dugon*, occurs in Andaman and Nicobar islands, Gulf of Mannar, Palk Bay, and Gulf of Kutch in India. Several reasons have been attributed to their population decline, some of which include sea grass habitat loss and degradation, boat traffic, gill netting, disease, chemical pollutants, consumptive use, and poaching. Therefore, recovering dugongs entails

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targeted, multidisciplinary research that flows into management actions and advocacy for policy changes. Therefore, dugong recovery program aims at: (a) assessing and monitoring Dugong population and habitat status; (b) implementing site specific management actions to recover populations and restore critical habitats; (c) incentivizing participatory conservation efforts involving local stakeholders; and (d) improving the capacity of enforcement and management agencies to promote integrated protection and management of Dugong and associated species.

State level Stakeholders Consultation Workshops in each Dugong range states were held and finalized the modalities related to implementation of Dugong Recovery Programme with actionable conservation measures on priority. The Indian Navy and the Indian Coast Guard have expressed their support for monitoring dugongs. More than 20, 000 school children and fisherfolks have participated in awareness programs. Because of these awareness programs, few fishermen in Tamil Nadu, who could successfully rescue and release three dugongs entangled in their fishing nets, were honoured with incentives. A total of 60 frontline forest staff of Tamil Nadu Forest Department has been oriented towards conservation of dugong.

Outputs and Outcomes

As part of 'Incentive for Conservation Programme', examinations have been conducted among school going children of fishermen community and selected 150 'Dugong Ambassadors' from these three dugong range States/UT. Education of these 'Ambassadors' would be supported with 'Dugong Scholarship' i.e. Rs. 500/month for two years. Land based pollutions is one of threats to seagrass habitat in India, therefore, study to understand the impact of pollutions on nutrient contents of seagrass has been initiated. Further, genetic samples have been collected from the stranded dugongs to study their genetic diversity and relatedness with global populations. A study on ecosystem services of dugong habitats has been initiated in Tamil Nadu and Andaman. A stakeholders' consultation was organized to develop the Management Plan of Gulf of Mannar National Park with reference to dugong conservation. Efforts are also underway to identify and manage the Critical Dugong Habitats outside PAs; assess the populations of dugongs using various census techniques and establishment of marine mammals' rescue and rehabilitation facilities in all three states.

Implementing Rhino DNA Indexing System (RhODIS) to Counter Rhino Poaching Threat and Aid Population Management of Rhino in India

- Funding Source
  WWF-India
- Investigator
  Dr. Samrat Mondol
- Researcher
  Ms Tista Ghosh

PROJECTS INITIATED

- Date of Initiation
  October 2016
- Date of Completion
  October 2019

Objectives

The objectives of the project are to (1) develop a genetic database of Indian rhinos from all rhino-bearing areas; (2) use the genetic database in rhino poaching-related cases by matching confiscated rhino contraband with the existing data as scientific evidence of poaching involvement; (3) promote better crime scene investigation and biological sampling protocols as the standard operation protocol and train law enforement officials to adopt the RhODIS system; and (4) understand the genetic status of present populations with a goal to aid population management of rhinos.

Progress and Outcomes

During the first year of the project, the research team prepared the standard operating protocol for RhODIS sample collection (poached animals and dung from the field) and crime scene investigation procedures. Further, the team selected and standardised a panel of microsatellite markers using 34 reference rhino tissue samples provided by the forest departments of Assam and West Bengal. During the selection of markers, two aspects were considered: (1) testing a large number of markers to find polymorphic loci; and (2) selecting the final panel that will provide high statistical power in forensic and population genetic analyses. The programs CERVUS and GIMLET were used to analyse the genetic data from the reference tissue samples.

During this period, the team also received one seized rhino horn and two poached rhinos from the Assam Forest Department and the West Bengal Forest Department, respectively.

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Outputs and Outcomes

The research team has finalised a panel of 14 microsatellite loci with a $PID_{(sibs)}$ value of 6.7×10^{-5}, or a misidentification probability of 1 in every 14,000 related rhino individuals. This panel provides statistically significant results for rhino forensic science as well as population genetic research. The team conducted forensic analyses of one seized horn sample from Kaziranga National Park along with poached rhino tissue samples from the forest departments of Assam and West Bengal.

Milestone

The first rhino forensic case, as part of the RhODIS programme, has led to successful prosecution in the court. This work was reported in *Assam Tribune*, and the Chief Minister of Assam has acknowledged this success by felicitating all the forest departments, NGOs and police officials associated with this case during the Wildlife Week celebrations.

Influence of Micro-climatic Variables on Herbaceous Plant Communities in Treeline Ecotone in the Himalaya

- **Funding Source**
  Ministry of Environment, Forests and Climate Change, New Delhi
- **Investigators**
  Dr. B.S. Adhikari
- **Researcher**
  Ms Sayantika Banerjee

- **Date of Initiation**
  April 2016
- **Date of Completion**
  March 2019

Objectives

The objective of the project is to understand the impact of depletion of snow-melt water on the growth of tree seedlings, grassland species composition and selected functional processes.

Progress and Outcomes

The project 'Timberline and Altitudinal Gradient Ecology of Himalaya, and Human Use Sustenance in a Warming Climate' is being coordinated under the Central Himalayan Environment Association (CHEA), Nainital. Six institutes are working for seven objectives in this project. One of the objectives, to understand the impact of depletion of snow-melt water on the growth of tree seedlings, grassland species composition and selected functional processes, is being dealt with by WII.

Various sites were identified on the basis of topography and physiognomy for vegetation community composition. In each site, 20 quadrats of dimensions 1 m × 1 m were laid randomly, and the individuals of each species were counted, while the tussock-forming species cover and bunches were counted and analysed. Soil samples were collected from each site randomly down to 20 cm (0–10 cm and 10–20 cm) for physico-chemical properties. The site-specific parameters such as elevation (low/high), exposure (open/shady), mesicness (moist/wet/dry) and slope (steep/gentle/moderate) were also recorded. The data were analysed using well-established methods, and a total of five communities were identified in the study area: (1) mixed herbaceous community, (2) *Polygonum* community, (3) mixed *Danthonia* community, (4) *Danthonia* community (three sites each) and (5) *Trachydium* community

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(four sites). These were marked as permanent sites for future studies and experiments. The above-ground biomass from each site at three different places was clipped during the peak growing season, *i.e.*, September. The density was highest in the *Trachydium* community (526.3 individuals/m^2), species richness in the mixed *Danthonia* community (35), diversity in the *Danthonia* community (3.45) and above-ground biomass in the *Polygonum* community (138 g/m^2). The plant responses after snow melt are being recorded for phenological developments (vegetative growth, *i.e.*, starting of shoot elongation; reproductive stages (flower bud swelling, flower opening, flower senescence and fruit ripening) as per the BBCH scale. Experimentation on the effect of snow melt water on plant phenology has also been proposed.

Atlas of Colonial Nesting Water Birds in the East Coast States of India

- Funding Source
  Grant-in-Aid
- Investigators
  Dr. G.V. Gopi and
  Dr. Bivash Pandav
- Researcher
  Mr. D. Frank Sadrack Jabaraj

- Date of Initiation
  January 2016
- Date of Completion
  December 2019

Objectives

The objectives of the project are to (1) conduct a survey in the state of Tamil Nadu for documenting the existing nesting water bird colonies; (2) raise baseline ecological information about each of the nesting colonies; (3) assess the conservation threats to these identified water bird colonies; and (4) distinguish key colonial areas on the number of species and number of threatened species.

Progress and Outcomes

Information pertaining to nesting area, activity period at the nesting site, nest trees used, nesting species, number of nests, conservation threats and determinants of species diversity will be collected during the nesting season. Detailed photo documentation of these nesting sites and species will also be done to be showcased in the atlas. A questionnaire survey will be conducted by circulating a pre-set questionnaire to eminent bird scientists, birdwatchers, naturalists, forest departments and NGOs across the state to ascertain the current locations of the breeding colonies.

Milestone

Around 90 sites were identified as potential nesting sites during the period from mid-June to July 2017). Of the 90 sites, 16 sites were found to be in protected areas and the rest of the sites were outside protected areas. Some of the major water bird nesting colonies—Koonthankulam, Vedanthangal, Udayamarthandapuram, Vettangudi, Karaivetti, Point Calimere etc.—have been documented as part of a reconnaissance survey. These include both already existing sites and new ones. Currently there are no nesting activities as the nesting starts after the onset of the northeast monsoon, *i.e.*, from October to December. The atlas is aimed at documenting the key colonial nesting water bird areas in Tamil Nadu and assessing the status of the nesting species and the sites.

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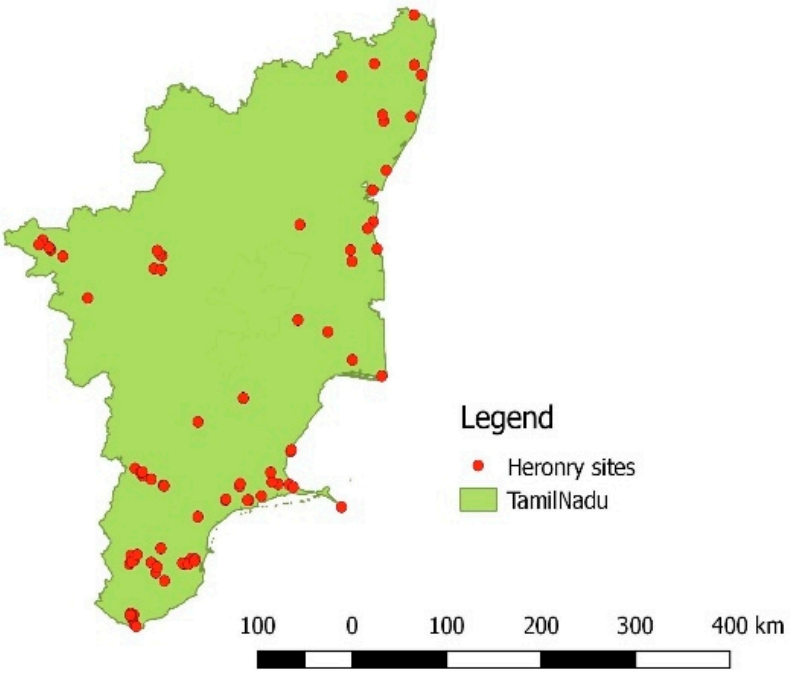

Figure 1: *Location of heronries*

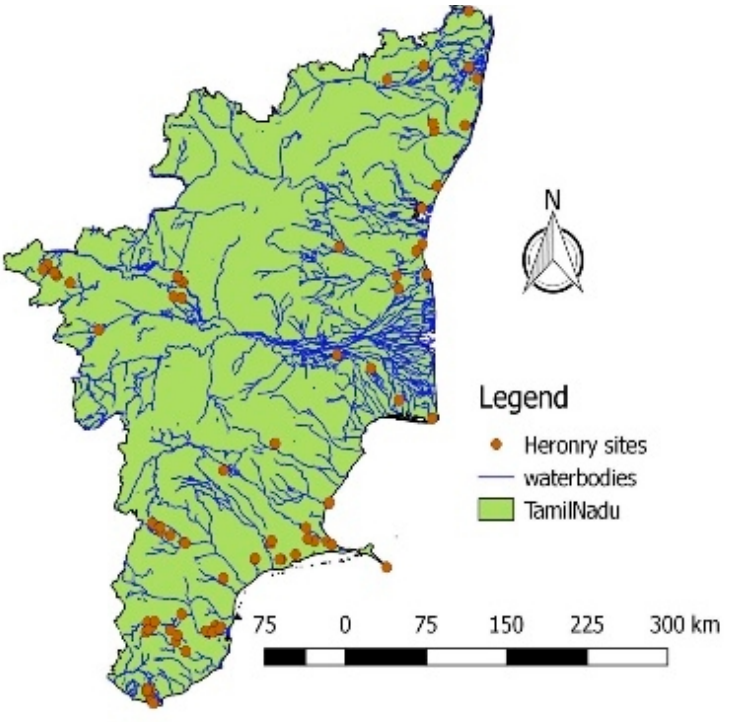

Figure 1: *Location of heronries with Water bodies*

Ecological Reconnaissance and Conversation Assessment of Avifauna in Sahyadri Tiger Reserve

- **Funding Source**
  Sahyadri Tiger Reserve Foundation
- **Investigators**
  Dr. G.V. Gopi and Dr. Clement Ben
- **Researchers**
  Ms Surabhi Sati and Mr Anurag Vishwakarma

- **Date of Initiation**
  October 2016
- **Date of Completion**
  March 2018

Objectives

The objectives of the project are to (1) determine the avian species diversity patterns in Sahyadri Tiger Reserve; (2) identify the determinants of bird species richness in Sahyadri Tiger Reserve; (3) determine the habitat utilisation pattern of birds and determine the influence of habitat variables on the diversity and composition in Sahyadri Tiger Reserve; (4) determine the effect of anthropogenic pressure on the avian species richness in Sahyadri Tiger Reserve; and (5) prepare a conservation plan for the avifauna in Sahyadri Tiger Reserve from the information generated from these objectives.

Progress

The study was conducted in Sahyadri Tiger Reserve, which has an area of 1166 km^2. The reserve comprises two protected areas, *viz.*, Koyna Wildlife Sanctuary, in the north (423.55 km^2), and Chandoli National Park, in the south (317.67 km^2), and adjoining area of 424.34 km^2. In total, 150 points were sampled, spaced nearly 1 km apart, using variable point counts between 16 October 2016 and 17 June 2017 to survey the avian diversity. Each point was replicated thrice, in autumn, winter and summer.

Outputs and Outcomes

A total of 12,248 individual birds of 206 species belonging to 63 families were recorded. These include seven endemic species and a first time record of Legge's hawk eagle, *Nisaetus kelaarti*, in the study area. The Shannon-Wiener diversity index (H') ranges in autumn between 3.87 (forest land) and 3.59 (shrub land), in winter between 3.83 (agricultural land) and 3.33 (shrub land) and in summer between 3.73 (agricultural land) and 3.33 (shrub land). The abundance of birds was found to be between 108.81 ± 6.83 and 42.964 ± 3.52/km^2 in autumn (highest, agricultural land; lowest, grassland), and in winter it was between 123.58 ± 7.00 to 54.82 ± 3.81/km^2 (highest, agricultural land; lowest, grassland); in contrast, in summer the abundance of birds was found to be between 90.287 ± 6.90/km^2 and 57.061 ± 6.46/km^2 (highest, grassland; lowest, agricultural land). However in all the seasons, the mean bird abundance of each species was higher in agricultural land and least in grassland.

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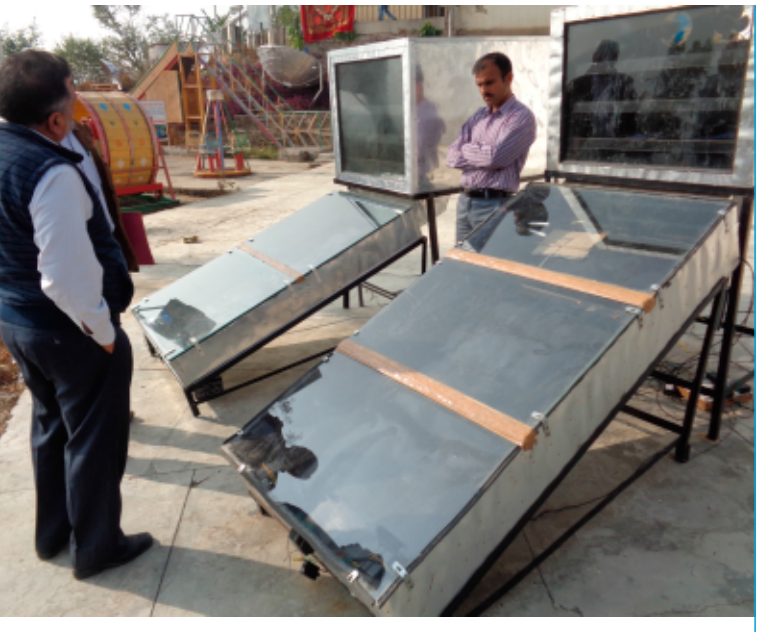
Milestone

At each point, the birds were counted within a 50 m radius after being stationary for 5 minutes. All the birds seen and heard at each point were recorded.

Dissemination and Evaluation of Technologies through Networking of Various Institutes and Organisation of Mountain Ecosystem (TIME-LEARN Co-ordination)

- **Funding Source**
  Department of Science and Technology, Government of India
- **Investigators**
  Dr. Ruchi Badola and Dr. S.A. Hussain
- **Researcher**
  Mr. Charuhas Dali
- **Date of Initiation**
  February 2017
- **Date of Completion**
  February 2020



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Objectives

The objectives of the project are to (1) promote networking between the community and research institutes for technology delivery; (2) provide appropriate technical, research and development inputs to the community; (3) identify gaps in technology for research institutes; (4) initiate periodical monitoring and workshops of the network project; and (5) involve government development agencies for broader impact and policy issues.

Progress

A workshop was organised at WII on 22 and 23 May 2017 for planning and execution of all the projects under the TIME-LEARN Programme. A bilingual abstract book for 19 projects under the TIME-LEARN Programme was prepared. All the 19 projects have been sorted according to their thrust areas. Along with this, indicators have been identified for each thrust area.

Outputs and Outcomes

After the workshop, the Technical Advisory Expert Group (TAEG) gave the following suggestions for all the projects: (1) The TAEG committee urged all the Project Investigators to address location-specific needs along with gender equality issues. (2) An impact analysis of each project (before and after the project's interventions) should be documented, supported with scientific data on a regular basis. (3) The contributions of the project activities (directly or indirectly) towards achieving UN's Sustainable Development Goals (SDGs) and convergence with other developmental programmes/initiatives at the national level like Swachh Bharat, Unnat Bharat, Start-up India and Stand-up India need to be reported. (4) Need-based research in agro-forestry on mountains has to be promoted to meet the fuel wood, fodder, fibre, fruit, medicine and other associated demands of the local community.

Milestones

The following are the milestones during the reporting period: (1) Abstract book: TIME-LEARN Programme; (2) TIME Magazine: (a) Bilingual magazine in Hindi and English; (b) Involved reports and activities conducted in the Mountain regions.

Ecology of Clouded Leopard, *Neofelis nebulosa* in an East Himalayan Biodiversity Hotspot

- **Funding Source**
  Department of Science and Technology, New Delhi
- **Investigator**
  Mr. Salvador Lyngdoh
- **Co-Investigator**
  Dr. Bilal Habib and Dr. Sonali Ghosh
- **Researcher**
  Mr. Urjit Bhatt

- **Date of Initiation**
  November 2016
- **Date of Completion**
  November 2019

Objectives

The project objectives are to (1) estimate the abundance of the clouded leopard and other carnivore species within selected areas of Manas National Park; (2) determine prey choice and foraging habits of the clouded leopards in the reserve; and (3) assess the temporal activity and space use of the clouded leopard and other sympatric carnivores.

Progress

Preliminary information regarding clouded leopard presence and habitat use and conflict-related information were gathered through a questionnaire survey with the forest staff of the park. Camera trapping of the 500 km^2 of the core area of the national park was initiated to develop baseline data for further continuous monitoring.

Outputs and Outcomes

Secondary information related to ecology, habitat use and conflicts were collected through the literature as well as a questionnaire-based survey. A detailed map of the study area for the camera trapping and collection of other covariates was prepared for a protocol-based long-term study. Analysis of the collected data is being undertaken and will be showcased in the forthcoming Internal Annual Research Seminar.

Milestone

Initial camera trapping revealed the presence of the clouded leopard, *Neofelis nebulosa*, tiger, *Panthera tigris,* leopard, *Panthera pardus,* leopard cat, *Prionailurus bengalensis,* jungle cat, *Felis chaus*, wild dog, *Cuon alpinus*, elephant, *Elephas maximus,* gaur, *Bos gaurus*, wild water buffalo, *Bubalus arnee*, hog deer, *Axis porcinus,* sambar, *Rusa unicolor*, wild boar, *Sus scrofa*, large Indian civet, *Viverra zibetha,* small Indian civet, *Viverricula indica,* common palm civet, *Paradoxurus hermaphroditus*, crab-eating mongoose, *Herpestes urva*, Indian crested porcupine, *Hystrix indica* and other species in the core area of the national park.

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Human–Wildlife Conflict Resolution Mechanism in the Indian Himalayan Region: Risk Assessment, Prediction and Management through Research and Community Engagement

- **Funding Source**
  MoEFCC under National Mission on Himalayan Studies (NMHS)
- **Investigators**
  Dr. V.B.Mathur, Director, Dr. S. Sathyakumar, Dr. G. S. Rawat, Dr. Y.V. Jhala, Dr. P.K. Malik, Mr. Qamar Qureshi, Dr. Parag Nigam and Dr. C. Ramesh
- **Researcher**
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- **Date of Initiation**
  April 2016
- **Date of Completion**
  March 2019

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Objectives

The objectives of the project are to (1) develop risk assessment tools and processes for identifying negative human–wildlife interaction (HWI) in the Indian Himalayan Region (IHR) through investigations on HWI and predict potential hotspots of conflict for regular monitoring and development of site-specific mitigation efforts; (2) understand the biological factors and ranging patterns of selected wildlife species involved in livestock/crop depredation and attacks on people in the IHR; and (3) develop and implement adaptive management strategies in some of the identified vulnerable areas through community engagement and use of modern science and technological tools and approaches.

Progress

Negative HWI or conflict is a major management issue in the IHR, where a large expanse of human habitations and agricultural land areas is either interspersed with fragmented wildlife habitats or located in close proximity to forest reserves, leading to frequent livestock depredation, crop damage and attacks on humans. Species such as the snow leopard, Himalayan brown bear, Asiatic black bear, common leopard, wild pig and rhesus macaque are primarily involved in negative HWI and are our target species for the project. After reviewing the extensive literature on conflicts, the research team started gathering data from the state forest/wildlife departments of Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim and West Bengal. On the basis of this review, the team is making field visits to specific sites.

Livestock depredation data were obtained from the Department of Wildlife Protection, Jammu and Kashmir, Leh, from 2010 to March 2016. There is an increasing trend of livestock depredation by snow leopards every year, i.e., from 2010 to 2016. Overall, out of the three large carnivores in Leh, the snow leopard contributed 89% to the livestock loss, followed by the Tibetan wolf (10.8%) and brown bear (0.11%). Currently, field surveys are

continuing in Ladakh (Leh and Kargil districts) to document the large carnivore–human conflicts in Hemis National Park, Leh, and Suru and Wakha valleys, Kargil.

In Uttarakhand, data were obtained from the forest department (2000–2016). Wild pigs caused human injuries (n=320) and death (n=24). Overall, an increasing trend in the number of casualties has been observed. The highest number of incidents was reported in 2015, which included 55 injuries to humans and four deaths. Similarly, Asiatic black bears caused human injuries (n=1182) and deaths (n=40). The highest number of attacks was recorded in 2012 (119 injuries and four deaths). In the case of the common leopard, there were injuries to humans (n=952) and deaths (n=285). The highest number of attacks was recorded in 2010 (185 injuries and 31 deaths). In North Bengal, data were obtained from the forest department (2011–2016 for the common leopard and 2006–2016 for the elephant). Common leopards caused human injuries (n=352) and deaths (n=11). The highest number of attacks was recorded in 2011–2012 (90 injuries). Similarly, elephants caused human injuries (n=1646) and deaths (n=476). The highest number of attacks was recorded in 2010–2011 (360 injuries and 56 deaths).

Thus, considering the extent and severity of this human–wildlife conflict in the study sites of the IHR, the research team has started conducting baseline surveys across the study sites. For the human–macaque interaction, the team is investigating the level of interaction in the vicinity of 2 km radius around the WII campus at Dehradun. So far, the team has found the macaque presence to be greatest at the edges of forests and least in areas far away from forests. The research team has identified human–macaque conflict hotspots and four major troops in the study site.

Moreover, the state forest/wildlife departments of each study states have been partnered in this project, and their roles will be crucial in devising and implementing an appropriate mitigation strategy for human–wildlife conflict.

Outputs and Outcomes

The research team is in the process of identifying 'conflict hotspots' in the five states. On the basis of this, conflict intensity maps will be prepared and vulnerable zones for each forest/wildlife division of the five study states predicted. The research team is also collecting credible baseline information to produce density surface models for four carnivores in the selected sites of the study states.

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Biodiversity Conservation and Ganga Rejuventaion

- **Funding Source**
  National Mission for Clean Ganga, Ministry Of Water Resources, River Development and Ganga Rejuvenation

- **Project Leaders**
  Dr. V.B. Mathur and Dr. G.S. Rawat

- **Project Coordinators**
  Dr. S.A. Hussain and Dr. Ruchi Badola

- **Supporting Faculty**
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- **Researchers**
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- **Date of Initiation**
  July 2016

- **Date of Completion**
  June 2019

Objectives

The project aims to prepare a science-based aquatic species restoration plan for Ganga River by involving multiple stakeholders. The project has following six components: (i) Establish Ganga Aqualife Conservation Monitoring Centre at WII Dehra Dun for science based conservation planning and dissemination of information. (ii) Prepare biodiversity profile of Ganga River and develop pilot species restoration plans for select stretches and species. (iii) Develop capacity of Forest Department and other stakeholders of the Ganga River States in monitoring of identified species of conservation significance. (iv) Assist NMCG in establishing the rescue and rehabilitation centres for endangered fauna of the Ganga at select sites by developing human resources and infrastructure with support from the Forest and Veterinary departments. (v) Elicit participation of local communities in NMCG initiatives by providing platforms through Panchayati Raj System, capacity development and payment for ecosystem services. (vi) Develop and implement conservation education programmes for the river-side communities of the Ganga River.

Progress

The progress is stated to according to the six components of the project.

Component 1: Establishment of Ganga Aqualife Conservation Monitoring Centre

Cooperation and collaboration have been ensured by the Forest Department of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal for carrying out ecological assessment of the Ganga River and other field related activities. Ganga Aqualife Conservation and Monitoring Centre established at Wildlife Institute of India, Dehradun. Rapid biodiversity assessment of the Ganga River from Devprayag, Uttarakhand to West Bengal has been initiated.

Species Sign Survey was conducted in the Lower Ganga Canal and the Parallel Lower Ganga Canal, Narora, Uttar Pradesh. 9 species of Turtle, 65 species of river and river associated birds, 2 crocodilian species were encountered. Collection and validation of information on various aspects of Ganga River basin for developing the database and project website was completed. The webpage on the project has been hosted on WII's website.

Component 2: Planning Aquatic Species Restoration for the Ganga River

Ecological assessment of the Ganga River has been initiated to derive the empirical relationships between river conditions and ecological status of the major aquatic species, which is the foremost requirement for developing the species restoration plan. Status of various environmental factors such as water depth, physio-chemical water quality, river bank characteristics and anthropogenic activities are being observed along Ganga River from Devprayag to Farraka Barrage.

Component 3: Capacity Building of Forest Department and other Stakeholders

Capacity building workshop for the 25 Project Personnel from WII was conducted with hands-on training on monitoring of aquatic fauna at National Chambal Sanctuary in Madhya Pradesh. Around 74 officials of Forest Department and other line agencies of Uttar Pradesh were imparted training on biodiversity conservation and monitoring techniques of aquatic species of Ganga River.

Component 4: Establishment of Rescue and Rehabilitation Centres

The existing facilities at Sarnath Kachhua Punarvas Kendra and Narora Turtle Rescue Centre were assessed for developing them into standard models for "confiscation-veterinary care-husbandry-release/rehabilitation" operations. After assessment, the Rescue and Rehabilitation Centres are being established at Narora in collaboration with Narora Atomic Power Station (NAPS), under the administrative control of the Department of Atomic Energy, and Forest Department, Government of Uttar Pradesh and at Kachhua Punarvas Kendra Sarnath in collaboration with Forest Department, Government of Uttar Pradesh.

2478 turtles were rescued at Sarnath and later released in Turtle Wildlife Sanctuary, Varanasi. 158 individuals of turtles belonging to 9 species, 15 fish species and one mugger individual were rescued and released upstream of Narora barrage, during rescue and release operation carried out in Lower Parallel Ganga Canal, Narora in cooperation with Uttar Pradesh Forest Department.

Component 5: Community based conservation programmes for species restoration in Ganga River

To develop linkages by reviving existing institutions and forming new ones with the support of Panchayati Raj Institutions meetings held in 3 Districts, 12 Blocks and 64 Panchayats. Facilitated establishment and activation of self-help groups (SHGs) with the collaboration of Nehru Yuva Centre and National Rural Livelihood Mission, at Narora and Varanasi. A cadre of trained Ganga Prahari is being established in the states of Uttarakhand and Uttar Pradesh. Linkages are being established with the organizations and institutions for area specific livelihood interventions through collaboration with: Rural Self Employment Training Institute (RSETI) of Punjab National Bank at Bulandshahr and Union Bank of India at Varanasi.

Component 6: Nature Interpretation and Education For Biodiversity Conservation of Ganga River

Establishment of Nature Interpretation and Education Centres initiated in Sarnath and Narora. Mobile Nature Interpretation and Education through "Bajra" (boat) and/or road vehicle is being palnned. Training program/manual are being developed for teachers with inbuilt water testing kit, puppet show CD, masks for role play activities and snake ladder game with riverine snakes. Popular media such as puppet shows are being scripted to be performed at the Patna Railway station where the Science Express-Climate Action train was stationed for two days.

Outputs and Outcomes

Ganga Aqualife Conservation and Monitoring Centre established at Wildlife Institute of India, Dehradun. Brochures, booklets, posters have been published under the "Vibrant Ganga" series. The protocols were developed for assessing the concentration of the key pollutants in species of conservation significance and the analysis is in progress. Various stakeholders have been trained in "biodiversity monitoring", "monitoring protocols", "community participation" and "conservation education". Successful rescue and release operations were carried out at Narora and Sarnath, during various operations in cooperation with Uttar Pradesh Forest Department. Facilitating establishment and activation of self-help groups with the collaboration of Nehru Yuva Centre and National Rural Livelihood Mission, at Narora and Varanasi. Popular media such as puppet show was scripted to be performed, at the Patna Railway station where the Science Express-Climate Action train will be stationed in the month of April 2017.

Milestones

Webpage on the project "Biodiversity Conservation and Ganga Rejuvenation" was hosted on WII's website. The link is https://www.wii.gov.in/nmcg/national-mission-for-clean-ganga. The webpage provides information on the biodiversity of Ganga River and also the information on the latest events and activities.

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ACADEMIC AND TRAINING

Academic Programmes

XV M.Sc. (Wildlife Science)

During the period of report, the students were taken to Kedarnath Wildlife Sanctuary as part of the High Altitude Ecology and Techniques Tour during 2–11 May 2016. The teaching inputs for Semester III started from July 2016. The students were taken to Sathyamangalam Tiger Reserve, Mudumalai Tiger Reserve, Pambadam Shola National Park, Periyar Tiger Reserve, Balkadu, Gulf of Mannar, Kurusadai and Dhanuskodi islands, Nallathani Island, SDMRI and coral restoration sites in Tuticorin during 5–19 October 2016 as part of the Conservation Practice and Management Tour. As part of Semester IV, the students proceeded for field studies of dissertation projects in different states in the first week of December 2016 and returned to WII, on completion of the studies, in May 2017.

The students of the XV M.Sc. (Wildlife Science) Course carried out their field dissertation projects in various protected areas of the country during the reporting period on the following topics:

Sl. No.	Name of the student	Title of the dissertation
1	Aishwarya Bhandari	The Number Game: Influence of Pack Size Variation on Dhole Behaviour
2	Kumar Ankit	Effect of Habitat Characteristics on Waterbird Diversity along River Ganga in Allahabad, U.P.
3	Ashish AP	Comparison of Natural Resource Governance Mechanisms for Conservation and Management of Rare and Threatened Species of Medicinal Plants and Other Minor Forest Products from Kerala
4	Ashwin Warudkar	Community Organisation of Ground Spiders in Nicobar Islands: Influence of Habitat Structure and Island Biogeography
5	Krishna Murari	Grassland Communities and Evaluation of Potential Habitat for Greater One-Horned Rhinoceros, Rhinoceros unicornis, in Valmiki Tiger Reserve, Bihar
6	Monisha S. Mohandas	Feral Dogs: Population Status, Ranging Patterns and Resource Utilisation in Desert National Park
7	Naman Goyal	Response of Island Endemics to Introduced Congeners: A Case Study of the Nicobar Bulbul and the Red-Whiskered Bulbul in Central Nicobar Islands
8	Nimisha Srivastava	Response of Mammals to Human-Mediated Resource Base in Chamoli District of Uttarakhand
9	Priyanka Justa	Niche Overlap and Resource Partitioning among Two Sympatric Primate Species in the Askot Region of Uttarakhand
10	Rajat Rastogi	Responding the Invaders: To Understand the Pattern of Insect and Plant Assemblages across the Gradient of Plant Invasion in Kanha Tiger Reserve
11	Rakesh Mondol	Effect of Village Relocation on Ground Birds (Galliformes) and Small Mammals in Sariska Tiger Reserve, Rajasthan
12	Ravi Kumar Sharma	Carnivore Outside Protected Areas: Aspects of Leopard Ecology at Jawai, Rajasthan
13	Samyuktha Rao Kandregula	Effects of Lunar Cycle on Intertidal Benthic Faunal Assemblages in Nicobar Island, India
14	Sijagurumayum Rohikanta Sharma	Diversity and Abundance of Wet Grassland Birds in Disturbed and Undisturbed Wetlands of Barak-Chindwin River Basin with Special Emphasis on Globally Threatened Species
15	Sultan	Impacts of Vehicular Traffic on the Habitat Use by Wildlife along Road Edges

M.Sc. (Wildlife Science) Dissertation Topics

Bhushan, N. (2016). **Modelling occupancy of carnivores and their prey in the context of anthropogenic impacts in Bhilangana Valley, Uttarakhand.** M.Sc. dissertation submitted to University of Kota, Kota. 89 pp. Supervisor: Dr. S. Sathyakumar.

Chhimi Dorji (2016). **Habitat assessment of the critically endangered white-bellied heron Ardea insignis in Punatsangchu River Basin, Bhutan**. Forest Research Institute Deemed University. 57 pp. Supervisor: Dr. Gopi G.V.

Choney Yangzom (2016). **Study of human-wildlife interaction and existing mitigation strategies in Sarpang Dzongkhag, Bhutan**" M.Sc. Forestry at Forest Research Institute University. Supervisor: Dr. R. Badola.

Debanjan Sarkar (2016) **Provisioning ecosystem services of Johar Valley, Askot Landscape**. M.Sc. Environment Management, Forest Research Institute (Deemed) University, Dehradun. Supervisor: Dr. G. Talukdar.

Ghimire Bikash (2016). **A study on population status, nesting behaviour and conservation perception of endangered vulture species found in Rampur Valley, Nepal**. M.Sc. Forestry Thesis, Forest Research Institute (Deemed University), Indian Council of Forestry Research and Education (ICFRE). Supervisor: Dr. K. Sivakumar.

Naman Goyal (2016). **Space-use patterns of native endemic Nicobar bulbul and introduced red-whiskered bulbul on two islands of central Nicobar**. Supervisors: Mr. Manoj V. Nair, Dr. K. Sivakumar and Dr. Pratap Singh.

Status of Doctoral Research at WII

Degree Awarded

Ankita Das (2016). **Acoustic communication among co-occurring bird species**. Saurashtra University, Rajkot. Supervisors: Dr. K. Ramesh and Dr. Pratap Singh.

Maheshwari, A. (2017). **Conservation and management of snow leopard and co-predators with special reference to large carnivore–human conflicts in selected areas of Western Himalaya**. Ph.D. thesis submitted to Saurashtra University, Rajkot. Supervisor: Dr. S. Sathyakumar.

Training Programmes

XXXVII P.G. Diploma Course in Advanced Wildlife Management Concluded, 1 September 2015 to 30 June 2016. During the reporting period, the Management Tour (Foreign Component) was conducted from 22 April to 4 May 2016. The officer trainees visited Kruger National Park, Pretoria National Zoological Garden, Johannesburg Zoo, South African Wildlife College, Cheetah Breeding Centre (HESC), Mahalolo Rehabilitation Centre and South African National Park HQ in South Africa. The purposes of the visit were to get a regional perspective; study a wide range of wildlife and protected area management practices; and observe various conservation models in action. The Management Term Paper Exercise was conducted at Pench Tiger Reserve between 27 March and 6 April 2016. The Management Plan Exercise was carried out at Dudhwa Tiger Reserve, in Uttar Pradesh, between 16 May and 5 June 2016. All the knowledge assimilated by the officer trainees during the entire course was tested in the preparation of the Management Plan. They also prepared an individual Management Plan from 6 to 20 June 2016. The viva-voce examination was held at this institute on 27 June 2016.

The valedictory function was organised on 30 June 2016. Mr. R.K. Goyal, Former Director, Indira Gandhi National Forest Academy, and Former Director, WII, graced the function as the chief guest. Dr. Anmol Kumar, Former Director General, Forest Survey of India, was the guest of honour. Both the dignitaries presented the diplomas and awards to the officer trainees. All 13 officer trainees have successfully completed the course. Nine of them were awarded the Honours Diploma. The following medals and prizes were also awarded to them.

The institute's gold medal for the 'Top Trainee' was bagged by Mr. D.K. Vinod Kumar. He also received the silver medal for the 'Best All Round Wildlifer' and book prize for the 'Top Trainee in Wildlife Biology'. Ms Nandani Salaria received the Wildlife Preservation Society Silver Medal for the 'Second in Merit'. She also received the N.R. Nair Memorial Silver Medal for the 'Best Management Plan'. Mr. Anant Shankar won the Best Management Term Paper A.K. Chatterjee Silver Medal.

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XXXVIII P.G. Diploma Course in Advanced Wildlife Management commenced, Dehradun, 1 September 2016 to 30 June 2017. The 10-month P.G. Diploma Course in Advanced Wildlife Management commenced on 1 September 2016 at the Institute with 15 officer trainees of the rank of Deputy Conservator of Forests/Assistant Conservator of Forests and equivalent levels. Among them, 11 officers represented Indian states (three from Telangana, one from Manipur, one from Tripura, two from Jammu and Kashmir, two from Rajasthan, one each from Madhya Pradesh and Maharashtra). In addition, four foreign nationals from Myanmar also joined the course.

The Orientation Tour to Kalagarh, Corbett Tiger Reserve, and its adjoining areas was conducted from 21 to 25 September 2016. The objective of this tour was to introduce the concept of conservation values and unique features, provide an orientation to the flora and fauna and teach identification of bird species and guilds in different forest ecosysteMs This opportunity was also used to familiarise the trainees with different habitats, wildlife values of the area, animal sightings, eco-tourism and human–wildlife interface situations.

XXXII Certificate Course in Wildlife Management Concluded, Dehradun, 01 November 2016 to 31 January 2017.The 3-month XXXII Certificate Course in Wildlife Management was successfully completed on 31 January 2017. In all, 15 officer trainees of the rank of Range Forest Officer and equivalent levels underwent the training course at this institute. Out of these, five officer trainees were from Malaysia, four from Myanmar, four from Maharashtra and two from Telengana. The primary objective of this course was to train field officers in the basics of biodiversity and wildlife conservation and build their capacities to understand the nuances of wildlife and protected area management.

Apart from the classroom sessions, the officer trainees were taken to Chilla for their Orientation-cum-Technique Tour from 21 November to 2 December 2016 to learn various techniques pertaining to wildlife management. The Wildlife Management Tour was conducted during 8–22 January 2017 in various parts of the country. The trainees visited Bagori Range in Kaziranga Tiger Reserve, Nameri Tiger Reserve, Pakke Tiger Reserve, Arunachal Pradesh; Orang Tiger Reserve and Manas Tiger Reserve in the Northeast Sector. Subsequently, they moved to North Bengal, where they visited Buxa Tiger Reserve, Jaldapara National Park, Gorumara National Park, Chapramari Wildlife Sanctuary, Darjeeling Zoo and Senchal Wildlife Sanctuary. The additional highlight of this tour was a visit to Royal Manas National Park, in Bhutan, to understand trans-boundary aspects of wildlife management.

All the trainees have successfully completed the course. Out of the 15 officer trainees, 13 have received the honours certificate and four top trainees have also received the institute's medals of appreciation. Dr. Rajesh Gopal, Secretary General, Global Tiger Forum, New Delhi, and Mr. V.K. Uniyal, Principal Chief Conservator of Forests (Retd.), Kerala, graced the valedictory function and distributed the awards and certificates to the officer trainees.

The Wildlife Conservation Gold Medal was bagged by Ms Suzilawati Binti Ramzan. The institute's silver medal for the 'Best Foreign Trainee' was awarded to Ms Symphorosa L.F. Sipangkui. The institute's silver medal for the 'Best All Round Wildlifer' was received by Mr. Mahesh Suresh Zanjurne. The institute's silver medal for wildlife management, given for the highest marks in management theory papers, was bagged by Mrs. Sridevi Saraswati.

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CAPACITY BUILDING AND PROFESSIONAL EXCHANGE

WORKSHOPS, SEMINARS AND CONFERENCES

Organised by WII

Strengthening of Tiger Conservation Initiatives, Dehradun, 18–19 April, 2016. As a follow-up of the Third Asian Ministerial Tiger Conservation Meeting, inaugurated by the Hon'ble Prime Minister of India in New Delhi on 12 April 2016, a delegation from Clemson University, USA, comprising Mr. Keshav Varma, Mr. Brett A. Wright. Mr. Andrey Kushlin and Mr. Bruno Laporte, visited WII to hold discussions on developing projects for landscape-level conservation in India. It was agreed to hold 'landscape dialogues' with a range of stakeholders in Corbett–Rajaji Tiger Corridor, Uttarakhand, in order to build capacity to strengthen conservation–development linkages for mainstreaming conservation imperatives in developmental planning, especially in the context of 'smart green infrastructure'.

National Launch Workshop on 'Endangered Species Recovery Projects', Dehradun, 16 May 2016. In 2015, the Ministry of Environment, Forest & Climate Change (MoEFCC), Government of India, tasked WII to prepare the Endangered Species Recovery Plans (ESRP) of four wild animal species, viz., the great Indian bustard, dugong, Gangetic dolphin and Manipur deer, and decided to fund them under the National Compensatory Afforestation Fund Management and Planning Advisory Council (NCAC).

The ESRP include research and management actions necessary to stop the decline of, and support the recovery of, these four species. The goal of these plans is to maximise the long-term survival of these species in the wild through a planned and logical framework to be implemented through multi-stakeholder partnerships in which the local communities play a key role and their contribution to conservation is incentivised. The project envisions the close collaboration of WII with all the concerned states, MoEFCC, academic institutions and non-state conservation organisations to achieve the long-term conservation goals for these endangered species. To launch this conservation initiative, WII organised a 1-day workshop for all the potential partners to discuss the broad outline of the proposed actions and how partner states and NGOs can contribute to reviving the populations of these endangered species.

In all, 60 participants representing state forest departments, scientific institutions and civil society organisations and wildlife researchers participated in this workshop. Dr. S.S. Negi, Director General of Forests, and Special Secretary, MoEFCC, graced the workshop as the chief guest. He reiterated the government's commitment to securing the long-term conservation of these species.

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Stakeholder Consultation for Gangotri–Govind Conservation Landscape, Uttarakhand, Dehradun, 25 May 2016. MoEFCC, Government of India, is currently working with GEF–UNDP towards formulation of a project titled 'Securing Livelihoods, Conservation, Sustainable Use and Restoration of High Range Himalayan Ecosystems' (SECURE—HIMALAYAS). WII has been given the role of identifying the priority activities for the component 'Biodiversity Conservation' in this project. In order to identify key priority activities and issues, a 1-day stakeholder consultation meeting was held at WII on 25 May 2016. The objectives of the stakeholder consultation were the following: (1) finer delineation of the conservation landscape and selection of pilot sites; (2) listing the key issues of biodiversity conservation, sustaining rural livelihoods and building partnerships for participatory natural resource management; (3) identification of key stakeholders and community-based organisations for further conservation and development planning; and (4) discussion of the institutional mechanism for implementation of the

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project and assigning roles and responsibilities of project partners.

The meeting was attended by over 40 stakeholders and was inaugurated by Mr. Vinod Ranjan, Additional Director General, Forests (Wildlife). The participants unanimously agreed that the Gangotri–Govind Conservation Landscape, in Uttarkashi District, was the right choice for the formulation of such a plan.

Capacity Building Workshop on 'Managing Wild Animals in Distress', Goa, 13–15 June 2016. A 3-day workshop was jointly organised by WII and Goa Forest Department at Bondla Zoo, Goa. The workshop was organised with the objectives of providing an exposure to various aspects of wild animal capture and restraint and enhancing the skills of forest officials in the efficient rescue and rehabilitation of wild animals. It also aimed to enable the participants to appreciate the diverse and difficult conservation challenges and understand the strategies for effective wildlife and biodiversity conservation, including managing man–animal conflict. The workshop was attended by 28 participants representing the Goa Forest Department and included personnel from the following divisions: North Goa, South Goa, WL & ET (North), WL & ET (South), Research & Utilisation and Soil Conservation. Inputs were provided by Dr. A.B. Shrivastav, Director, Centre for Wildlife Forensic & Health, MP Pashu Chikitsa Vigyan Vishvidyalaya, Jabalpur, Dr. Arun A. Sha, Director of Veterinary Research & Operations, Bannerghatta Bear Rescue Center, Wildlife SOS®, Bannerghatta, Bengaluru, Mr. Kuldeep Sharma, DCF (Research & Utilisation), Margao, Goa, and Dr. Pradeep K. Malik, Dr. Bivash Pandav, Dr. Parag Nigam and Dr. Bilal Habib from WII.

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Training Workshop on Disaster Damage and Loss Assessment in Natural Heritage and Cultural Sites Using Geospatial Techniques, Dehradun, 11 September to 2 October 2016. Natural as well as human-induced disasters are causing immense damage to cultural and natural heritage. Hence it is important for all countries to identify and list their cultural and natural heritage sites that are vulnerable to serious and specific dangers, such as the threat of disappearance caused by accelerated deterioration, large-scale public or private projects or rapid urban or tourism development projects and destruction caused by changes in the use or ownership of the land. For this, capacity building through education and information programmes for the heritage site managers is required.

In this regard, the first short course on 'Disaster Damage and Loss Assessment in Natural Heritage and Cultural Sites Using Geospatial Techniques' was organised at UNESCO Category 2 Centre for World Natural Heritage Management and Training for Asia-Pacific Region, WII, and the Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP), Indian Institute of Remote Sensing (IIRS), Dehradun.

In all, 24 professionals and specialists from 11 countries, viz., Bangladesh, Nepal, Bhutan, Sri Lanka, Maldives, Tajikistan, Cambodia, Mongolia, Kazakhstan, Vietnam and India, working in government institutes, the university system and educational institutes and involved in active research in conservation, protection and restoration of natural heritage and cultural sites in the Asia-Pacific Region participated in the training programme.

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First Himalayan Research Seminar, Dehradun, 23 September 2016. The First Himalayan Research Seminar (HRS) was chaired by Dr. L.M.S. Palni, Professor and Dean, Biotechnology Department, Graphic Era University, Dehradun. A total of 23 presentations were made in three technical sessions, viz., National Mission for Sustaining the Himalayan Ecosystem (NMSHE); Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI); and Biodiversity Conservation and Rural Livelihood Improvement Project (BCRLIP).

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XII Internal Annual Research Seminar, Dehradun, 26 September 2016. The XII Internal Annual Research Seminar (IARS) was chaired by Dr. S. Chandola, Former Principal Chief Conservator of Forests and Head of Forest Force, Government of Uttarakhand, Dehradun. A total of 16 presentations were made in four technical sessions, viz., Carnivore Ecology; Ungulate Ecology; Studies on Herpetofauna and Human Ecology; and Ex-situ Conservation and Conservation Genetics. The presentations were based on recently initiated and ongoing research studies and were made by research fellows of the Institute.

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XXX Annual Research Seminar, Dehradun, 29-30 September 2016. The XXX ARS was conducted at WII under the chairmanship of Dr. M.M. Kutty, Additional Secretary, MoEFCC, Government of India, and Mr. P.R. Sinha, Chairman, WII—Training, Research and Academic Council. For the first time, live-streaming of the ARS was done for wildlife lovers in any part of the globe. A total of 19 presentations were made in five technical sessions, viz., Recent Initiatives; Management of Carnivores and Their Prey; Studies in the Himalaya; Wildlife Monitoring; and Conservation Genetics. The presentations were based on ongoing/completed research studies and were made by research fellows and faculty members of the Institute. In addition, 21 e-poster presentations were made by the researchers.

More than 250 delegates attended the ARS, including the Principal Chief Conservators of Forests, Chief Wildlife Wardens and other senior officials representing state forest departments, delegates representing non-governmental organisations, scientists, wildlife experts, faculty members, researchers, M.Sc. students, officer trainees of the Post-Graduate Diploma Course in Advanced Wildlife Management and probationers undergoing training at the Central Academy for State Forest Service.

A panel of six eminent scientists and wildlife managers evaluated the relevance and quality of the research presented through the oral and e-poster presentations. The presentations made by the following researchers were adjudged the best presentations during the XXX ARS of the Institute, and the researchers were awarded book prizes.

Oral Presentation Awards
XXX Annual Research Seminar (29-30 September 2016)

Rank	Name	Title of the Presentation
I	Strotra Chakrabarti	Dominance and Promiscuity: Social Organisation of Gir Lions, Gujarat
II	Navaneethan B.	Effect of Predator and Habitat on Gaur Group Size and Composition in Bandhavgarh Tiger Reserve, Madhya Pradesh
III	Shivam Shrotriya	Himalayan Wolf and Its Prey: An Opportunist in a Landscape of Scarcity

E-poster Presentation Awards
XXX Annual Research Seminar (29–30 September 2016)

Rank	Name	Title of the Poster Presentation
I	Monika Sharma	Patterns of Biomass Production by the Wet Grasslands of Kaziranga National Park, Assam
II	GIB Team	Great Indian Bustard Conservation
	NMSHE Team	Assessment of Climate Change Effects on Wildlife Species in the Indian Himalayan Region: An Update
	Neeraj Mahar	Application of Flight Initiation Distance (FID) of Water Birds for Delineating Buffer Zone around Wetlands: A Case Study from Selected Wetlands of Jammu and Kashmir
III	Dolphin Team	Development of Conservation Action Plan for River Dolphins

Apart from these, a wildlife photography competition was organised during the ARS. The concluding session of the ARS was devoted to the participants for their remarks. All the activities, oral presentations, poster presentations and arrangements received excellent comments from the experts. The comments were made by the former Directors of the institute, Mr. S.K. Mukherjee, Mr. S.S. Bisht and Mr. P.R. Sinha; senior forest department officials; and members of non-governmental organisations and other agencies.

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"Training Expedition on Integrated Management of Coastal and Marine Protected Areas in Maharashtra, Malvan, Maharashtra, 47 October 2016. The 'Conservation and Sustainable Management of Coastal and Marine Protected Areas (CMPA)' project of the Indo-German Biodiversity Programme of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH aims to strengthen the capacities of key training and learning organisations relevant to marine protected areas (MPAs). In this context, this special training expedition for field-level staff members of the Maharashtra Forest Department was organised at the Indian Institute of Scuba Diving and Aquatic Sports (IISDA) at Tarkarli, in Malvan, Maharashtra.

The special training expedition was jointly organised by WII, GIZ and Maharashtra Forest Department. A total of 19 participants from the Maharashtra Forest Department and IISDA participated in this training expedition. The course curriculum and training methodologies were developed exclusively for this course.

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Workshop on Landscape Ecology and Wildlife Conservation, Dehradun, 4–5 October, 2016. Conservation of wildlife often requires planning at the landscape level since animals often use the matrix outside protected areas for feeding and ranging. The principles of landscape ecology can help conservation planning for management of endangered wildlife at the meta-population level. The purpose of this workshop was to bring together specialists and conservation biologists to present their work, integrating the landscape aspect into wildlife research and conservation planning. The case studies were presented to identify and understand how landscape planning can mitigate conflicts between conservation and development. The workshop was sponsored by the United States Fish and Wildlife Service (USFWS) and was jointly organised by Pondicherry University and WII.

The 2-day workshop had six plenary talks and four technical sessions, including the inaugural address by Dr. Cory Brown, USFWS. The workshop was officially concluded after the discussions following the technical session. The audience of more than 70 participants involved graduate students from different universities, early career scientists, research fellows pursuing Ph.D. degrees and natural resource managers. The participants benefited from exposure to the new research area 'landscape ecology' and its applications in various aspects of species-level and landscape-level conservation.

Training Course on Landscape Ecology in Wildlife Research and Conservation, Dehradun, 7–11 October, 2016. This was a 5-day course on landscape ecology for students and researchers led by Dr. Samuel Cushman, Research Ecologist, US Forest Service, and was organised by the DST-NMSHE programme at Wildlife Institute of India. The purpose of this training course was to provide students and researchers advanced training in the science of landscape ecology, including an understanding of the structure, function, dynamics and management of ecosystems at the landscape scale, with particular focus on the management and conservation of endangered species.

The objectives of the course were to (1) teach basic data import and mapping in the QGIS platform; (2) provide an introduction to basic tasks and data manipulation in R; (3) teach the use of FRAGSTATS and interpretion of the output in the context of the case study landscape; (4) introduce the use of binary logistic regression to conduct multi-scale habitat selection modelling;

(5) use pathway-level analysis in a UNICOR connectivity model to predict corridors and barriers to animal dispersal; and (6) teach the use of a spatially explicit landscape genetic simulation model, CDPOP.

The participants were graduate students from different universities, early career scientists, research fellows purusing Ph.D. degrees and natural resource managers from all over the country including major stakeholders in wildlife conservation. The group constituted 42 researchers from WII, nine researchers from Pondicherry University, two graduates and four Ph.D. students from different universities and 11 researchers from various research organisations. The participants benefited from their exposure to various topics in landscape ecology through hands-on training and landscape ecology workbooks and an example dataset.

The resource persons delivered lectures, made presentations and provided hands-on training in related aspects. On the last day of the course, the participants were asked to model the core areas, corridors, gene flow and genetic diversity of elephants in the Nilgiri Biosphere Reserve using CDPOP under two scenarios: (1) prior to the development of tea plantations and (2) after the development of tea plantations inside the biosphere reserve.

The training course was formally concluded after the practical session. The valedictory address was delivered by Dr. V.B. Mathur, Director, WII. The participants shared their learning experiences, and all the participants were awarded a participation certificate each after a vote of thanks delivered by Dr. K. Ramesh.

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"Second Training Expedition on Coastal and Marine Biodiversity and Protected Area Management in Gujarat, Jamnagar, 2426 October 2016. The CMPA project of the Indo-German Biodiversity Programme of GIZ aims to strengthen the capacities of key training and learning organisations relevant to marine protected areas (MPAs). In this context, this special training expedition for field-level staff members of the Gujarat Forest Department was organised at Jamnagar, in Gujarat. The programme was jointly organised by WII, GIZ, CAMPA—Dugong Project and Gujarat Forest Department.

The course was intended to enable the participants to gain a sound understanding of the concepts and issues related to managing coastal and marine biodiversity, coastal and marine protected areas, the ecological and socio-political context, conservation approaches and legal-policy frameworks of terrestrial and coastal MPAs, as well as to acquire the skills necessary for conducting assessments and monitoring coastal and marine habitats and species and to prepare field reports and develop—under supervision—operational plans for MPAs based on management effectiveness guidelines. A total of 18 participants from the Gujarat Forest Department participated in this training expedition. The course curriculum and training methodologies were developed exclusively for this course.

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IPBES Asia-Pacific Workshop on Diverse Values, WII, Dehradun, 10-11 November, 2016. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) assesses the state of biodiversity and of the ecosystem services that it provides to society, in response to requests from decision makers. The IPBES has as one of its objectives to strengthen

the science-policy interface for biodiversity and ecosystem services for their conservation and the sustainable use to promote long-term human well-being and sustainable development (http://www.ipbes.net). As part of their policy formulation and implementation functions the IPBES designated an expert group to work on the formulation of the preliminary guide on multiple values of nature and its benefits, including biodiversity and ecosystem functions and services (deliverable 3(d)), also known as guide on multiple values. The preliminary guide was approved in the fourth session of the IPBES Plenary, and further work regarding the diverse conceptualizations of 'value' and how to include them in IPBES assessments was promoted. A set of workshops have been delivered in all the IPBES regions to ensure the integration of multiple conceptualization of value into the regional and thematic IPBES assessments, which are currently being developed. The third of these workshops took place in Dehradun, India.

The workshop aimed at providing guidance to enhance thinking around the topic of values and to catalyse the use of the guide on multiple conceptualizations of value across the Asia-Pacific region and, in specific, across the IPBES Regional and Land Degradation & Restoration assessments. The objectives of the workshop were to (i) reflect about the concept of diverse worldviews and their implications in diverse values; (ii) reflect about the diverse values that may emerge from different worldviews and how these can be assessed; (iii) identify how values are linked to drivers, scenarios and policy responses and what are their implications on nature and its contributions to people for a good quality of life; (iv) identify opportunities for integrating elements of the guide on diverse values into on-going chapters of the regional and thematic IPBES assessments.

It was organized by Wildlife Institute of India (WII), Dehradun and Funded by SwedBio. The workshop was coordinated by Dr. Asha Rajvanshi with inputs from the IPBES Technical Support Unit on Values (TSUV) and the Asia-Pacific Technical Support Unit (Asia-Pacific TSU) – SwedBio. In all 28 participants attended the workshop.

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Sensitisation Workshop on 'Biodiversity Conservation and Ganga Rejuvenation', Lucknow, 19 November 2016. The project 'Biodiversity Conservation and Ganga Rejuvenation' at WII forms an integral part of the Namami Gange programme under the National Mission for Clean Ganga (NMCG), an initiative of the Ministry of Water Resources, River Development and Ganga Rejuvenation. As a part of its capacity building and stakeholder involvement initiative, the workshop was organised by WII for sensitisation of Uttar Pradesh Forest Department personnel.

The workshop was attended by over 50 officials of the rank of Divisional Forest Officer and above from the Uttar Pradesh Forest Department. Mr Umendra, PCCF and HoFF, Uttar Pradesh Forest Department, inaugurated the workshop. Dr. V.B. Mathur, Director, WII, spoke about the contribution of WII to the Namami Gange programme and how WII is playing the role of a knowledge partner for the success of the project. Dr. Sandeep Behera, NMCG, gave an outline of the project from its inception to its initiation. Mr. S.C. Yadav, Member Secretary, Uttar Pradesh Pollution Control Board, gave a presentation titled 'Ganga and Pollution: Experience from Uttar Pradesh'.

International Workshop on 'Eld's Deer Conservation', Imphal, Manipur, 24–26 November, 2016. This workshop was organised by the Manipur Forest Department in collaboration with WII, Dehradun. For this workshop, the participants were invited from different range countries, international institutions and state forest departments. The inaugural function of the workshop was held at Keibul village on 24 November 2016, which was attended by the villagers from the surrounding villages along with workshop participants. The workshop was divided into four technical sessions. The sessions were (1) Eld's deer ecology and conservation; (2) Community-based conservation issues and challenges; (3) Global captive management of Eld's deer; and (4) New initiatives for the conservation of the sangai (local name for Eld's deer) using space technology applications.

The valedictory function was graced by Mr. I. Hemochandra Singh, Hon'ble Minister (Forest and Environment; Revenue, Law and Legislative Affairs), as the chief guest, and Dr. V.B. Mathur, Director, WII, and Mr. Darash Mathur, PCCF,

Assam, as the guests of honour. Dr. Mathur informed the audience that in October 2016, Keibul Lamjao National Park (KLNP) was included in India's tentative list of Natural World Heritage properties by UNESCO and explained the Outstanding Universal Values and nomination process for World Heritage.. WII and Manipur Forest Department have undertaken an integrated project to prepare and implement a conservation action plan for sangai conservation under the Species Recovery Programme funded by CAMPA. During the function, a memorandum of understanding was exchanged between Dr. V.B. Mathur, Director, WII, and Mr. P.N. Prasad, PCCF and HoFF, Manipur.

"One-Week Refresher Training Course for Indian Forest Service Officers on Management of Coastal and Marine Biodiversity in India: Challenges and Prospects, Port Blair, Andaman and Nicobar Islands, 5–9 December 2016. A 1-week refresher training course for Indian Forest Service officers was organised jointly by MoEFCC, Government of India; WII; GIZ; and the Andaman and Nicobar Islands Forest Department. This course was designed to achieve the objective of promoting integrated management of coastal and marine biodiversity in India.

A total of 19 participants from the forest departments of Gujarat, Kerala, Karnataka, Madhya Pradesh, Uttar Pradesh, Himachal Pradesh, Jammu and Kashmir, Arunachal Pradesh and Andaman and Nicobar Islands took part in this training programme. This course was intended to enable the participants to have a sound understanding of the concepts and issues related to managing coastal and marine biodiversity and the ecological and socio-political context, conservation approaches and legal-policy frameworks for managing terrestrial, coastal and marine protected areas.

Fourth Course on Wildlife Conservation, Dehradun, 12–21 December, 2016. WII conducted the fourth course for wildlife enthusiasts who had no formal education, training and experience of wildlife biology/conservation. The 14 participants came from varied backgrounds and included two IT professionals, four journalists/writers, a veterinarian, an advocate, a film-maker, a teacher, a businessman, a municipality officer, a student and a representative from an animal welfare organisation.

The participants underwent 4 days of classroom sessions that dealt with Indian biogeography, wildlife conservation and challenges across the country, the science and management of tiger reintroduction, wildlife trade and wildlife crimes, managing wild animals in stress and natural history writing. After the classroom sessions, the participants were taken on a 5-day field tour to Lansdowne Forest Division, adjoining Corbett Tiger Reserve, and on the return to Dehradun they were also taken to Rajaji National Park and Jhilmil Conservation Reserve. During the field tour, the participants were shown how to read animal tracks and signs and were introduced to animal–habitat associations, challenges in protecting and managing large mammal populations, issues pertaining to relocation of Gujjar tribal settlements and their dependence on forest resources and impacts on wildlife due to linear infrastructure development projects and ways to minimise these. The course received excellent feedback from the wildlife enthusiasts.

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Two-Week Special Course on Wildlife Protection, Law and Forensic Science for Officer Trainees of 67th Batch of Indian Revenue Service (Customs and Central Excise) Group 'A', Dehradun, 2–13 and 16–27 January 2017. A 2-week special course on wildlife protection, law and forensic science for officer trainees of the 67th batch of Indian Revenue Service (Customs and Central Excise) Group 'A', was organised to sensitise the young officers towards the wildlife trade in the country and their role in regulating it. The course was attended by 153 officer trainees in two groups.

Various inputs include the importance of biodiversity and its conservation, status of endangered species including flagship species like the tiger and monitoring them, illegal trade in wildlife articles including butterflies, shahtoosh, rhino horn, skins and tiger bones were provided during the course. Inputs were also given on the role of wildlife forensics in dealing with wildlife crime cases. The officer trainees were also given

basic information on the implementation of the Wildlife (Protection) Act, 1972, CITES and other important international conventions.

The officer trainees were also provided an opportunity to interact with the IFS probationers at Indira Gandhi National Forest Academy to enhance inter-service coordination. A visit to the Forest Research Institute was arranged for the officer trainees to expose them to various facets of forestry. Apart from being provided classroom inputs, the officers were also taken to Corbett Tiger Reserve. Visits to different zones of Corbett Tiger Reserve were arranged to expose them to various management practices, especially protection.

Training Workshop on Biodiversity Conservation for Women Scientists/Technologists, Dehradun, 13–17 February 2017. The Department of Science and Technology (DST) has launched a scheme, 'National Training Programme for Scientists and Technologists Working in Government Sector'. As a part of this scheme, the DST has initiated training programmes exclusively for women scientists/technologists. The main objectives of the scheme are to (1) expose Indian scientists/technologists to the latest scientific, technological, economic and social developments in the country; (2) provide a forum for interaction, experience-sharing and exchange of views amongst the scientific community; and (3) generate responsiveness amongst scientists to the needs and expectations of the citizens of the country.

As part of this programme, a workshop was conducted at WII in which 22 women participated. They came from a wide variety of subject area specialisations and regions. Apart from theoretical sessions, case studies from different parts of the country covering various aspects of wildlife conservation were presented. A field visit to Rajaji National Park was organised in which the participants were sensitised to field techniques including camera trapping, the use of GPS and radio tracking. Human dimensions of conservation were also discussed, and the participants visited the Gujjar deras still located inside the forests. The participants also visited the Asan Conservation Reserve to get a preliminary experience of birdwatching and the ecology of migratory and resident water birds. They also visited the Regional Science Centre at UCOST and the National Institute for Empowerment of Persons with Visual Disability.

The workshop served to sensitise women scientists to the various issues of wildlife conservation as well as recent advances in wildlife science. It also served as a platform to develop linkages among the women scientists, representing different institutions, for further collaborations.

Compulsory Training Course "Skill Development of Protected Area Managers" for Indian Forest Services (IFS) Officers, Dehradun, 13 February to 3 March 2017. A 3-week compulsory course for IFS Officers was organized by the Wildlife Institute of India (WII). Seven officers from Rajasthan, Nagaland and Uttar Pradesh participated in the course. The course had following objectives: (i) to provide an exposure on current scenario in wildlife and biodiversity conservation; (ii) to provide a foundation of modern concepts in wildlife science; (iii) to facilitate the understanding of various conservation approaches and good wildlife management practices; (iv) to enable participants to appreciate the conservation challenges and the strategies to be developed for effective wildlife and biodiversity conservation; and (v) enhancing skills in latest tools and techniques of wildlife management that are essential contributors to conservation practices in the field. The participants spent one week in Rajaji National Park and learnt about field practices. The course received excellent feedback from the participants.

Annual Conference of Indian Zoos on Identification and Marking of Wild Animals, Rajaji Tiger Reserve, 27 February to 2 March 2017. The Annual Conference of Indian Zoos was organised by the Central Zoo Authority in collaboration with WII and the Uttarakhand Forest Department for zoo directors and middle-level officers. Inputs in varied fields including animal welfare, record keeping and wildlife health management such as zoonoses, wild animal capture and restraint were provided by Dr. P.K. Malik, Dr. Parag Nigam and Dr. Anupam Srivastav, from WII. Field exercises involving immobilisation and sampling of leopards at Wildlife Transit Rehabilitation Centre, micro-chipping of two elephants at Chilla Elephant Camp, Rajaji Tiger Reserve and physical restraint and micro-chipping of a vulture and crocodile housed at Dehradun Zoo were carried out as part of the training.

Management Effectiveness Evaluation of Coastal and Marine Protected Areas in India, Port Blair, Andaman and Nicobar Islands, 27 February to 1 March 2017. A consultative dialogue for finalisation of a training module,

'Management Effectiveness Evaluation of Coastal and Marine Protected Areas in India', was jointly organised by WII and GIZ, and MoEFCC, Government of India. The objective was to finalise the training module and to develop a management effectiveness evaluation (MEE) framework for coastal and marine protected areas (CMPAs). Twelve experts, including Dr. Jon Day, Former Director, Great Barrier Reef National Park, Mr. V.B. Sawarkar, Former Director, WII, Dr. Alok Saxena, PCCF (ANI), Mr. M.S. Negi, PCCF (ANI), and Mr. Ajay Desai, MEE expert, participated in this consultation.

ATTENDED BY WII PERSONNEL

Tata Institute of Social Sciences Roundtable Conference, 2016, Mumbai, 5 April 2016. Dr. V.B. Mathur, Director, WII participated in the Tata Institute of Social Sciences Roundtable Conference, 2016 at Mumbai and presented a paper on 'Living within the Planetary Boundaries: The Challenge and the Way Ahead'.

Study on impacts of dams on wildlife values (Phase-I), New Delhi, 11 April, 2016. Dr. V.B. Mathur, Director, WII participated in the meeting on 'Study on impacts of dams on wildlife values (Phase-I)' convened by Additional Director General (Wildlife), MoEFCC.

3rd Asia Ministerial Conference on Tiger Conservation, New Delhi, 12 April, 2016. Dr. V.B. Mathur, Director, WII participated in the meeting of 3rd Asia Ministerial Conference on Tiger Conservation and moderated a panel discussion on 'Sustainable Development and Smart Green Infrastructure'. He also made a presentation on 'Management Effectiveness Evaluation (MEE) of Tiger Reserves: The Indian Experience'.

Third Asia Ministerial Conference on Tiger Conservation, Vigyan Bhawan, New Delhi, 12–14 April 2016. Mr. Ujjwal Kumar and Ms Vishnupriya Kolipakam participated in the conference.

Inauguration of Centre for Ganga River Basin Management & Studies and signing of Memorandum of Agreement with IIT Consortium for Ganga Rejunevation, New Delhi, 17 April, 2016. Dr. V.B. Mathur, Director, WII participated in the meeting to mark the occasion of Inauguration of Centre for Ganga River Basin Management & Studies and signing of Memorandum of Agreement with IIT Consortium for Ganga Rejunevation.

Consultation and Dialogue Workshop, New Delhi, 26-27 April, 2016. Dr. V.B. Mathur, Director, WII participated in the Consultation and Dialogue Workshop and provided inputs on 'Ganga Basin Assessment and Environment Flows' at New Delhi.

UN-CBD First Meeting of the Subsidiary Bureau of the Implementation (SBI), Montreal, Canada, 2-4 May, 2016. The UN Convention on Biological Diversity (CBD) has established an 'Informal Advisory Group (IAG)' to promote synergies and cooperation amongst the seven biodiversity related Conventions. India is one of the ten countries that are member of IAG. The CBD convened the first meeting of the Subsidiary Bureau of the Implementation (SBI) in Montreal, Canada and requested briefing, presentation and discussion led by Dr. V.B. Mathur as Co-Chair of the IAG on Agenda Item on 'Cooperation with conventions, international organizations and initiatives for enhancing synergies among biodiversity-related conventions'. A side-event in the margins of SBI to present and discuss the outcomes of earlier IAG workshops was also organized.

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The Role of Parks and Sanctuaries in Protecting India's Biodiversity, Delhi, 10–13 May 2016. The objective of the meeting was to explore how species in parks may be best preserved into the future, by considering case studies, which have led to some initial successes today. It was organised by the Indo-US Science and Technology Forum and the University of Chicago's Centre in Delhi. The meeting was held at the Centre in Delhi and was attended by 50 delegates. The meeting was successful in generating many ideas to link parks with economic benefits to the local people. The general thrust of the meeting was that reserves in India have worked and worked well but need to be expanded and protected, preferably in an economically viable way.

36th Annual Conference of the International Association for Impact Assessment – Impact Assessment: Resilience and Sustainability, Aichi-Nagoya, Japan, 11–14 May 2016. Dr. Vinod Mathur and Dr. Asha Rajvanshi were invited to participate in the 36th IAIA Annual Conference of the International Association for Impact Assessment (IAIA) in Aichi-Nagoya, Japan. The theme of the conference was "Impact Assessment: Resilience and Sustainability".

The specific objectives of participation in IAIA'2016 were to: (i) Chair the specific technical sessions for which the invitation was extended by IAIA organising committee and prepare sessions reports; (ii) Provide professional inputs in the technical sessions through structured presentations; (iii) Provide professional support to GIZ in the conduct of workshop session on Ecosystem services: Why so little used in planning? (iv) Participate in the session streams under the Biodiversity and Ecology section to contribute to the greater focus of biodiversity and ecosystem services in impact assessment to achieve excellence; (v) Participate in all networking meetings for mutual benefits of experience sharing and to foster linkages with global experts for building capacity at global, regional and local levels.

As members of IAIA, Dr. Asha Rajvanshi participated in Annual General Meeting, Section meeting of the Biodiversity and Ecology Section. Dr. Asha chaired the technical session on 'Sustainability: solid ground or a slippery piece?' and made a presentation on 'Protecting ecosystem services for sustainable growth' in this technical session. Dr. Vinod B. Mathur chaired a technical session 'Biodiversity Offsets: The Asian Experience' at the conference and made a presentation on 'Planning biodiversity off sets in India'. In addition to their contributions in the above technical sessions, Dr. Asha Rajvanshi and Dr. Vinod B. Mathur were invited by the ValuES Project team of GIZ to provide the technical support in the conduct of the Session- "Ecosystem services: Why so little used in planning?" that was aimed at exploring what hinders ecosystem services from being used in IA in a meaningful way and how to overcome come various challenges for developing more meaningful mainstreaming approaches for ecosystem approaches in impact assessment. Dr. Asha Rajvanshi presented the 'Relevance of river flows for decision on dams' in this session Dr. Vinod B. Mathur presented the need for 'Capacity Building for Integrating Ecosystem Services in Impact Assessment' in this session.

The conference was organised by International Association for Impact Assessment (IAIA). The fund support to cover the cost of participation was provided by the GBIF sponsored project on Developing an EIA Biodiversity Data Publishing Framework and the funds under the ValuES project of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Germany.

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Fifth Expert Committee Meeting on Re-introduction of Asiatic Lions from Gir to Kuno Wildlife Sanctuary, MoEFCC, New Delhi, 13 May 2016. Dr. Kausik Banerjee participated in the meeting.

Parliament Standing Committee Meeting on "Management of Elephant Corridors", New Delhi, 19 May, 2016. Dr. V.B. Mathur, Director, WII participated in the Parliament Standing Committee Meeting on "Management of Elephant Corridors".

Workshop on 'Development of Roadmap for Indian Zoos' for Zoo Directors and Middle-Level Officers, Guwahati, 23–25 May 2016. The Central Zoo Authority in collaboration with the Assam Forest Division organised the workshop for zoo directors and middle-level officers. Theoretical sessions on the theme 'Scientific, Ethical and Humane Management of Wild Animals and Management of Infectious Diseases in Indian Zoos: Lessons Learnt and Way Forward' were conducted by Dr. Parag Nigam.

Wildlife Rescue Squad Annual Meeting of the MPFD, Bhopal, 29–30 May 2016. Dr. Parag Nigam provided inputs during the Wildlife Rescue Squad Annual Meeting of the MP Forest Department. Forest officers, veterinarians and frontline staff members representing different rescue squads participated in the meeting and presented the work carried out during 2015–2016. The work carried out by various teams was reviewed, and a lecture on the topic 'Rescue and Rehabilitation of Wild Animals: Recent Approaches' was given on 29 May 2016.

National Committee Meeting on CA/TS implementation, New Delhi, 31 May, 2016. Dr. V.B. Mathur, Director, WII participated in the National Committee Meeting on CA/TS implementation organized by NTCA.

Parliamentary Standing Committee Meeting on Science & Technology, Environment & Forest, New Delhi, 31 May, 2016. Dr. V.B. Mathur, Director, WII participated in the Parliamentary Standing Committee Meeting on Science & Technology, Environment & Forest under the chairmanship of Ms. Renuka Chowdhary, M.P.

7th Meeting of the UN-Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) Multidisciplinary Expert Panel (MEP) and First Meeting of the International Management Committee for the Global Assessment, Bonn, Germany, 6-12 June, 2016. The Executive Secretary, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) invited Dr. V.B. Mathur, Director, Wildlife Institute of India to participate in the 7th Meeting of the UN-Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) Multidisciplinary Expert Panel (MEP) and First Meeting of the International Management Committee for the Global Assessment from 6-12 June, 2016 at Bonn, Germany.

This meeting had important implications for India as it involved the selections of experts as Coordinating Lead Authors (CLA) and as Lead Authors (LA) for the Global Assessment of Biodiversity and Ecosystem Services. A large number of experts from India had applied and on the basis of a very rigorous selection process one CLA and five LAs from India were finally selected. India's contribution in the activities of the IPBES Task Force on Capacity Building was also appreciated.

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GBIF Asia Nodes Meeting, Philippines, 27 June to 1 July 2016. The objective of the meeting was to review and update the regional strategies and work programme and review the projects funded by Biodiversity Informatics Fund for Asia. It was organised by GBIF at Hotel Kimberly Tagaytay in the Philippines. The regional strategy was aligned with the GBIF strategy to the extent possible and will be presented at the Governing Board (GB23) of GBIF in Brazil. Dr. Gautam Talukdar participated in the meeting.

Launch Programme of 'Biodiversity Conservation and Ganga Rejuvenation', Haridwar, 7 July, 2016. Dr. V.B. Mathur, Director, WII participated in the Launch Programme of 'Biodiversity Conservation and Ganga Rejuvenation' under the Chairpersonship of Hon'ble Union Minister Sushri Uma Bharati and Shri Harish Rawat, Hon'ble Chief Minister, Government of Uttarakhand at Haridwar.

40th Session of the World Heritage Committee Meeting, Istanbul, Turkey, 13-17 July, 2016. The 40th Session of the World Heritage Committee Meeting was held at Istanbul, Turkey from 13-17 July, 2016. Dr. V.B. Mathur, Director, WII participated in this meeting in which State of Conservation Report of Keoladeo National Park, Rajasthan and Great Himalayan National Park Conservation Area, Himachal Pradesh were discussed.

IUCN-INC Annual General Meeting, New Delhi, New Delhi, 27 July, 2016. Dr. V.B. Mathur, Director, WII participated in the IUCN-INC Annual General Meeting held under the Chairmanship of Secretary, MoEFCC.

GTF-organised brainstorming meeting for developing training manuals for capacity building for habitat restoration, monitoring protocols and economic valuation of landscapes with respect to tigers and snow leopards, NTCA, New Delhi, 28 July 2016. Dr. Kausik Banerjee and Mr. Ujjwal Kumar participated in the meeting.

3rd Himalayan Parliamentarians Meet, New Delhi, 10 August, 2016. Dr. V.B. Mathur, Director, WII participated in the 3rd Himalayan Parliamentarians Meet under the Chairmanship of Hon'ble Shri Anil Madhav Dave, Minister of State (Independent Charge), Ministry of Environment, Forest and Climate Change (MoEFCC).

Review Meeting on WII-Haryana Forest Department Collaborative Projects, Panchkula, Chandigarh, 20 August, 2016. Dr. V.B. Mathur, Director, WII participated in the

Review Meeting on WII-Haryana Forest Department Collaborative Projects convened by PCCF (WL) & CWLW, Government of Haryana on 20 August, 2016 at Panchkula, Chandigarh.

Two-Day Training on 'Managing Human Wildlife Conflict', Valmiki Tiger Reserve, 20–21 August 2016. This training for frontline staff members of the Bihar Forest Department was organised by WWF, India. Inputs were provided by Dr. Parag Nigam on the themes Wild Animal Capture: General Considerations and Options (Physical and Chemical), Human Safety Considerations while Working in Wild Habitats, Rescue and Rehabilitation of Wild Animals: Case Studies Including Demonstration of Remote Injection Equipment/Practice with Equipment Including Assembly of Darts, Disassembly and Darting Practice.

Workshop on Data Content Standard on Forest, Dehradun, 22 August 2016. A 1-day workshop, 'Data Content Standard on Forest', was held at Forest Survey of India, Dehradun. Dr. P.S Acharya, Chief Executive Officer, NSDI, was the chief guest, and during his keynote speech he talked on the topic 'Activities, Mandate and Road Ahead in NSDI'. He was also the chairperson of all the sessions. During the workshop, presentations were also made on 'Data Content Standard' by Dr. Sunil Chandra, FSI, and 'Association of Geospatial Industry' (AGI) by the resource person. In one of the sessions, there was a discussion, and comments were made on the draft document 'Data Content Standard on Forest' by the participants and the state forest departments. Dr. Gautam Talukdar and Dr. Manoj K. Agarwal attended this workshop.

Joint Second Author Meeting of the IPBES Regional and Land Degradation and Restoration Assessments, Bonn, Germany, 22-26 August 2016. The process of regional assessment of Biodiversity and Ecosystem Services in Asia Pacific region (APR) started in May 2015 and is expected to be completed by middle of 2018. During 2015 the team of Coordinating Lead Authors led the preparation of zero order drafts (ZOD) that is organised 6 chapters. In the capacity as a CLA, Dr Asha Rajvanshi and Dr G.S. Rawat have been responsible for coordinating 2 chapters of the Asia Pacific assessment report and to ensure that this chapter of the report meets the highest standards of quality and is delivered to the Co-Chairs within the agreed time frames set for submission of its draft forms until it attains its final form. As a follow up of regional assessments, IPBES organized a joint second authors meeting of experts from all the regions in Bonn, Germany during 22-26 August, 2016. Dr Asha Rajvanshi and Dr. G.S. Rawat were invited by the IPBES Secretariat to attend his meeting and to present the status of the chapters they have ccordinated and their key findings

Dr. Asha Rajvanshi attended the 2nd authors' meeting at Bonn to review the status of each of the first draft of the chapters and to assess the nature of revisions required to be made to plug in the information gaps and to address the comments of the review editors for each of the chapters. It was organised by the Intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES). Fund support for participation in this event was provided by the IPBES.

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MSTrIPES Phase II Training Workshop, Bandipur Tiger Reserve, Karnataka, 28 August to 2 September 2016. Dr. Kausik Banerjee, Mr. Ujjwal Kumar and Ms Swati Saini participated in the workshop.

Meeting of the Regional Expert Committees for Management Effectiveness Evaluation (MEE) of Protected Areas (2016-17), New Delhi, 29 August, 2016. Dr. V.B. Mathur, Director, WII participated in the Meeting of the Regional Expert Committees for Management Effectiveness Evaluation (MEE) of Protected Areas (2016-17) at New Delhi.

Inception Workshop on Technical Cooperation Programme of FAO for 'Strengthening National Forest Inventory and Monitoring Protocols and Capacities in India', Dehradun, 29 August 2016. A 1-day inception workshop on the Technical Cooperation Programme (TCP) of FAO for 'Strengthening National Forest Inventory and Monitoring Protocols and Capacities in India' was held at Forest Survey of India (FSI), Dehradun. The workshop was inaugurated by the chief guest, Mr. S.S. Negi, DG, and Special Secretary, MoEFCC. Mr. Shyam Khadka, FAOR, India, was the guest of

honour. Information on the TCP project, areas of the project, role of FSI, role of FAO, pilot states, role of pilot states and output of the project was explained. The presentations were made by the resource persons of state forest departments and other institutions/organisations on various topics related to the workshop. Dr. Gautam Talukdar and Dr. Manoj K. Agarwal attended this workshop.

49th Meeting of the Environment Sub-Group of Narmada Control Authority, New Delhi, 31 August, 2016. Dr. V.B. Mathur, Director, WII participated in the 49th Meeting of the Environment Sub-Group of Narmada Control Authority under the Chairmanship of Secretary, MoEFCC.

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IUCN World Conservation Congress, Hawaii, USA, 1-5 September, 2016. The World Conservation Congress (WCC) is one of the world's most important environmental events and it was organized by IUCN in Hawaii, USA from 1-10 September, 2016. In the WCC, IUCN Members, Commissions and partners addressed the world's most pressing sustainability challenges.

Dr. V.B. Mathur as the Regional Vice Chair of the IUCN World Commission of Protected Areas (WCPA) South Asia and a member of IUCN Commission on Ecosystem Management (CEM) and IUCN Species Survival Commission (SSC) was invited to participate in the IUCN-WCC. He provided professional inputs in several technical sessions and particularly the following:

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Session Title	Session type	Date
Mobilising IUCN to strengthen the World Heritage Convention and improve the conservation outlook of natural sites	Workshop	2 Sept 2016
An Action Plan to Protect the Bustard Species of India	Knowledge Café	4 Sept 2016
World Heritage Sites for Biodiversity Conservation and Ecosystem based- Disaster Risk Reduction	Workshop	5 Sept 2016

GBIF Asia Bio-informatics Workshop at the Biodiversity Research Centre, Academia Sinica, Taiwan, 7–10 September 2016. The objective of the workshop organised by GBIF was to provide training on new data type publishing. The training workshop was on sample-based data, a new data type that GBIF has started indexing. Dr. Gautam Talukdar participated in the workshop.

First Stakeholder Consultation Workshop on Developing Assam State Biodiversity Strategy and Action Plan (ASBSAP), Guwahati, 16 September, 2016. Dr. V.B. Mathur, Director, WII participated in the First Stakeholder Consultation Workshop on Developing Assam State Biodiversity Strategy and Action Plan (ASBSAP) at NEDFi Conference Hall in Guwahati.

Student Conference in Conservation Science (SCCS), IISc, Bengaluru, 21–25 September 2016. Ms Vishnupriya Kolipakam and Ms Swati Saini participated in the conference.

Workshop on Synergies among Biodiversity related Multilateral Environmental Agreement, New Delhi, 3-4 October, 2016. Dr. V.B. Mathur, Director, WII participated in the Workshop on Synergies among Biodiversity related Multilateral Environmental Agreement organized by National Biodiversity Authority.

Workshop on Landscape Ecology and Wildlife Conservation (partners—WII, NMSHE, USFWS, Pondicherry University and WWF), WII, Dehradun, 4–6 October 2016. Dr. Kausik Banerjee and Ms Swati Saini participated in the workshop.

Training of Trainers (ToT) Workshop on Integrating Ecosystem Services into Development Planning (IES), Eschborn, Germany, 4-7 October 2016. The GIZ project "ValuES: Methods for integrating ecosystem services into policy, planning and practice" is a global project implemented by the GIZ on behalf of the German Ministry for Environment, Nature Conservation, Construction and Nuclear Safety (BMUB).

Two faculty members from the Wildlife Institute of India (Dr. Asha Rajvanshi Scientist 'G' and Dr. Sonali Ghosh, Scientist 'F' were deputed to attend the training course on "Training of Trainers program on the Integrating Ecosystem Services for Development Planning Training" organised under the ValuES project of GIZ in Germany. The key objectives of the training were to (i) provide an overview of the TEEB initiative and applications: historical background, objectives & outcomes; (ii) learn how to recognise connections between ecosystem services and development; (iii) familiarise participants with TEEB related tools and mechanisms; and (iv) earth the approach in a context of partner countries.

The training provided a definite boost to the understanding and knowledge of the faculty about the connect between development and well-being of human societies linked to ecosystems and the benefits they provide. It provided an insight for recognizing that correlation between these ecosystem services and development is a success factor for development planning and that managing ecosystems to sustain the flow of ecosystem services can provide immediate economic benefits, and strengthens the resilience of those systems, especially in the face of climate change. The training was organized by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

Workshop on 'Landscape Ecology', Dehradun, 4–11 October 2016. This workshop was organised by WII. The workshop focused on landscape planning for wildlife conservation. Dr. Panna Lal and Dr. Manoj K. Agarwal attended this workshop.

8th Meeting of the UN-Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) Multidisciplinary Expert Panel (MEP), Bonn, Germany, 24-28 October, 2016. The Executive Secretary, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) invited Dr. V.B. Mathur, Director, Wildlife Institute of India to participate in the 8th meeting of the UN-Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) Multidisciplinary Expert Panel (MEP).

The 8th meeting of the UN-IPBES MEP provided an opportunity to discuss and deliberate on the Work Programme of IPBES and review the deliverables especially the thematic assessment being undertaken. Specific contribution was made by the Dr. V.B. Mathur in matters pertaining to capacity building. As MEP Regional Vice Chair Dr. V.B. Mathur provided update on the Asia Pacific Regional Biodiversity and Ecosystem Services Assessment currently ongoing and also on the global assessment.

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Asian Ministerial Conference on Disaster Risk Reduction, New Delhi, 3 November, 2016. Dr. V.B. Mathur, Director, WII participated in the Asian Ministerial Conference on Disaster Risk Reduction on 3 November, 2016 in New Delhi and presented a paper on 'Harmonizing Disaster Management and World Heritage Frameworks'.

Training of Trainers (ToT): Effective Delivery of Coastal and Marine Biodiversity Courses, Goa, 15–18 November 2016. The objective of the training was to support training organisations in their overall training delivery system, by strengthening the existing methods of training delivery as well as introducing new and more efficient methods of training deliveryat the key premier training institutions in India. It was sponsored by the GIZ 'Conservation and Sustainable Management of Existing and Potential Coastal and Marine Protected Areas (CMPA)' project.

The ToT brought together key experts and faculty members of premier forest, fisheries and media training institutions in India that deliver coastal and marine biodiversity-relevant training programmes and courses. The master trainers come from Dale Carnegie, India and GIZ. Dr. Ramesh Chinnasamy attended the training programme.

Establishment of Long-term Environmental and Socio-ecological Monitoring (LTESM) Sites for Wildlife Monitoring in Kailash Sacred Landscape, India, Pokhara, Nepal, 14–18 November 2016. Dr. Gopi G.V. participated in 'Establishment of Long-Term Environmental and Socio-ecological Monitoring (LTESM) Sites for Wildlife Monitoring in Kailash Sacred Landscape, India' during the regional orientation on long-term environmental and socio-ecological monitoring.

Sensitization Workshop on "Biodiversity Conservation and Ganga Rejuvenation", Lucknow, 19 November, 2016. Dr. V.B. Mathur, Director, WII participated in the Sensitization Workshop on "Biodiversity Conservation and Ganga Rejuvenation" organized for the officials of Uttar Pradesh Forest Department and other Stakeholders.

International Conference on Manipur Deer, Imphal, Manipur, 26 November, 2016. Dr. V.B. Mathur, Director, WII participated in the International Conference on Manipur Deer at Imphal, Manipur.

Training Workshops on Population Monitoring, Sariska Tiger Reserve, 27–28 November 2016 and 10–11 February 2017. On the basis of a request of the Rajasthan Forest Department, two workshops on population monitoring for frontline staff members of Sariska Tiger Reserve were organised. The participants were exposed to various tools and techniques used in population monitoring, viz., compass and GPS handling, distance estimation using range finders and radio-tracking of animals. Theoretical and field inputs were provided by Dr. Bivash Pandav, Dr. Bilal Habib and Dr. Parag Nigam.

National Seminar on Biodiversity: Exploration, Exploitation, Conservation and Management—Vision and Mission, Barasat Government College, West Bengal, 19–20 November 2016. Dr. S. Sathyakumar was the invited speaker at the UGC-sponsored national seminar organised at the Post Graduate Department of Zoology, Barasat Government College, West Bengal. He delivered a talk titled 'Wildlife Conservation and Management in Himalayan Region'.

Second Global Water Summit, New York, USA, 6-8 December, 2016. The Nature Conservancy (TNC), founded in 1951, is the world's leading conservation organization, with a mission to conserve the lands and waters on which all life depends. Their vision is a world where the diversity of life thrives, and people act to conserve nature for its own sake and its ability to fulfill human needs and enrich human lives. TNC's India, invited Dr. Asha Rajvanshi to participate in the second global water summit in New York, organized alongside Columbia University. The summit had the following broad objectives: (i) to build on the success of the 2014 Global Water Summit. Convene experts, partners practitioners, decision makers and researchers from across the world to share knowledge, explore solutions and be inspired together; (ii) to discuss TNC's experiences in achieving change at a transformational scale, including their successes and failures, and drawing parallels to the challenges facing conservation and water resources today; and (iii) to glean insights on a theory of transformational change based on the successful elements of those efforts. It was organized by The Nature Conservancy (TNC).

UN-CBD-CoP Meeting and WII-GIZ Side Event 'Showcasing innovative approaches for ensuring effectiveness and sustainability of capacity development measures for coastal and marine biodiversity conservation in India', Cancun, Mexico, 9-13 December, 2016. Wildlife Institute of India (WII) and GIZ India organized a Side Event during the CBD-CoP meeting in Cancun, Mexico in December, 2016 on 'Showcasing innovative approaches for ensuring effectiveness and sustainability of capacity development measures for coastal and marine biodiversity conservation in India' to highlight the outcomes of WII-GIZ project 'Capacity Building for Coastal and Marine Biodiversity Conservation'.

The event showcased the innovative capacity development approaches being implemented in India as well as in other countries, for coastal and marine biodiversity conservation and MPA management. Capacity building materials on coastal and biodiversity conservation and management were released during the Side Event.

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Launch of Best Practice Guidance Document 'Eco-friendly Measures to Mitigate Impacts of Linear Infrastructure on Wildlife', New Delhi, 16 December, 2016. In accordance with the directives received from the Ministry of Environment, Forest and Climate Change, Govt. of India the publication of the guidance document on 'Eco-friendly measures to mitigate the negative impacts on wildlife values from linear infrastructure development projects' was accomplished by WII. This important "how to" guide is the first such document for India, South-east Asia and the world. This guidance book was reviewed by internationally acclaimed biodiversity experts, road ecologists and a team of professionals in the World Bank for the technical soundness and the feasibility of suggested measures,

The formal launch of the document was organized at a special event at the India International Centre in New Delhi. This guidance document was released by, Shri A.N. Jha, Secretary, Ministry of Environment, Forest and Climate Change, (MoEFCC), Govt. of India, in the presence of Dr. S.S. Negi, Director General of Forests and Special Secretary to the Government of India, MoEFCC, Shri B.S. Bonal, Additional Director General of Forest (Wildlife), MoEFCC and Dr. V.B. Mathur, Director, Wildlife Institute of India.

The event was attended by both professionals and representatives of Ministry of Environment, Forest and Climate Change; Ministry of Road Transport and Highway; Ministry of Railways; Power Grid Corporation of India; State roads and highway agencies; donor agencies such as the World Bank and International agencies such as USAID; officials of the forest and wildlife departments and conservation organisations.

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Sixth Expert Committee Meeting on Re-introduction of Asiatic Lions from Gir to Kuno Wildlife Sanctuary, Kuno Wildlife Sanctuary, Madhya Pradesh, 18–19 December 2016. Dr. Kausik Banerjee participated in the meeting.

Workshop on 'Methods and Techniques for Managing e-Learning Course on Coastal and Marine Biodiversity', Bangkok, Thailand, 20–21 December 2016. Dr. Gopi G.V. participated in the workshop and presented a paper titled 'Implementing Strategies for e-Learning Component for Marine Protected Area Managers in the Existing Course Framework at WII' during the workshop, which was organised by the Academy for International Cooperation (AIZ) GIZ Germany.

104th Indian Science Congress, S. V. University, Tirupati, 3-7 January 2017. Dr. V.B. Mathur, Director, WII was invited to attend the 104th Indian Science Congress at S.V. University, Tirupati and to present a paper on 'Assessment of climate change impacts on wild fauna in Himalaya: Recent experiences'.

Young Ecologists Talk and Interact (YETI), Tezpur University, 4–8 January 2017. Ms Vishnupriya Kolipakam participated in the event.

Tiger States' Chief Wildlife Wardens' and Tiger Reserve Field Directors' Meeting, Kaziranga Tiger Reserve, Assam, 5–7 January 2017. Mr. Ujjwal Kumar and Ms Vishnupriya Kolipakam participated in the meeting.

MSTrIPES Phase II Training Workshop, Kanha Tiger Reserve, Madhya Pradesh, 15–23 January 2017. Dr. Kausik Banerjee, Mr. Ujjwal Kumar, Ms Vishnupriya Kolipakam and Ms Swati Saini participated in the workshop.

National Symposium on "Global Environmental Challenges: Present Scenario", Jaipur, 21 January, 2017. Dr. V.B. Mathur, Director, WII participated in the National Symposium on "Global Environmental Challenges: Present Scenario" at Jaipur and delivered a keynote address on 'Environmental Conservation in a Changing World: Challenges, Opportunities & Way Forward'.

MSTrIPES Phase II Training Workshop, Corbett Tiger Reserve, Uttarakhand, 30 January to 2 February 2017. Mr. Ujjwal Kumar participated in the workshop.

MSTrIPES Phase II Training Workshop, Similipal Tiger Reserve, Odisha, 7–10 February 2017. Dr. Kausik Banerjee and Mr. Ujjwal Kumar participated in the workshop.

National Consultation on Sustainable Development Goals (SDGs), New Delhi, 9 February, 2017. Dr. V.B. Mathur, Director, WII participated in the National Consultation on Sustainable Development Goals (SDGs)

organized by the by NITI Aayog at WWF-India office, New Delhi.

NTCA meeting to discuss Management Effectiveness Evaluation of Tiger Reserve (2017-18), New Delhi, 15 February, 2017. Dr. V.B. Mathur, Director, WII participated in the NTCA meeting to discuss Management Effectiveness Evaluation of Tiger Reserves (2017-18) at New Delhi.

5th Programme Steering Committee (PSC) of Kailash Sacred Landscape Conservation & Development Initiative (KSLCDI) meeting, New Delhi, 17 February, 2017. Dr. V.B. Mathur, Director, WII participated in the 5th Programme Steering Committee (PSC) of Kailash Sacred Landscape Conservation & Development Initiative (KSLCDI) meeting.

DST-sponsored training workshop on 'Biodiversity Conservation' for women scientists/technologists, WII, Dehradun, 13–17 February 2017. Ms Vishnupriya Kolipakam participated in the training workshop.

Tiger States' Chief Wildlife Wardens' and Tiger Reserve Field Directors' Meeting, New Delhi, 15–16 February 2017. Dr. Kausik Banerjee and Shri Ujjwal Kumar participated in the meeting.

IIRS Users Interaction Meet—2017 (IUIM—2017), Dehradun, 23 February 2017. IIRS User Interaction Meet—2017 was held at Indian Institute of Remote Sensing, Dehradun. The focus of the meet was to understand the present and future requirements of the industry, skill gaps and strategy to meet the demand–supply gap in human resource development. IUIM—2017 was also an important forum to get feedback on quality and expectations, which is an important input for designing future courses and taking up research in newer areas relevant to the user community. This user meet provided a unique opportunity to one and all for interaction on the entire range of capacity building of RS applications. Dr. Panna Lal and Dr. Manoj K. Agarwal attended this workshop.

Participation in the IPBES Capacity Development Workshop, Oslo, Norway, 27 February to 2 March 2017. The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) has been established by four UN agencies, viz., UNEP, UNDP, FAO and UNESCO, to strengthen the role of science in decision-making in relation to the conservation and sustainable management of biodiversity and ecosystem services. The goal of IPBES is to strengthen the science–policy interface for biodiversity and ecosystem services for conservation and sustainable use of biodiversity, long-term human well-being and sustainable development. On the basis of nominations sent by the Ministry of Environment, Forest and Climate Change, Government of India, the IPBES Secretariat has selected 26 scientists from India from various disciplines for contributing to biodiversity and ecosystem services assessment of the Asia Pacific Region. Of these experts, two scientists from WII, viz., Dr. G.S. Rawat, Dean, Faculty of Wildlife Science, and Dr. Asha Rajvanshi, Nodal Officer, EIA Cell, have been given the roles of Coordinating Lead Authors (CLAs) for Chapters 3 and 2, respectively. Chapter 2 deals with nature's benefits to people and quality of life and Chapter 3 is on the status, trends and future dynamics of biodiversity and ecosystems underpinning nature's benefits to people. As part of Regional Assessment of BDES in the Asia and the Pacific region, the IPBES organised a capacity development workshop for writing summaries for policy makers in Oslo. The workshop aimed to bring together the co-chairs and selected CLAs of regional assessments to develop draft summaries for policy makers for the respective assessments. Dr. G.S. Rawat participated in the workshop and represented Chapter 3 CLAs.

Fifth Session of the UN-Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), Bonn, Germany, 5-10 March, 2017. The Executive Secretary, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) invited Dr. V.B. Mathur, Director, Wildlife Institute of India to participate in the Fifth Session of the UN-Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) in Bonn.

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Training Workshop on 'Recent Approaches in Wildlife Conservation and Health Management', Srinagar, 16–19 March 2017. Sher-e-Kashmir University of Agricultural

Sciences and Technology of Kashmir (SKUAST-Kashmir) organised a training workshop for protected area managers at Srinagar. Dr. P.K. Malik, Dr. Parag Nigam and Dr. Bilal Habib provided technical inputs at the training workshop.

Training workshop on 'Wild Animal Rescue and Rehabilitation', Jodhpur, 24–26 March 2017. Arid Forest Research Institute, under the aegis of the Rajasthan Forest Department, organised a training workshop for field veterinarians. Inputs on biodiversity conservation and challenges, wildlife health management, wild animal capture and emergency management were provided by WII faculty members. The hands-on exercise on immobilisation equipment and remote drug delivery system including dart assembly and target practice was also part of the inputs. The inputs were provided by Dr. P.K. Malik, Dr. Parag Nigam and Dr. Bilal Habib from WII.

MSTrIPES Phase II Training Workshop, Bhagwan Mahaveer Wildlife Sanctuary (Mollem), Goa, 23–25 March 2017. Dr. Kausik Banerjee and Mr. Ujjwal Kumar participated in the workshop.

World Conference on Environment, New Delhi, 25-26 March, 2017. Dr. V.B. Mathur, Director, WII participated in the World Conference organized by the National Green Tribunal and MoEFCC, which was inaugurated by the Hon'ble President of India. He presented a paper on 'Human-Wildlife Interaction in India: Issues, Challenges and Way Ahead from Conflict to Co-existence'.

STUDY PROGRAMME AND VISITS

Visit of the Hon'ble Minister to Wildlife Institute of India, Dehradun, 18 December, 2016. Mr. Anil Madhav Dave, Hon'ble Minister of State (Independent Charge), Environment, Forest and Climate Change, Government of India, visited WII and laid the foundation stones of the Women's Hostel and New Guest House. Dr. S.S. Negi,

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Director General of Forests and Special Secretary to Government of India, members of the Civil Construction Unit and dignitaries from sister organisations were present on the occasion.

The Hon'ble Minister also addressed the faculty, staff, researchers and students on this occasion. He stressed the need to bring about improvements in the governance system, stepping up the process of digitisation and formulating strategies to deal with human–wildlife conflict mitigation.

Study Abroad Programme on Interventions in Wild Animal Health, Sariska Tiger Reserve, 6–24 February 2017. The Zoological Society of London (ZSL), WII and University of Edinburgh (UoE) organised a study abroad programme, 'Interventions in Wild Animal Health' (a component of the MVetSci Conservation Medicine, an online course). The course was specially designed for field veterinarians as interventions are required to address human–wildlife conflict issues, to carry out effective meta-population management through translocation, to reduce the risk from disease in reintroduction and translocation programmes, to carry out investigations in disease outbreaks in free-living wildlife and to understand the role of disease in the decline of species.

The learning outcomes from the course included the following: (1) gaining a critical awareness of the effects of interventions at the human wildlife interface; (2) developing a systematic understanding of the planning of, and field methods in, disease outbreak investigation, wildlife monitoring and biological management; (3) gaining a comprehensive understanding including new insights into disease risk management in translocation programmes; (4) gaining a critical awareness of field methods to investigate the role of disease in the decline of species; and (5) gaining a comprehensive understanding of ex-situ medicine and management in the context of field interventions.

Twenty-six veterinarians (both national and international) attended the 3-weeks' programme.

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PROFESSIONAL SUPPORT

Biodiversity Conservation and Rural Livelihood Improvement Project

- **Funding Source**
  World Bank
- **Collaborating Agency**
  Implemented through Ministry of Environment, Forest & Climate Change and state forest departments
- **Investigators**
  Dr. Anil Kumar Bhardwaj,
  Dr. Ruchi Badola,
  Dr. S.A. Hussain,
  Dr. B.S. Adhikari and
  Dr. Bilal Habib
- **Researchers**
  Ms Amrita Laha,
  Ms Soni Bisht and
  Ms Ankita Bhattacharya
- **Date of Initiation**
  September 2011
- **Date of Completion**
  March 2018

Objectives

To develop and promote new models of conservation at the landscape level through enhanced capacity and institution building for mainstreaming biodiversity conservation outcomes.

Progress

The physical and financial aspects of the project were handled by Dr. A.K. Bhardwaj and the PMU team, and the individual taxa reports were handled by WII scientists. The research studies were undertaken by researchers under the guidance of WII faculty members.

Outputs and Outcomes

The work of the WII has been disseminated as technical reports. Six technical reports and two guidelines were made for each taxon under the supervision of WII scientists. (1) Evaluation of Mammals as Potential Indicator Species for Long-Term Monitoring: Askot Landscape, Uttarakhand; (2) Evaluation of Fish Species as Potential Indicator Species for Monitoring Aquatic Ecosystem: Askot Landscape, Uttarakhand; (3) BCRLIP, Ecological Indicator (Insect Taxa); (4) Assessment of Forest Communities and Dependence of Local people on NTFPs in Askot Landscape, Uttarakhand; (5) Evaluation of Birds as Potential Indicator Species for Long Term; (6) Monitoring: Askot Landscape, Uttarakhand; (7) Assessment of Socioeconomic Status and Estimation of Natural Resource Dependence of Local Communities, Askot Landscape, Uttarakhand; (8) Ecological Mapping: Askot Landscape, Uttarakhand.

The research programme was continued as Phase II of the indicators and ecological mapping in the Askot Landscape to create an information base of the methodological framework for landscape planning. The following workshops were undertaken during the year to disseminate the concept of landscape conservation and test course curriculum for the policy-level programme:

1) One field visit from 13 to 22 May 2016 for review of training at Little Rann of Kacchh (LRK) and capturing good practices for training from Gir Learning Centre.
2) A side event on 'Participatory Approaches to Natural Resource Management' was organised by WII during the XIX Commonwealth Forestry Conference (CFC) 2017 held at FRI, Dehradun, from 3 to 7 April 2017.
3) A sensitisation and planning workshop on 'Landscape Management Approach for Biodiversity Conservation and Human Well-being' was conducted at Sasan Gir, Gujarat, for frontline professionals and technical staff members of different sites from 20 to 23 January 2017, in which 42 officials from the forest departments of Madhya Pradesh, Gujarat, Kerala, Maharashtra and Tamil Nadu participated.
4) Researchers of BCRLIP visited Munnar and Periyar for documentation of best practices of these landscapes from 12 to 26 February 2017. A side event on 'Achieving Conservation Outcomes through Integrated Landscape Approaches' was organised by WII at CoP13 at Cancun (Mexico) on 12 and 13 December 2016 on behalf of MoEFCC, World Bank and the state forest departments of Uttarakhand, Gujarat, Madhya Pradesh, Kerala and Tamil Nadu.
5) A total of 44 scientific e-journals were procured in FY 2016–2017.

SERVICES

Global Biodiversity Information Facility

The Global Biodiversity Information Facility (GBIF) was established in March 2001, as an open ended international coordinating body to promote compilation, linking, standardization, digitization and dissemination of the world's biodiversity data in the form of a distributed open access system, within an appropriate framework for property rights and due attribution. India has signed the third Memorandum of Understanding (MoU) with GBIF for 2012–2016 for five years which has now expired and needs to be renewed. India has published 69,068 records in GBIF through 8 occurrence datasets and 1 checklist dataset.

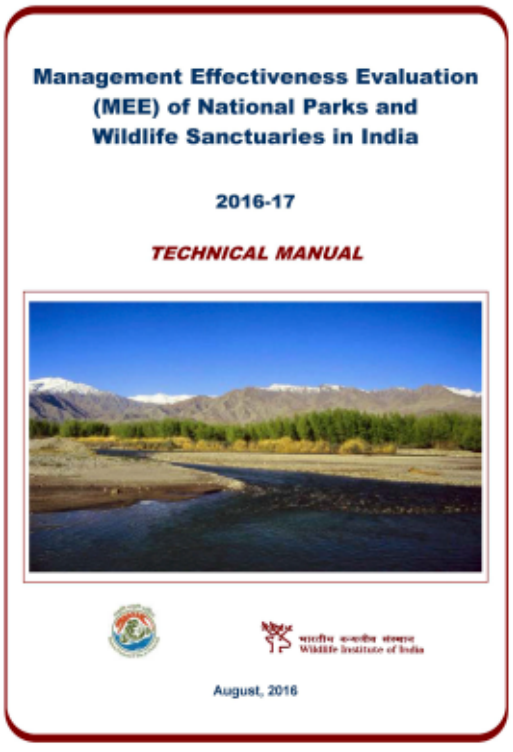
WII conducted several activities related to biodiversity informatics such as: (i) Licensing issues sorted out for all the datasets hosted from WII Integrated Publishing Toolkit as per new GBIF guidelines. (ii) Submitted a joint proposal on "Biodiversity Informatics Cookbook" under GBIF - Biodiversity Information Fund for Asia in collaboration with Taiwan, Japan and Philippines. This proposal got funded and GBIF-Taiwan is leading the initiative.

Dr. Gautam Talukdar attended Asian Regional Meeting of the GBIF Participant Nodes at Tagaytay, Philippines from 27th June–1st July 2016 to discuss (a) the on-going GBIF - Biodiversity Information Fund for Asia (BIFA) projects in Asia; (b) Review the strategies and work programme for regional collaboration, agree on the realistic components of an Asia Regional Plan of Action and formulating suggestions to prioritise different work areas for the 23rd meeting of the GBIF Governing Board; and (c) Nomination of Regional Representative.

The strategies and outcomes of this meeting were communicated to the 23rd Governing Board (GB) Meeting of GBIF which was held in October 2016 in Brazil.

Management Effectiveness Evaluation (MEE) of Protected Areas in India (2016-17)

The Ministry of Environment, Forest and Climate Change, Government of India assigned the responsibility of technical backstopping of Independent Management Effectiveness Evaluation (MEE) of 40 Protected Areas in India. The Institute prepared a Technical Manual to guide the MEE process.



CELLS

Environmental Impact Assessment Cell

The Environmental Impact Assessment Cell of WII continued to undertake R&D related studies, provide professional support in capacity building initiatives at WII and other institutions; professional bodies; and Government and Corporate organizations. Efforts of networking with global and regional institutions and collaborations with international agencies also continued to expand and diversify.

Capacity Building Efforts

IAIA endorsement of WII training courses

WII has made conscious efforts to deliver world class training in the field of impact assessment both internationally and nationally. The courses taught by two trainers Dr. Asha Rajvanshi and Dr. Vinod B. Mathur in the past three years were vetted and ranked for high quality by the Training & Professional Development Committee (TPDC) of International Association for Impact Assessment, the leading global network on best practice in the use of impact assessment. Based on this evaluation the two trainers became eligible to receive IAIA endorsement for delivery of identical courses outside IAIA meeting or conference venues. WII has been successful in receiving the endorsement of IAIA, for training courses taught at

WII. The endorsement has entitled us to use IAIA logo on all promotional material and on the certificates awarded to the participants at WII over the next three years. Two training courses taught at WII since the grant of endorsement by IAIA have already been taught.

Development of best practice guidance manuals

In the light of proposals received for consideration of the development, expansion and upgradation of linear projects through protected areas and other sensitive habitats, National Board for Wildlife (SC of NBWL) in its 32nd meeting held on 21 January, 2015 directed the Wildlife Institute of India (WII) to prepare a guidance document on 'Eco-friendly measures to mitigate the negative impacts on wildlife values from linear infrastructure development projects'. In response to this directive, WII has prepared the Best practice guide: Eco-friendly Measures to Mitigate Impacts of Linear Infrastructure. This document was reviewed by several national and international experts. Based on the request of the World Bank, the guidance document was show cased in international events that have relevance to promoting green infrastructure

Professional Support to Other Organisations

Professional support to the Indian Road Congress

Dr. Asha Rajvanshi was invited to serve on the Committee on Reduction of Carbon Footprint in Road Construction and Environment (G-3) for the period 2015-2017 of the Indian Roads Congress, which is a premier technical body for ensuring environmental conservation and sustainable development of highways projects in India. In the capacity of a member, Dr. Rajvanshi provided professional support to the above Committee of Environment of the Indian Roads Congress.

Professional Support to IAIA

IAIA (International Association for Impact Assessment is an interdisciplinary, non-profit professional society established in 1980. This professional body with over 2500 members representing EIA professionals, practitioners, government officials, project planners, administrators, teachers and students from across the globe is the leading global authority for advancing innovations and communication of best practices in all forms of impact assessment. Dr. Asha Rajvanshi and Dr. V.B. Mathur have been members of this association for over a decade and have actively contributed to the activities of the Biodiversity and Ecology Section. They have been directly involved in the planning of sessions for the annual meeting and in delivering of training courses. Based on her longstanding experience of imparting training in the field of Impact Assessment and the practical applications of IA, IAIA invited Dr Asha Rajvanshi to serve as the member of the IAIAs Committee for Professional Development Programme (PDP) to guide the development of a suite of web-based training courses. In this capacity, Dr Rajvanshi is providing professional support in the development of various training modules. Dr. Asha Rajvanshi has been recently invited to serve on the Awards Committee of IAIA.

Professional Support to Quality Council of India's National Registration Board for Personnel and Training

As part of the ongoing initiative of MoEFCC for revision of the environmental clearance process, the Quality Council of India initiated the development of registration scheme for EIA consultants through National Registration Board for Personnel and Training (NRBPT). Subsequently in March 2012, Dr. Asha Rajvanshi was invited to serve on Accreditation Committee for registration of EIA consultant organizations for NRBT registration. During the reporting year, Dr. Rajvanshi continued to provide professional inputs in the evaluation of applications received for seeking accreditation of QCI and continued to provide professional support to QCI in taking forward the scheme through contributions in several consultative meetings organized during the reporting year.

Contributions to 'Intergovernmental Platform on Biodiversity and Ecosystem Services' (IPBES)

As one of the the three Coordinating Lead Authors for chapter 2 Nature's benefits to people and quality of life of the Asia Pacific Regional Assessment on Biodiversity and Ecosystem Services, Dr. Asha Rajvanshi coordinated the development of the chapter, contributed to the writing of the sections, reviewed the contributions from lead authors and contributing lead authors to the chapter and presented the first draft to the IPBES and contributed to the development of key messages emerging from the Asia-Pacific regional assessment.

In addition to this, Dr Asha Rajvanshi also coordinated the IPBES Asia-Pacific Workshop on Diverse Values, 10-11 November, 2016, WII, Dehradun to catalyse the use of the guide on

multiple conceptualizations of values across the Asia-Pacific region and, in specific, across the IPBES Regional and Land Degradation & Restoration assessments.

Invitation to join ValuES IES Trainer Network of GIZ for Capacity Building on Integrating Ecosystem Services into Development Planning

Following the participation in the training of trainers (ToT) for the "Integrating Ecosystem Services into Development Planning (IES) organised by GIZ in Eshborn; Dr Asha Rajvanshi was invited to become the part of the ValuES IES trainer network. The primary objective of the platform is the creation of a group of excellent trainers who can help the ValuES project in conducting the IES training as CO-Trainers throughout the world. Moreover, the platform was designed to allow participants to share their insights and opinons on delivering the IES training, and participate in webinars organised by ValuES TEAM, upload important and relevant publications in the field of ecosystem services, and inform participants about upcoming international events and processes.

Invitation to be a Part of the Academic Panel

Following the development of SEA guidance tools kits and practice manuals under the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)-WII collaborative project project: Strategic Environmental Assessment - Increasing Planning Efficiency & Reducing Conflicts of Interest, Deutsche Gesellschaft fur Internationale Zusammenarbeit (GIZ) GmbH is providing technical cooperation to Department of Land Resources, Ministry of Rural Development, Government of India, for promoting Integrated Land use Planning and Management in India in the states of Odisha and Tamil Nadu. For the purpose of formulation of land use policies and related guiding documents in the two pilot states, a multi-sectoral working group (involving multiple state sectoral departments) is being formed. As part of the same, an academic expert panel is being proposed for guiding and vetting the policies and guiding documents. Dr. Asha Rajvanshi has been invited to be a part of this academic panel.

Contribution as a member of the working group of The Nature Conservancy onTrade-Offs Analysis for River Flow Management of the Middle Ganga

In an effort to enhance the ability of decision-makers to make informed and effective decisions, the Center for Ganga River Basin Management and Studies (CGRBMS), the Wildlife Institute of India (WII), and The Nature Conservancy (TNC) in partnership with NMCG (National Mission for Clean Ganga), and other entities (such as the World Wildlife Fund) have developed a framework for evaluating the consequences and trade-offs of alternative river flow management actions on biodiversity and ecosystem services.

As a member of WII team with expertise in the area of asessing the impacts of hydropower projects on ecosystem services, Asha Rajvanshi is contributing in the discussions of the working group for developing a framework for 'Analysis of Trade-Offs for River Flow Management of the Middle Ganga'.

Short-term Studies Undertaken for Different Agencies

Rapid assessment of the feasibility of establishing Katthiwada Wildlife Sanctuary, Madhya Pradesh

The Secretary, Govt. of India, MoEFCC vide D.O letter No. 3/87/80-IA-I(pt) dated 21st July, directed WII, Dehradun to carry out a quick survey of the proposed WLS and submit a feasibility report of Katthiwada forest to be declared as 'Sanctuary' or 'Natural Reserve' as ground situation may have changed radically following the initial EIA study that was conducted by WII in 2007. In response to the aforementioned request, vide letter No. WII/DWII/Misc/03/2014 dated 24th July, 2016, a team of WII faculty and researchers was constituted to conduct a rapid assessment of the feasibility of establishing Katthiwada Wildlife Sanctuary, Madhya Pradesh. The broad objectives of the study included: assessment of bio-diversity values of the proposed Katthiwada WLS; rapid assessment of social sentiments linked to the proposed Katthiwada WLS based on consultations with relevant stake holders and project proponents and accordingly suggest feasible recommendations and mechanisms based on ground situation of Katthiwada.

The report arising out of this study- Feasibility Study of Proposed Katthiwada Wildlife Sanctuary, Madhya Pradesh: Rapid Assessment Report was submitted to the Secretary, MoEFCC, Govt of India

Monitoring of sensor operated automated barriers on National Highway 37

In response to the directives of Hon'ble National Green Tribunal (NGT), the Government of Assam submitted a proposal for suggesting strategies to overcome the barrier effect of National Highway 37 on the wildlife of Kaziranga National Park. Consequently, National Green Tribunal (NGT) vide

order dated 13th January 2015 in the MA 142/2012 directed the State Government of Assam to ensure fixation of sensor operated automatic barriers at the animal corridors *i.e.*, the points where as per a survey conducted earlier identifiedthe animals crossingson the highway. In response to this, Govt. of Assam, submitted a report presenting the overview of animal sensor technologies available and being used in western countries, and the effectiveness and suitability of such measures in the Kaziranga landscape. The report then explored possible technologies that would be suitable to the landscape.

Subsequently an animal sensor system with thermal and optical cameras and barriers with signals was installed at one corridor along the highway as part of a pilot project. The NGT and vide Letter No. KNP/FG.733/Sensor/NH-37 dated 7th February 2017 directed the Wildlife Institute of India to monitor the efficacy of the installation of sensors. A team of researchers from EIA Cell of WII subsequently visited the project site to monitor the sensors from 3 – 11th March 2017.

Information Technology, Remote Sensing and Geographic Information System

The Information Technology, Remote Sensing and Geographic Information System facility is a part of almost all the wildlife research projects, education and training. The facility is available 24 hours a day to the faculty members, trainees, researchers, students and collaborators working with the institute. A large number of desktop computers configured with Windows, Linux and specialised analytical software for data processing are made available in the dedicated lab. The computer facility is provided hardware connected to a local area network (LAN). There are Intel Xeon servers for Internet, Intranet, database management and library automation services. The computer laboratory has a storage area network (SAN) system, and there are more than 300 nodes and 500 users on the WII LAN. Wi-Fi connectivity is provided in hostels, the guest house, classrooms, the auditorium, the board room and the Porta Cabin. The institute has 45 Mbps (1:1) Internet leased line connectivity. All the computers of the institute are provided with Internet and mailing services. The Geoinformatics Laboratory caters to the research and training programme of the institute. The laboratory is equipped with several workstations, an A0 scanner-cum-plotter and software, viz., ArcGIS, ERDAS Imagine, IDRISI, GRASS and several open source software packages for landscape-level analysis. A dedicated team is available to provide support and training in IT and geoinformatics. A module titled Remote Sensing, GIS and Landscape Ecology is conducted for the M.Sc., P.G. Diploma and Certificate courses at WII. Hands-on training is also provided to other graduate and post-graduate students and interns.

WII has a video conferencing facility consisting of Polycom HDX 8000 VC systems with high definition cameras and displays based on an IP Internet leased line connection. These systems are regularly used for conducting lectures, meetings, classes, interviews and presentations within the country and abroad.

During the reporting year, the following new activities were carried out by the IT and RS/GIS Cell:

Porting of WII website to WII Data Centre. The WII website at www.wii.gov.in, hosted at the Data Centre of the Indian Council of Forestry Research and Education (ICFRE), was ported to the web server at WII Data Centre.

Extension of Campus-wide Network. The computer network of the institute was extended to the following building/offices of the institute: (1) UNESCO C2C new building. The LAN was extended from the IT and GIS Cell at the institutional building to the new building of UNESCO C2C using a fibre optic cable for outdoor connections and a Cat6 UTP cable for indoor connections. This building has also been provided with a Wi-Fi facility. (2) The LAN was extended to the Tiger Cell and the offices of the CAMPA, NMCG and BioFIN projects.

Upgrading of Internet Leased Line Connection. The Internet lease line (ILL) connection on fibre optics was upgraded from 15 Mbps to 30 Mbps through Bharat Sanchar Nigam Limited (BSNL) to cater to the increased demand for Internet bandwidth and the gradual increase in the number of Internet users at the Institute.

Enterprise Security System for Campus-wide Network. For the complete security of all the computer systems on the institute's campus-wide network against various kinds of malicious threats, viz., viruses, Trojans, worms and spyware, the institute procured Seqrite (Quick Heal) Endpoint Security with a 300-users license valid for 3 years. Seqrite is a web-based management enterprise solution that integrates desktops, laptops and servers on the network.

Establishment of Storage Area Network (SAN) System. For central storage of data/information generated by the CAMPA-Dolphin and MStrIPES research projects, a SAN was established at the Data Centre of the Institute. The EMC VNXe3200 SAN system at

present has a total storage capacity of 40 TB (terabytes) consisting of SSD, SAS and SATA hard disk drives providing varying speeds of data accessibility. This SAN system can be upgraded to up to 500 TB of storage space.

New Procurement. The following new computer hardware and software were obtained by the institute during the reporting period:

Hardware. Desktop computers, 7; laptop computers, 19; workstation computers, 5; laser printers/MFPs, 10; computer network-managed switches, 4; Wi-Fi access points, 3; UPS systems, 14; SAN system with 40 TB storage space.

Software. Seqrite (Quick Heal) Endpoint Security with 300–users' license valid for 3 years; Grammarly@edu for 100 users.

Application of Geoinformatics in Research Projects. Geoinformatics technology is being used in most of the research projects of the institute for wildlife research and conservation. Work is in progress on the development of a spatial database on the boundaries of all the national parks, wildlife sanctuaries, conservation reserves and community reserves in the country. Similarly, digitisation of the boundaries of the divisions, ranges and beats of the 17 tiger range states in the country is in progress. The Country-level data on the climate, vegetation, topography and animal distribution is also in progress.

Wildlife Forensic and Conservation Genetics Cell

The Wildlife Forensic and Conservation Genetics Cell (WFCGC) was established to strengthen enforcement of the Wildlife (Protection) Act, 1972 of India. The main functions of the cell include identification of species from a variety of wildlife parts and products for forensic investigation and developing and maintaining a repository of wildlife reference samples of different species. Besides these, the WFCGC plays a role in sensitising enforcement agencies in crime scene examination and collection of evidence correctly through regular training and workshops. Being a focal agency in the Southeast Asian region, it also provides advanced training for wildlife crime analysis to the scientific organisations of the neighbouring countries, e.g., Nepal and Bangladesh, for capacity building to combat wildlife crime.

During 2016–2017, the cell received a total of 188 wildlife offence cases from enforcement agencies across the country, with 60.5% of these cases being from forest departments, 18% from the police, 18% from honourable courts, 1.5% from the CBI and 2% from the MoEFCC. An assortment of biological products was received for species identification, and 69% of these contained tissue samples requiring DNA-based techniques and 31% requiring morphometric techniques for species identification. WFCGC provided reports on species identification for 300 cases and addressed 49 summonses of various honorable courts for appearances as an expert scientific witness. Apart from 300 cases that were resolved, WFCGC addressed a case of a leopard being burnt alive and identified the victim species from minute remnants found in the ash. WFCGC examined the online selling of a prohibited wildlife part on a famous e-commerce portal and confirmed it to be a genital part of a male monitor lizard, *Varanus sp*.

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Field exercises were conducted and lectures on 'crime scene management and evidence collection' delivered for officer trainees of the Diploma and Certificate courses of WII; for officer trainees at Indira Gandhi National Forest Academy (IGNFA); for Central Academy for State Forest Service (CASFOS); and for other forest officers. Hands-on training was also conducted on the identification of various body parts and products encountered in the illegal wildlife trade for forest officers and customs probationers. Along with these training programmes, popular lectures were delivered for various visitors/classes at WFCGC and at IGNFA and CASFOS, Dehradun.

The cell examined for identification dead birds killed by power lines in a prime habitat of the critically endangered great Indian bustard, Ardeotis nigriceps (GIB). Genetic analysis of the GIB is helping selection of the best founder populations for conservation breeding. WFCGC has also initiated a study on generating the genetic signature of the great one-horned rhinoceros for addressing rhino poaching cases through the RoDIS programme. New initiatives are

focusing on using multidisciplinary approaches and genetic, genomic and biochemical tools to address climate change impacts on soil micro-flora communities and understanding physiological impacts of multiple co-occurring anthropogenic disturbances on endangered carnivores.

Recently, the Ministry of Home Affairs, Government of India, issued a gazette notification for recognising WFCGC experts as 'Government Scientific Experts' under sub-section (4) of section 293 of the Code of Criminal Procedure (CrPC).

Wildlife Extension & Audio Visual Cell

This cell caters to the audio-visual needs of various academic activities. It maintains 16-mm films, video films, CDs/DVDs, a conference system, a projection system, audio-visual equipment, still cameras and video cameras with accessories and a photo library. During the reporting period, the cell provided support for all the workshops, seminars, meetings and courses; visiting classes; guest lectures; and celebrations of important days or events.

As part of its information dissemination activities, the institute prepares four quarterly issues of the e-newsletter of WII. The issues were uploaded on the website of the institute during the reporting period.

World Day to Combat Desertification celebrated, Dehradun, 17 June 2016.

WII celebrated the World Day to Combat Desertification (WDCD) on 17 June 2016. This year's theme for WDCD was 'Inclusive Cooperation for Achieving Land Degradation Neutrality', with the slogan 'Protect Earth. Restore Land. Engage People.' Land degradation neutrality is also one of the 17 targets of the Sustainable Development Goals.

Speaking on the occasion, Dr. V.B. Mathur, Director, WII, reiterated that '*Over 2.6 billion people in the world depend directly on agriculture, out of which over 1.5 billion people are globally affected by land degradation. Approximately 40% of the world's degraded land occurs in areas with the highest incidence of poverty, affecting almost 74% of the world's poor'. He said that 'a global effort is needed to reverse the impacts of land degradation which affect the sustainability of the entire world.*'

The guest of honour, Dr. P.K. Mathur, Former Dean, Faculty of Wildlife Sciences, WII; Dr. Nita Shah, independent consultant; and Dr. Sutirtha Dutta, Project Scientist, WII, gave presentations on the causes of desertification, the need to develop a National Dryland Policy and implement mitigation measures to achieve land degradation neutrality. A poster on the causes and impacts of desertification and a roadmap to halt its spread was also released on the occasion. The event witnessed the active involvement of more than 100 participants including faculty members, staff members, researchers and M.Sc. students of WII, Ph.D. students from Doon University and forestry students from Dolphin P.G. Institute, Dehradun.

Seventh Himalaya Day Celebrations at Nayar River, 9 September 2016.

Himalaya Day has been celebrated on 9 September since 2010 to create awareness to save the Himalayan range as it provides a lifeline for millions of people living in the mountains and in the northern plains of India. WII celebrates this day each year by organising training workshops, talks and seminars. This year, the theme for the Himalayan Day celebrations was 'Ecological Services of Rivers'. Therefore, WII celebrated the Seventh Himalayan Day by organising a training-cum-conservation awareness workshop on 'Ecological Services of the Himalayan Rivers' at the bank of the River Nayar, in Pauri District, which is one of the most important rivers for golden mahseer conservation in Uttarakhand. This workshop was organised under the National Mission for Sustaining the Himalayan Ecosystem project, funded by the Department of Science and Technology. A total of 50 participants comprising school students, forest officials and staff members from the Uttarakhand Forest Department and representatives of the fishermen community of the area participated in this workshop, which was organised at Government Inter College at Bilkhet, Pauri.

Wildlife Week Celebrations at WII, Dehradun, 1 October 2016.

The XIV Wildlife and Environment Quiz 2016—a collaborative activity of WII and the Friends of The Doon Society (FoDS)—was organised at WII to mark the celebrations of the Wildlife Week, 2016. Twenty-three schools from Dehradun and Mussoorie participated in the preliminary round. The top five scorers in the preliminary round were adjudged the finalists. Wynberg Allen School, Mussoorie, topped the list and won the WII-FoDS Sameer Ghosh Memorial Nature and Wildlife Rolling Trophy, Shield and Book Prize. Ann Mary School won the second prize and received the WII-FoDS Book Prize, and Welham Girls' School won the third prize and received the WII-FoDS Book Prize.

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Constitution Day Celebrated at WII, Dehradun, 26 November 2016.

Constitution Day was celebrated on 26 November 2015 for the first time by the Government of India as part of the 125th birth anniversary celebrations of Dr. B.R. Ambedkar. The institute celebrated Constitution Day on 26 November 2016 as directed by the Ministry of Social Justice and Empowerment, Government of India. The objective of the celebrations was to increase awareness about the Constitution of India among the employees. The following programmes were organised on this occasion: (1) The preamble to the Constitution was read out in Hindi and English by all the participants on this day. (2) A lecture focusing on the main parts of the preamble to the Constitution was delivered. More than 40 employees, officers and researchers attended the programme, which was held at the institute campus.

Institute's Efforts towards Harnessing Green Energy, Dehradun, 26 January 2017.

The Government of India has introduced several schemes for harnessing alternate sources of energy. In this regard, WII installed a rooftop solar system of 85 kW capacity in its campus, which started functioning on Republic Day. Dr. V.B. Mathur, Director, WII, inaugurated the plant on 26 January 2017 in the presence of officials, staff members, officer trainees and M.Sc. students of the institute. The solar plant will generate about 20% of the total electricity consumption of the institute in the first phase. The percentage of solar energy generation will be increased gradually.

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Flag-off of the Science Express Climate Action Special at Safdarjung Railway Station, New Delhi, 17 February 2017.

Science Express is an innovative mobile science exhibition mounted on a 16-coach AC train, traveling across India. This unique initiative was launched in October 2007 by the Department of Science and Technology, Government of India. The Science Express Climate Action Special (SECAS) is a unique collaborative initiative of the MoEFCC, DST, Department of Biotechnology (DBT) and Ministry of Railways, Government of India, WII and Vikram A. Sarabhai Community Science Centre (VASCSC). The ninth phase of the Science Express as SECAS is scheduled to run from February to September 2017, over 19,000 km, during which it will be exhibited at 68 stations across India. The state-of-the-art exhibition on board the SECAS aims to create awareness among various sections of society as to how climate change can be combated through mitigation and adaptation. The exhibition is open to all but primarily targets students and teachers.

The ninth phase of Science Express as 'Science Express Climate Action Special II' was flagged off by Dr. Harsh Vardhan, Hon'ble Minister of Science and Technology and Earth Sciences and Mr. Anil Madhav Dave, Hon'ble Minister of State for Environment, Forest and Climate Change, Government of India, from Delhi Safdarjung Station. Mr. Suresh P. Prabhu, Hon'ble Minister of Railways, Government of India, joined the programme through video conferencing from Goa. Mr. A.N. Jha, Secretary, Environment, Forest and Climate Change, Government of India, also graced the event. The Hon'ble Ministers also released the SECAS brochure prepared by WII. A team of the institute led by Dr. V.B. Mathur, Director, attended the ceremony and was involved in some activities.

Great Backyard Bird Count (GBBC) 2017 at WII, Dehradun, 17-20 February 2017.

Great Backyard Bird Count (GBBC) is a popular citizen science event that collects valuable information pertaining to the distribution and abundance of birds across the globe. Events like these demonstrate the power of engaging citizens

in learning about the natural world and monitoring how it is changing. WII, along with 289 other campuses (including research stations, government institutions, schools, colleges, universities and corporate offices) across India, participated in the count, which was carried out over 4 days. As part of the count, birders in WII were grouped into four teams, and they surveyed the WII campus and surrounding areas. Altogether 4862 individuals of 146 species were recorded during the campus bird count period. Among them, 30 individuals of eight species, i.e., warbler sp., swallow sp., swift sp., etc., were unidentified. Birds like the rose-ringed parakeet, Indian spot-billed duck, jungle babbler and red-vented bulbul were the most frequently seen birds, and a total of 25 bird species were recorded only once during the count, including the Eurasian wryneck, Himalayan buzzard, white-tailed ruby throat and Himalayan flameback.

A total of 37 people participated in the campus bird count. Field activity was organised on 19 February 2017 to introduce birds and birdwatching to the kids in the WII campus. A checklist of 15 birds was prepared at the end of the count by the children.

Wildlife Day 2017 Celebrations, Dehradun, 3 March 2017.

WII and the WII-ENVIS Centre on Wildlife and Protected Areas celebrated World Wildlife Day. This day is celebrated to mark the historic signing of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) at the 68th session of the United Nations General Assembly on 20 December 2013. Events are organised around the world to raise awareness about the world's wild animals and plants. The theme for this year's celebration was 'Listen to the Young Voices'.

Dr. V.B. Mathur, Director, WII, highlighted the challenges of wildlife conservation in the country in his welcome address and emphasised the need to create awareness about threats faced by wildlife and the role that could be played by youth in addressing this gap. Dr. Jon C Day, Director, Ecosystem Conservation and Sustainable Use, Great Barrier Reef Marine Park Authority, and guest of honour, gave a talk titled 'Current and Emerging Threats to Coastal and Marine Biodiversity Conservation: Experiences from the Great Barrier Reef, Australia'. The talks were followed by an extempore speech competition. The theme of the competition was environment/forest/wildlife conservation issues. Eleven students participated in the competition, and the event was witnessed by an audience of over 140 people including faculty members, researchers and students of WII and undergraduate/postgraduate students from Doon University and Graphic Era University, Dehradun.

Library & Documentation Centre

The Library and Documentation Centre (L & DC) of WII plays a vital role in disseminating information to a wide range of users including scientists, researchers and wildlife managers. It was established in line with WII's mission to be a multidisciplinary information and learning resource centre on biodiversity conservation and management. It has the following objectives: (1) To serve as a repository of all the wildlife-related literature published in India. (2) To acquire, organise and disseminate all the literature relevant to biodiversity conservation and related fields. (3) To serve the user readership through normal and special library and information services. (4) To establish and maintain links with other national information systems in India and other countries to ensure a free flow of information at national and international levels. (5) To serve as a training centre for information personnel and users. (6) To bring out periodic updates/bulletins on current content of periodicals, research in progress, unpublished research literature, i.e., dissertations and theses, and compilation of bibliographies on various themes for ENVIS bulletins and a database for WII publications.

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The L&DC now holds 28,244 books, 8802 maps/toposheets and more than 7161 bound volumes of old and rare journals. The library also maintains a good collection of scientific papers numbering 11,150. It subscribes to more than 450 print and online journals. The L&DC is fully computerised, using LIBSYS (Library Management Software), UNESCO'S WINISIS software, barcodes and related technologies. All library users, i.e., researchers, officer trainees and faculty members, can access online journals and

online databases subscribed by the L&DC through the Intranet. The current content of the latest print journals is also updated in the Intranet. Being connected to the library facility, the users are privileged to access all in-house databases such as books, reprints, Indian wildlife abstracts, the map/toposheet collection, press clippings and specialised bibliographic databases (Musk Deer, Application of Telemetry in Wildlife, Wildlife and Protected Area Management in Madhya Pradesh, Mountain Ungulates, Rainforests Conservation in India, Ungulates of India, Rajaji National Park, Galliformes of India, Freshwater Turtles of India, Telemetry in Wildlife Science, Coastal and Marine Protected Areas of India, Water Birds of India, Ecology and Management of Grassland Habitats in India, Bibliography on the Fauna and Micro-flora of the Indian Himalayan Region). Users can access the online database, i.e., Indiastat.com, through the Intranet. The L&DC provides a variety of library and information services to its users.

During the reporting period, approximately 30,000 documents were issued and consulted. The Value Added Service was provided to 2500 clients, and the Ready Reference Service was provided to approximately 250 clients. Approximately 300 queries were from outside users were attended to, and more than 3500 bibliographic references were provided to users. The in-house databases were regularly updated during the reporting period. The WII publication database was updated by adding the research papers, theses, reports, popular articles, papers presented and other publications brought out in this period. Specialised bibliographies were also compiled for different courses and on user request. The E-Document Delivery Service was also provided to outsiders during this period.

ENVIS Centre on Wildlife and Protected Areas

The Ministry of Environment, Forest and Climate Change, Government of India established the 23rd Centre on Environment Information System in September, 1997 at Wildlife Institute of India. The thematic area of WII ENVIS Centre is 'Wildlife and Protected Areas'. The mission of ENVIS is to support and facilitate the diverse group of clientele from policy makers to researchers and industries and promote national and international level cooperation and exchange of environmental data and information through a nation-wide network. The goals of WII ENVIS Centre are to: (i) Build up a repository and act as a dissemination centre for information on wildlife sciences; (ii) Provide information for decision-making at the apex level relating to conservation and development; (iii) Establish a database on Protected Area Network in India; and (iv) Promote national and international co-operation through networking and exchange of wildlife related information.

During the reporting period the ENVIS bulletin on Bibliography on the Fauna and Microflora of the Indian Himalayan Region. Vol. 18 brought out by the Wildlife Institute of India, ENVIS Centre on "Wildlife & Protected Areas" was released by Dr. M.M. Kutty, Additional Secretary, Ministry of Environment, Forest and Climate Change, New Delhi during the XXX Annual Research Seminar of Wildlife Institute of India held on 29 September 2016 in presence of Dr. V.B. Mathur, Director, WII; Dr. G.S. Rawat, Dean, WII and Shri Vinod Rishi, Former Additional Director General (Wildlife), MoEF, New Delhi.

This special ENVIS issue was edited by Dr. S. Sathyakumar, Scientist-G and covers 8 thematic sections viz. Mammals, Birds, Herpetofauna, Fish, Invertebrates, Soil Microfauna, Soil micro-flora and Lichen. This is the first issue which showcases the micro flora and fauna found in the Indian Himalayan region.

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National Wildlife Database Cell

The objectives of the computer-based National Wildlife Database are to (1) provide readily accessible and comprehensive information on the conservation status of biogeographic regions, habitat types, individual animal species and the network of protected areas in the country; (2) establish linkages with researchers, protected area managers and planners and with other data centres; and (iii) facilitate research and training activities related to wildlife by providing bibliographic references pertaining to protected areas, habitat types and animal species.

During 2016–2017, the main thrust of the activities was on updating the Protected Areas, Species

and Wildlife Bibliography databases on the basis of current information collected from various published/unpublished sources during the above-mentioned period. The Protected Area Database of the country has been updated, and presently there are 764 protected areas including 103 national parks, 543 wildlife sanctuaries, 45 community reserves and 73 conservation reserves in the country, covering 1,62,024.69 km2, which is 4.93% of the total geographical area of the country. The Species Database was corrected and updated by adding information on the distribution of mammalian species in various protected areas. The Bibliographic Database was updated by adding current literature published on Indian wildlife in various journals/periodicals during the reporting period. The Review of the Wildlife Protected Area Network was updated by incorporating the latest information. The Trainees Database was updated further, and now there is information on 684 Diploma and 577 Certificate officer trainees trained in various courses, including 244 foreign nationals. The website of the National Wildlife Database was updated further by incorporating the latest information. Nearly 200 queries were received, and outputs were provided in various desired formats.

Herbarium

During the reporting period, the herbarium staff provided inputs in various field activities and surveyed different protected areas. Approximately 375 plant species were identified that were collected by research scholars, Diploma and Certificate trainees and faculty members from various parts of the country, such as the WII campus, Himachal Pradesh and Trans-Himalaya (Niti Valley, Nanda Devi Biosphere Reserve) and Kedarnath Wildlife Sanctuary, Kailash Sacred Landscape and Askot Landscape in Pithoragarh. Apart from specimens, ca. 70 photographs were also identified from various protected areas as well as locations outside protected areas. During the reporting year, ca. 600 species of lichen were incorporated in the herbarium.

Research Laboratory

The WII's research/ teaching laboratory is well equipped with advance equipment like Atomic Absorption Spectrophotometer, High Performance Liquid Chromatography, UV-Visible Spectrophotometer, Microwave Reaction System, Fiber and Fully Automatic Nitrogen Analyzers, Millipore Water Purification System, Digital pH & Conductivity Meter, -84 Deep Freezer, Flame Photometer, Digital Analytical Balances, Stereomicroscope. These equipments are required for analyzing various Physio-chemical parameters and analysis of nutrient content biological samples. These laboratory facilities are used for teaching and conducting practical classless for various ongoing courses of the Institute as well as other organizations / Universities around Dehradun. This includes analysis of wild animal's pellets, dungs and carnivore scats, collection & preservation of biological materials, determination of age and sex of wild animals based on the body parts, osteology of mammals, Photomicrography and analysis of ecological (plant, water and soil) samples for various purposes.

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During the reporting period, a total of 1,320 samples were analyzed in the Research, Analytical and Wildlife Biology Laboratory. Of which 310 plant samples were analyzed for ADF, NDF, Lignin, Cellulose, Crude Protein, Tannin, trace and heavy metals like Phosphate, Calcium, Magnesium, Zink, Iron, Copper, Nickel, Manganese, Chromium and Lead. Rest 115 soil samples were also analyzed for Total Nitrogen, trace and heavy metals. Total 730 scat samples of Tiger, Leopard, Jackal, Wolf, Wild Dog and Sloth Bear and 195 dropping samples of Chital, Sambar and Nilgai were also analyzed for food habits studies. In addition to this Photomicrography of all the above samples were also done with measurement software. The laboratory staff also prepared a database on the microscopic pictures taken of the slides and available in the computer system of Wildlife Biology Laboratory for the reference of the users.

The technical inputs in various fields training program were also provided by the laboratory staff which includes demonstration of camera trap, mist netting for birds, radio telemetry and use of GPS.

Landscape Ecology and Visualisation Laboratory

The National Mission for Sustaining the Himalayan Ecosystem (NMSHE), a programme

under the National Action Plan for Climate Change of the Prime Minister's Office, is being coordinated by the DST, Government of India. Six task forces have been identified and are being implemented by six national research institutes including WII, which has been assigned the task force 'Micro-flora and Fauna'. Under this task force, WII is implementing the project 'Assessment and Monitoring of Climate Change Effects on Wildlife Species and Ecosystems for Developing Adaptation and Mitigation Strategies in the Indian Himalayan Region'. One of the objectives of this project is to set up a Landscape Ecology and Visualisation Laboratory. It is a pioneering state-of-the-art facility integrating field-based biological research equipment, a data centre, a visualisation and communication facility, teaching devices and a map production facility at one place.

The Landscape Ecology and Visualisation Laboratory (LEVL) was formally inaugurated on 17 December 2016 by Mr. Ajay Narayan Jha, Secretary to the Government of India. Speaking on the occasion, Mr. Jha, who is also the Chairman of the WII Governing Body, appreciated the initiative taken by the institute in establishing a state-of-the-art facility that will greatly facilitate both environmental decision-making at the country level and articulating India's position during international negotiations. This 'inspiring facility' will also serve as a role model for other scientific institutions as well as for the MoEFCC, he added.

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Campus Development

The following works have been completed during the reporting period: (1) The works of repair/upgrading of kitchen and dining hall of the New Hostel and Old Hostel blocks; (2) repair of two Type IV quarters in Block III; (3) provision of a water storage tank for 40 rooms in the New Hostel block; (4) Provision of a false ceiling, PVC sheet flooring, LED lights, work stations and office chambers in office rooms N-23, N-24, N-2 and O-32; (5) covering the open space for the utensils washing area in the Old Hostel and Canteen; (6) installation of a garden gym in the sports complex at WII; (7) provision of furniture in the New Hostel's dining hall (Diploma wing); (8) establishment of Landscape Ecology and Visualisation Centre; and (9) provision of Porta Cabin for Academic Cell.

Tiger Cell

In order to achieve the goal of tiger conservation through a holistic approach based on science, the Tiger Cell was initiated at WII in collaboration with the NTCA in August 2016. The main mandates of the cell include (1) periodic, country-wide assessment of tigers, co-predators, prey and their habitat; (2) ecological monitoring of the tiger reserves; (3) implementation of MSTrIPES in tiger reserves; (4) appraising sites and evaluating development projects vis-à-vis the tiger distribution, dispersal and corridor network; (5) maintaining the National Tiger Photo Database for controlling the illegal wildlife trade related to tigers; and (6) providing training as and when required for ecological monitoring, research and management.

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During the reporting period, the major activities of the cell were the following: (1) Evaluation of 42 proposals for developmental projects in the tiger landscapes of the entire country and reports communicated to NTCA and MoEFCC for the Standing Committee of National Board of Wildlife. (2) Development, field testing and customisation of multilingual Android mobile applications for the MSTrIPES patrol and ecological modules and desktop software. (3) Development of patrol booklets in the Hindi, English, Bengali, Marathi, Assamese, Tamil, Telugu, Kannada, Odiya and Malayalam languages. (4) The cell received photographs of eight tiger skins from different crime locations of India and Nepal and analysed them using the program Extract Compare. Two of them matched pictures in the over-35,000 tiger photographs maintained in the National

Repository of Camera Trap Photographs of Tigers at the cell. (5) MSTrIPES Phase II training workshops were conducted for about 350 personnel from NTCA, state forest departments, WWF India and Wildlife Conservation Trust (WCT) at Bandipur, Kanha, Corbett and Similipal tiger reserves and Mollem National Park, Goa. (6) Phase IV data for 2016–2017 received from eight tiger reserves were archived. The cell imparted training on sampling and data analysis for Phase IV monitoring to research personnel and forest department staff members from SFRI, Jabalpur, Nagarjunasagar Srisailam and Corbett tiger reserves, Periyar Foundation, Karnataka Forest Department and Sitanadi Udanti Tiger Reserve. (7) The tiger and leopard distributions in 22 protected areas of the country were mapped on the basis of genetic analyses. (8) Protected areas of Goa and the connectivity of tigers along the Sahyadri–Goa–Western Ghats were mapped. (9) Five markers for the mitochondrial DNA of tigers, 11 microsatellite panels each for leopards and sloth bears, nine microsatellite primers for wild dogs and 20 microsatellites for Asiatic lions were standardised. (10) Vulture data for the entire country were mapped in a report titled 'Status of Vultures in Tiger Landscapes of India'. (11) State forest departments were assisted with developing and implementing tiger recovery programmes.

Other miscellaneous tasks addressed by the cell. (1) Providing inputs to the development of the Tiger Conservation Plans of Bor and Nawegaon tiger reserves. (2) Developing a training manual titled 'Protocols for Monitoring Habitat Quality and Wildlife Populations: Tiger Landscapes', for monitoring tigers in all the Tiger Range Countries coordinated by Global Tiger Forum (GTF)". (3) Monitoring the assessment of the status and distribution of the mammal fauna of Madhya Pradesh.

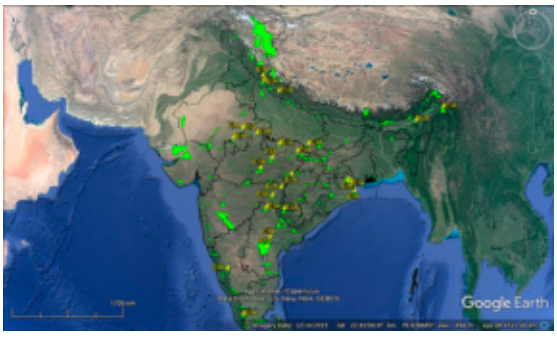

Figure: *Tiger Reserves and Landscapes across India where assessment of developmental projects were carried out by Tiger Cell during April 2016- March 2017.*

Figure: *Countrywide coverage of Tiger Cell for imparting training during April 2016- March 2017.*

Right To Information (RTI)

Dr. Anju Baroth, in the capacity of Nodal Officer, RTI Wildlife Institute of India facilitated the generation of information to be hosted on the WII-RTI portal as part of suo moto disclosure under Section 4 of RTI Act, 2005. Following are the details of RTI and First appeal for the year April 2016-March 2017:

Category	Opening Balance as on 1st April, 2016	No. of applications received as transfer from other Pas u/s 6(3)	Received during the year (including cases transferred to other PAs)	No. of cases transferred to other Pas u/s 6(3)	Decisions where requests/ appeals rejected	Decisions where requests/ appeals accepted	Closing balance as on 31 March 2017
RTI	2	12	55	3	1	64	1
First Appeal	0	1	11	0	0	11	1

Details of Vigilance Cases for the year 2016-17 at Wildlife Institute of India, Dehradun

Vigilance Cases as on 01.04.2016	No. of vigilance cases added during the year	No. of vigilance cases pending as on 31.03.2017
Nil	Nil	Nil

UNESCO CATEGORY 2 CENTRE ON WORLD NATURAL HERITAGE MANAGEMENT AND TRAINING FOR THE ASIA AND PACIFIC REGION AT WILDLIFE INSTITUTE OF INDIA

The UNESCO Category 2 Centre (C2C) on World Natural Heritage Management and Training for Asia and the Pacific Region has been established at the Wildlife Institute of India, Dehradun. The Agreement between Government of India and UNESCO for the establishment of this Centre in Dehradun was formally signed on 2nd September, 2015 by the Director General of Forests, Ministry of Environment, Forest and Climate Change, Government of India as counterpart to the signature by the Director General, UNESCO, Paris, following approval by the Union Cabinet on 5th August, 2015. The Centre's mission is to strengthen implementation of the World Heritage Convention in the Asia-Pacific Region by building the capacity of all those professionals and bodies involved with Natural Heritage site inscription, protection, conservation and management in Asia and the Pacific region, through training, research, dissemination of information and network building.

During 2016-17, the Centre was actively involved in supporting nomination of World Heritage properties, capacity building, research and monitoring, and outreach programmes as part of its mandate for the year.

Nominations/Dossiers

A key objective of the Centre is to contribute towards enhancing representation of properties on the World Heritage List. Towards this end, the Centre offers technical support to State Parties in the process of nomination of World Heritage Sites. In 2016, India had the unique distinction of having three successful inscriptions on the World Heritage List viz. Khangchendzonga National Park, Sikkim, Archaeological Site of Nalanda Mahavihara (Nalanda University), Nalanda and The Architectural Work of Le Corbusier, Chandigarh. The Centre was instrumental in the nomination of Khangchendzonga National Park, Sikkim by providing technical support to the State and Central Governments for its inscription as India's first Mixed World Heritage Site. The Centre organised a celebration of these inscriptions at India International Centre, New Delhi on 4th August, 2016 with Dr. Mechtild Rössler, Director of UNESCO World Heritage Centre, Paris and Shri Vinay Sheel Oberoi, Secretary, Ministry of Human Resource Development, Government of India as distinguished guests. A Consultative Dialogue was organised at WII, Dehradun on 23rd November, 2016 to discuss the different dimensions of Kailash Sacred Landscape as a proposed Cultural Landscape/Mixed World Heritage Site. Participants included representatives from UNESCO and its Advisory Bodies viz. IUCN, ICOMOS and ICCROM; Head/ Representative of C2Cs, UNESCO Chair(s), ICIMOD and other invited national and international experts from the Government of India and State of Uttarakhand, academic institutions, non-government organizations among others. Additionally, the Centre was intensively involved with the nomination process of Bhitarkanika Conservation Area Odisha as a proposed World Heritage Site.

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Capacity building Training and Workshops

Among the core functions of the Centre is to conduct short and long term capacity-building activities, including workshops, courses and international conferences. A specialised training programme on Disaster Damage and Loss Assessment in Natural Heritage and Cultural Sites using Geospatial Techniques was organised for World Heritage professionals and stakeholders of Asia and the Pacific region at Dehradun from 11th September, 2016 to 2nd October 2016. To mainstream local communities, media representatives and civil society organisations in World Heritage processes, the Centre organised thematic workshops on Nature-Culture linkages, Cultural Landscapes, Mixed and Trans-boundary Heritage properties during 23-25th November, 2016. A team from the Centre conducted a session titled 'Natural Heritage Sites and their roles in Ecosystem Services provisioning, Disaster Risk Reduction and Climate Change Adaptation in the Asia-Pacific Region' at the 2016 Asian ESP Conference: Ecosystem Services for Nature Based Solutions held in Ansan-si,

Republic of Korea on 3rd June 2016 as well as a session on the topic 'Making World Heritage Risk Resilient' at the Asian Ministerial Conference on Disaster Risk Reduction in New Delhi on 3rd November, 2016. The Centre also collaborated with Universities, Institutes and NGOs for teaching modules and internship programmes focusing on the objectives of the World Heritage Convention and related aspects in the field of heritage. The Centre introduced a UNESCO C2C India 'Visiting Fellows Programme' in the current year, which is intended to host scholars and practitioners working on subjects relevant to World Heritage.

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Advisory Services

The Centre provided advisory services and technical inputs on World Natural Heritage issues to Central and State Governments of India, including for conservation and management of World Heritage Sites in India, State of Conservation reports (Manas Wildlife Sanctuary, Assam), and State Party interventions at the 40th Session of the World Heritage Committee Meeting held in Istanbul, Turkey in July, 2016 .

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Outreach

A basic objective of the Centre is to raise awareness among the general public, youth and wider audience, in particular of the importance of natural World Heritage and the need to protect it. Being the youngest member of the global UNESCO Category 2 Centres fraternity, it was the Centre's privilege to host the 5thAnnual Coordination Meeting of the UNESCO World Heritage-related Category 2 Institutes and Centres at WI on 22nd November, 2016. The event was also graced by Dr. Mechtild Rossler, Director, World Heritage Centre, Paris, along with representatives from other Category 2 Centres and World Heritage Advisory Bodies. Other outreach activities included Celebration of World Heritage Day in Dehradun on 18th April, 2016; Celebration of Green Hub Festival in Assam on 14th May, 2016; and organising a Natural Heritage Fest in Literature, Arts & Culture in February 2017, celebrated both in Dehradun and in Great Himalayan National Park Conservation Area, a World Heritage Site in Himachal Pradesh. The Centre continued to publish its quarterly e-bulletin, which is a compilation of news and relevant articles pertaining to Natural World Heritage sites in the Asia-Pacific region; four issues were released during the year.

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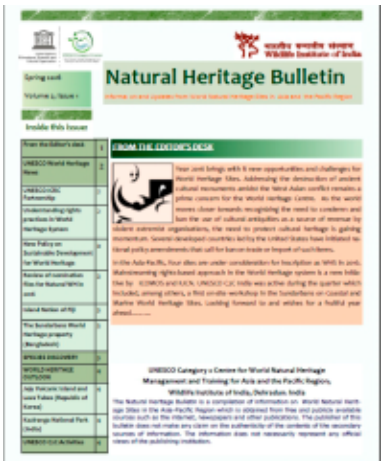

Research & Monitoring

A function of the Centre is to undertake research on identified priority areas related to natural World Heritage protection and management. Research was undertaken on water-quality monitoring at Keoladeo National Park, a World Heritage Site in Rajasthan; Evaluation of the Outstanding Universal Values of Western Ghats (Sahyadri Sub-cluster) for provisioning & regulating ecosystem services; and nature-culture linkages in the Apatani Cultural Landscape of Arunachal Pradesh.

Training and Workshops attended by C2C Staff

Faculty and staff of UNESCO C2C at WII attended several national and international trainings and workshops such as the 40th Session of the UNESCO World Heritage Committee Meeting at Istanbul, Turkey; IUCN World Conservation Congress in Hawaii, USA; Transboundary Landscape Governance in Nepal; Workshop on Nature Culture Linkages in Heritage Conservation in Asia and the Pacific in Japan; Sustainable Development Summit in Assam; and Education for Sustainable Development (ESD) Leadership Training in New Delhi.

Collaborations

Through its activities during the year, UNESCO C2C India collaborated with a range of sub-national, national and international institutions and organizations *viz.* Uttarakhand State Council for Science and Technology (UCOST), Dehradun; International Centre for Integrated Mountain Development (ICIMOD), Nepal; Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP), IIRS, Dehradun; Manipur Forest Department; Himachal Pradesh Forest Department; Maharashtra Forest Department; Odisha Forest Department; Assam Forest Department; Assam State Biodiversity Board; Indo-US MoU for Natural World Heritage Conservation; Green Hub, Tezpur, Assam; National Disaster Management Authority; and Tata Institute of Social Sciences, Mumbai.

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VISITORS

- HNB Garhwal University, Srinagar (Garhwal), Uttarakhand, 5 April 2016.
- Abhilashi Institute of Life Sciences Tanda, Tehsil Balh, Distt. Mandi, Himachal Pradesh, 7 April 2016.
- Uttaranchal (P.G.) College of Bio-Medical Sciences & Hospital, Sewla Khurd, Dehradun, 7 April 2016.
- Tamil Nadu Forest Academy, Coimbatore, 11 April 2016.
- Dolphin (P.G.) Institute of Bio-medical & Natural Sciences, Manduwala, Dehradun, 6 May 2016.
- International Conservation and Forest Ecosystem Canada and WII, Dehradun, 17-30 May 2016.
- T.S. Forest Academy, Dulapally, Hyderabad, 5 June 2016.
- Indian Institute of Remote Sensing, Dehradun, 9 June 2016.
- Forest Training Institute and Rangers College, Sundernagar, Mandi, Himachal Pradesh, 28 July 2016.
- Central Academy of State Forest Service, Dehradun, 5 August 2016.
- Office of CCF, Uttarakhand, Forestry Training Academy, Haldwani, Nainital, 24 August 2016.
- Central Academy of State Forest Service, Burnihat, Assam, 31 August 2016.
- Uttarakhand, Forestry Training Academy, Haldwani, 2 September 2016.
- O/o CCF, Uttarakhand, Forestry Training Academy, Haldwani, 2 September 2016.
- Zakir Husain Delhi College, University of Delhi, 22 September 2016.
- Shri Roy Mathrani IAAS Addl Dy CAG International Centre for Information Systems & Audit of the Controller and Auditor General of India, Noida (U.P.), 24 September 2016.
- TERI University, New Delhi, 3 October 2016.
- Dolphin (Post Graduate) Institute of Biomedical & Natural Sciences Manduwala, Dehradun, 6 October 2016.
- Veterinary College, Bidar, Karnataka, 15 October 2016.
- Office of Divisional Forest Officer Training Division, Pinjore, Distt. Panchkula, 17 October 2016.
- Student from Veterinary College, Hebbal, Bengaluru, Karnataka, 20 October 2016.

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Eco task Force Javans, Dehradun, 5 December 2016.

- The Dean, Veterinary College, Hebbal, Bengaluru, 20 October 2016.
- Shri Pramod Gware, Assistant Professor, Department of Biotechnology, Anand Engineering College, Keetham, Agra, 21 October 2016.
- Sardar Bhagwan Singh P.G. Institute of Biomedical Science, Balawala, Dehradun, 24 October 2016.
- Shri Roy Mathrani, IAAS, Additional Dy. CAG International Centre for Information Systems & Audit of the Controller and Auditor General of India, Noida, 27 October 2016.
- Uttaranchal College of Science and Technology, Dehradun, 17 November 2016.
- Indira Gandhi National Forest Academy, Dehradun, 18 November 2016.
- Grace Academy, Dehradun, 28 November 2016.
- Tamil Nadu Agricultural University Forest College and Research Institute, Mettupalayam, 6 December 2016.
- Uttarakhand Forestry Training Academy, Haldwani, 6 December 2016.
- Raja Narendralal Khan Women's College, Midnapore, West Bengal, 7 December 2016.
- College of Forestry, Pannampet, Karnataka (Agricultural & Horticultureal University, Shivamogga), 9 December 2016.
- Indira Gandhi National Forest Academy, Dehradun, 15 December 2016.
- Shri Ajay Narayan Jha, Secretary, MoEFCC to Wildlife Institute of India on 17 December, 2016.
- Government Degree College Kamareddy, District, Telangana, 28 December 2017.
- The Maharaja Sayajirao University, Baroda, 11 January 2017.
- MoEFCC under training at FRI, Dehradun, 3 February 2017.
- Forest Training Institute & Rangers College, Sundernagar, Mandi, H.P., 7 February 2017.
- Central Academy of State Forest Service, Dehradun, 7 February 2017.
- B.Sc. Forestry, Nepal, 14 February 2017.
- Sh. Monish Mullick, IFS, PCCF (HRD & Pers. Mgmt), Uttarakhand, 27 February 2017.
- University of Kashmir, Srinagar, 27 February 2017.
- Central Academy of State Forest Service (CASFoS), Dehradun, 28 February 2017.
- School of Forestry & Environment (SOFE) SHUATS, Allahabad, 1 March 2017.
- Kathmandu Forestry College, Nepal, 2 March 2017.
- Indian Institute of Remote Sensing, Dehradun, 10 March 2017.
- Institute of Forestry, Hetauda Campus, Hetauda, Makwanpur, Nepal, 14 March 2017.
- ASPEE College of Horticulture & Forestry Navasari Agricultural University, Navasari,14 March 2017.
- Dr. Y.S. Parmar University of Horticulture & Forestry, College of Forestry, Nauni, Solan (H.P.), 16 March 2016.
- College of Veterinary & Animal Science, Bikaner Rajasthan University of Veterinary & Animal Sciences, Bikaner, 20 March 2017.
- Forestry Training Academy, Uttarakhand, 21 March 2017.
- Institute of Forestry, Pokhra Campus, Pokhra, Nepal, 23 March 2017.
- BSF Institute of Adventure & Advance Training, Madhowala, Doiwala, Dehradun, 27 March 2017.
- Institute of Forestry, Pokhra Campus, Pokhra, Nepal, 27 March 2017.
- Dr. Sameer Daniel, Asstt. Professor, COF, SHUATS, Allahabad, 29 March 2017.
- Purukal Youth Development Society Learning Academy (PYDS-LA), Dehradun, 30 March 2017.

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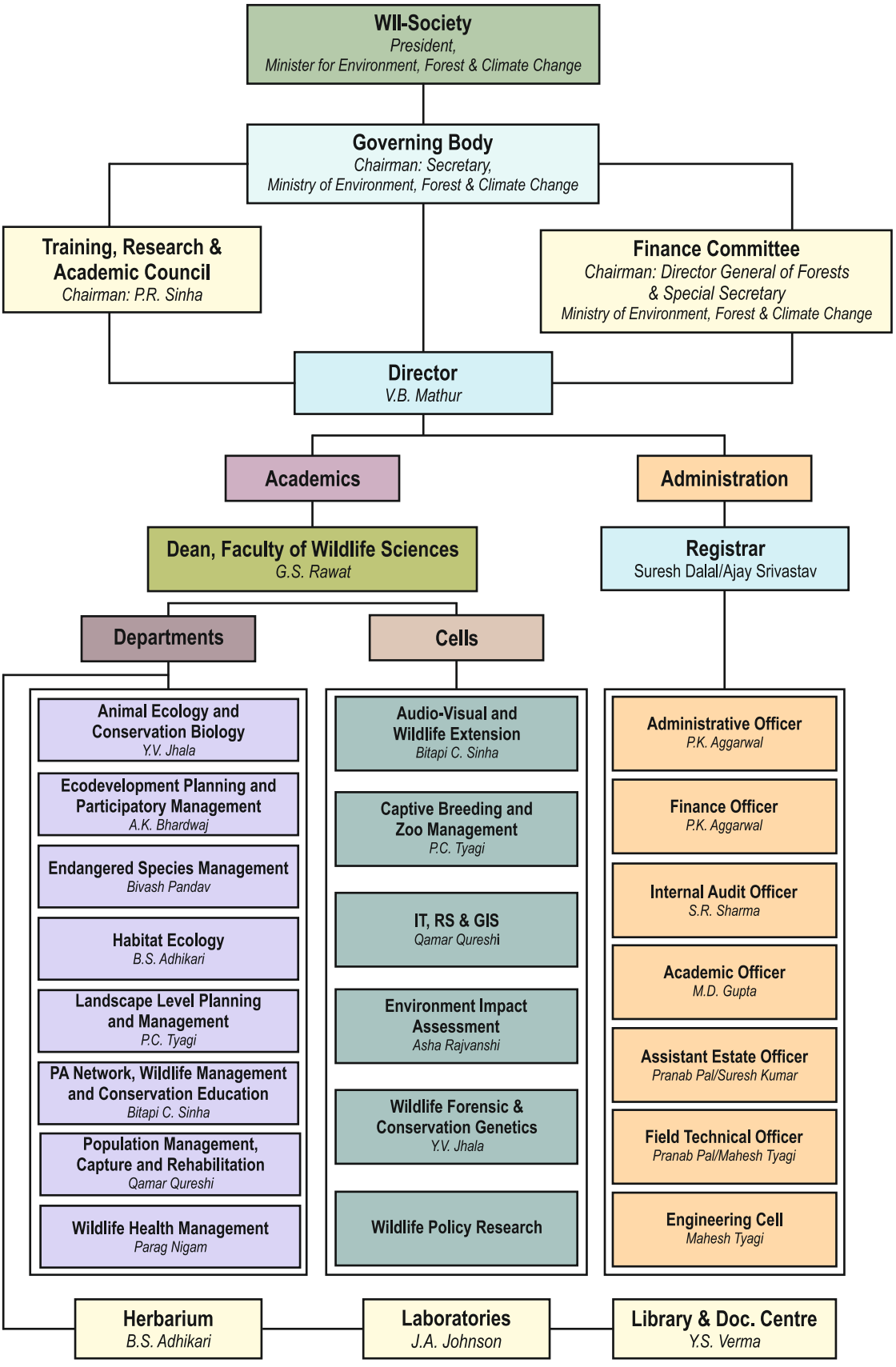
GOVERNANCE

- **Organisational Structure of WII**
- **WII - Society**
- **WII - Governing Body**
- **WII - TRAC**
- **WII - Finance Committee**

Organizational Structure of WII



WILDLIFE INSTITUTE OF INDIA - SOCIETY

1 Minister of State (Independent Charge) — President
Environment, Forest & Climate Change,
Government of India,
Paryavaran Bhawan, 'B' Block,
CGO Complex, Lodi Road,
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2. Hon'ble Minister — Member
Forests & Environment,
Government of Assam,
'Secretariat'
Dispur, Guwahati (Assam)

3. Hon'ble Minister — Member
Forests & Environment,
Government of Meghalaya,
'Secretariat',
Shillong (Meghalaya)

4. Hon'ble Minister… — Member
Forests & Environment,
Government of Sikkim,
'Secretariat',
Gangtok (Sikkim)

5. Hon'ble Minister… — Member
Forests & Environment,
Government of West Bengal,
'Secretariat',
Kolkata (West Bengal)

6. Lt. General (Retd.) Shri A.K. Singh (PVSM, AVSM) — Member
Hon'ble Lt. Governor,
Government of Andaman & Nicobar,
'Secretariat',
Andaman (A&N)

7. Hon'ble Minister… — Member
Forests Department,
Government of Goa,
Swami Vivekanand Road,
Panaji, Goa - 403 001

8. Hon'ble Minister… — Member
Forests & Environment,
Government of Maharashtra,
'Secretariat',
Nagpur (Maharashtra)

9. Hon'ble Minister… — Member
Forests & Environment,
Government of Kerala,
'Secretariat',
Thiruvananthapuram (Kerala)

10. Hon'ble Minister… — Member
Forests & Environment,
Government of Tamil Nadu,
'Secretariat',
Chennai (Tamil Nadu)

11. Hon'ble Minister… — Member
Forests & Environment,
Government of Haryana,
'Secretariat',
Panchkula,
Ambala (Haryana)

12. Hon'ble Minister… — Member
Forests & Environment,
Government of Himachal Pradesh,
'Secretariat',
Shimla (Himachal Pradesh)

13. Hon'ble Minister… — Member
Forests & Environment,
Government of Madhya Pradesh,
'Secretariat',
Bhopal (Madhya Pradesh)

14. Hon'ble Minister… — Member
Forests & Environment,
Government of Uttarakhand,
'Secretariat',
Dehradun - 248 001 (Uttarakhand)

15. Director… — Member
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Hornbil House, Dr. Salim Ali Chowk,
Shaheed Bhagar Singh Road,
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16. Secretary General & CEO… — Member
World Wide Fund for Nature-India (WWF),
"Secretariat", 172 - Lodhi Estate,
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17. President, … — Member
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Dehradun

18. Director, … — Member
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Nehru Foundation for Development,
Thaltej Tekra,
Ahmadabad (Gujarat)

19. Secretary… — Member
Secretary to the Govt. of India,
Ministry of Environment & Forests,
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CGO Complex, Lodi Road,
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20. The Secretary, … Member
Government of India,
Ministry of Finance,
North Block,
New Delhi - 110 001

21. The Secretary Member
Government of India,
Department of Science and Technology,
Technology Bhavan,
New Mehrauli Road,
New Delhi - 110 001

22. The Secretary, Member
Government of India,
Department of Education,
Ministry of Human Resource Development,
Shastri Bhavan,
New Delhi - 110 001

23. The Vice Chairman Member
Planning Commission,
Yojana Bhavan,
Sansad Marg,
New Delhi

24. The Chairman, Member
University Grant Commission (UGC),
Bahadur Shah Zafar Marg,
New Delhi

25. Chief Secretary, Member
Govt. of Uttarakhand
"Sachivalaya"
Dehradun

26. Director General of Forests & Member
Special Secretary to the Government to
Special Secretary,
Ministry of Environment & Forests,
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27. Addl. Director General of
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Director Wildlife Preservation
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28. Additional Secretary &
Finance Advisor, Member
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29. Director General, Member
Indian Council of Forestry
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30. Director Member
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M-Block, New Alipore
Kolkata - 700 053

31. Director Member
Botanical Survey of India,
CGO Complex, 3 MSO Building,
Block F, 5th& 6th Floor, DF Block,
Sector-I, Salt Lake City
Kolkata - 700 064 (W.B.)

32. Dr. G.S. Rawat, Member
Dean, FWS
Wildlife Institute of India,
Dehradun - 248 001

33. Dr. V.B. Mathur Member-Secretary
Director
Wildlife Institute of India
Dehradun- 248 001

Permanent Invitees

34. Inspector General of Forests (WL)
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and Climate Change
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Ali Ganj, Jor Bagh Road,
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35. Member Secretary
National Tiger Conservation Authority,
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36. Director (Project Elephant)
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2. Director General of Forests & Special Secretary,
   Ministry of Environment, Forest and Climate Change,
   Government of India,
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   New Delhi - 110 003

3. Additional Secretary & Financial Advisor,
   Ministry of Environment, Forest and Climate Change,
   Government of India,
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   Jor Bagh Road, Ali Ganj,
   New Delhi - 110 003

4. Chief Secretary
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   "Sachivalaya"
   Dehradun - 248 001

5. Chief Wildlife Warden
   Govt. of Uttarakhand,
   Chandrabani,
   Dehra Dun

6. Chief Wildlife Warden,
   Government of Mizoram,
   Environment & Forest Department,
   Tuikhuahtlang,
   Aizawal (Mizoram)

7. Chief Wildlife Warden
   Government of West Bengal,
   Bikash Bhawan, 3rd Floor, North Block
   Salt Lake City,
   Kolkata - 700 091 (West Bengal)

8. Chief Wildlife Warden,
   Government of Jammu & Kashmir,
   Raj Bagh Forest Complex,
   Silk Factory Road,
   Srinagar - 190 001 (J&K)

9. Chief Wildlife Warden,
   Government of Uttar Pradesh,
   17, Rana Pratap Marg,
   Lucknow - 226 001 (Uttar Pradesh)

10. Chief Wildlife Warden,
    'Vanalakshmi' ,
    Forest Headquarters,
    Vazhuthacaud,
    Thiruvananthapuram - 695 014 (Kerala)

11. Additional Director General of Forests (WL)
    Ministry of Environment, Forests and Climate Change,
    Government of India,
    Indira Paryavaran Bhavan,
    Jor Bagh Road, Ali Ganj
    New Delhi - 110 003

12. Director General,
    Indian Council of Forestry Research & Education,
    P.O. New Forests,
    Dehra Dun - 248 006

13. Shri P.R. Sinha
    (Chairman, TRAC)
    Country Representative,
    India Country Office
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Training, Research & Academic Council (TRAC) (20.03.2015 to 19.03.2018)

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Additional Director General (Wildlife),
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Central India (1 Representative)
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Western Region (2 Representatives)
Daman & Diu, Goa

Southern Region (2 Representatives)
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Prani Vigyan Bhawan,
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Mysore - 570 006 (Karnataka)

21. Dr. S. Shivaji,
Research Consultant,
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L. V. Prasad Eye Institute,
L. V. Prasad Marg, Banjara Hills,
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22. Sh. T.T.C. Marak, IFS,
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23. Dr. Rucha Ghate,
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International Centre for Integrated Mountain Development,
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24. A Representative of the
Indian Council of Forest, Research & Education,
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25. Dean, Faculty of Wildlife Sciences,
Wildlife Institute of India,
Chandrabani,
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26 & 28. Two senior most Head of Departments (in terms of pay-scale) (to be nominated by Director, WII), Wildlife Institute of India, Chandrabani, **Dehra Dun - 248 001 (Uttarakhand)**

28. Faculty Member (In-charge of Research Coordination) Wildlife Institute of India, Chandrabani, **Dehra Dun - 248 001 (Uttarakhand)**

Member-Secretary

29. Director, Wildlife Institute of India, Chandrabani, **Dehra Dun - 248 001 (Uttarakhand)**

WII-FINANCE COMMITTEE

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3. Additional Secretary & Financial Advisor, Ministry of Environment, Forests and Climate Change Government of India Indira Paryavaran Bhawan, Ali Ganj, Jor Bagh Road **New Delhi - 110 003**

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NEW
BALANCE
619.80
9.80
.30
.30
48447.30
24031.30
24926.67
24926.72
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895.37
NEW
BALANCE
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ACCOUNTS

Separate Audit Report of the Comptroller General of India on the Accounts of Wildlife Institute of India, Dehradun for the year 2016-17.

1. We have audited the attached Balance Sheet of Wildlife Institute of India, as on 31 March 2017, the Income & Expenditure Account and the Receipts & Payment Account for the year ended on that date under Section 20(1) of the Comptroller & Auditor General's (Duties, Powers & Conditions of Service) Act, 1971 read with Section 38G of the Wildlife (Protection) Act, 1972. The audit was entrusted up to 2020-2021 and the entrustment was received on 01.02.2018. These financial statements are the responsibility of the WII's management. Our responsibility is to express an opinion on these financial statements based on our audit.

2. This Separate Audit Report contains the comments of the Comptroller and Auditor General of India (CAG) on the accounting treatment only with regard to classification, conformity with the best accounting practices, accounting standards and disclosure norms, etc. Audit observations on financial transactions with regard to compliance with the Law, Rules & Regulations (Propriety and Regularity) and efficiency-cum-performance aspects, etc., if any, are reported through Inspection Reports/CAG's Audit Reports separately.

3. We have conducted our audit in accordance with auditing standards generally accepted in India. These standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material mis-statements. An audit includes examining, on a test basis, evidences supporting the amounts and disclosure in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of financial statements. We believe that our audit provides a reasonable basis for our opinion.

4. Based on our audit, we report that:

(i) We have obtained all the information and explanations, which to the best of our knowledge and belief were necessary for the purpose of our audit.

(ii) The Balance Sheet, Income & Expenditure Account and Receipt & Payment Account dealt with by this report have been drawn up in the format approved by the Ministry of Finance.

(iii) In our opinion, proper books of accounts and other relevant records have been maintained by the WII as required under Section 38G of the Wildlife (Protection) Act, 1972 in so far as it appears from our examination of such books.

(iv) We further report that:

A) Balance Sheet:

i) WII purchased Library Books amounting to ₹ 10,16,497/- and depreciation was charged at the rate of 15% i.e. (₹1,52,363/-) instead of 60% (₹ 6,09,453/-). The difference of depreciation amounting to ₹ 4,57,090/- resulting in overstatement of assets and understatement of expenditure to the same extent.

ii) WII had shown AC Plant ₹ 617155.46 (cost as at the end of the year) under schedule-8 Fixed Assets in Plant Machinery & Equipment and charged depreciation @ 15% (₹ 92573) instead of 10% (61716). The difference of depreciation amounting to ₹ 30857/- resulted in understatement of assets and overstatement of expenditure to the same extent. No provision for retirement benefit was made as the basis of actuarial valuation as prescribed in AS-15.

B) Grants-in-Aid:

Out of total grant-in-aid ₹ 26.50 crore (₹ 23.00 crore in Revenue, ₹ 2.00 crore in Capital in Plan and ₹ 1.50 crore under Non-Plan heads received during 2016-17, including unspent Grant of previous year ₹ 0.83 crore i.e. 2015-16). WII utilised ₹ 25.51 crore leaving unutilised Grant of Rs.0.99 crore.

C) Management Letter

Deficiencies which have not been included in the Separate Audit Report have been brought to the notice of WII, Dehradun through a Management letter issued separately for remedial/corrective action.

(v) Subject to our observations in the preceding paragraphs, we report that the Balance Sheet, Income & Expenditure Account and Receipt & Payment Account dealt with by this report are in agreement with the books of accounts.

(vi) In our opinion and to the best of our information and according to the explanations given to us, the said financial statement read together with the accounting policies and notes on accounts, and subject to significant matters stated above and other mentioned in Annexure to this Audit Report give a true and fair view in conformity with accounting principles generally accepted in India.

a) In so far as it relates to the Balance Sheet, the state of affairs of the Wild Life Institute of India, Dehradun as at 31 March 2017; and

b) In so far as it relates to the Income & Expenditure Accounts the deficit for the year ended on that date.

Manish Kumar

Principal Director of Audit (SD)

Date: 20.3.2018
Place: New Delhi

RECEIPT & PAYMENT ACCOUNTS FOR THE YEAR 2016-17

RECEIPTS				Previous Year	PAYMENT				Previous Year
Particulars	Plan	Non Plan	Total		Particulars	Plan	Non Plan	Total	
(A) GRANT-IN-AID					Expenses				
To Opening Balance			0		By Salaries & Allowances	13,59,09,567.00	1,50,00,000.00	15,09,09,567.00	14,17,04,831.00
Cash in Bank	2,40,06,743.04	0.00	2,40,06,743.04	6,64,93,479.04	By Medical	65,84,065.00	0.00	65,84,065.00	57,30,857.00
Cash In Hand	28,409.00	0.00	28,409.00	81,830.00	By LTC	18,16,184.00	0.00	18,16,184.00	16,86,897.00
					By OTA	1,05,986.00	0.00	1,05,986.00	1,55,480.00
To Grant in Aid (Revenue)	23,00,00,000.00	1,50,00,000.00	24,50,00,000.00	21,34,00,000.00	By Honorarium	99,400.00	0.00	99,400.00	33,000.00
To Grant in Aid (Capital)	2,00,00,000.00	0.00	2,00,00,000.00	5,43,00,000.00	By Fellowship & Wages (R/Proj)	30,31,632.00	0.00	30,31,632.00	33,49,578.00
To Grant (other Projects)	0.00	0.00	0.00	40,00,000.00	By Stipend of MSc Students	6,66,401.00	0.00	6,66,401.00	7,95,859.00
To MSc Course Fee	23,46,848.00	0.00	23,46,848.00	25,87,259.00	By Leave encashment & Gratuity	38,29,544.00	0.00	38,29,544.00	57,43,775.00
To Bus Charges	2,17,386.00	0.00	2,17,386.00	2,40,132.00	By Bonus	9,09,385.00	0.00	9,09,385.00	3,76,383.00
To Rent	6,60,010.00	0.00	6,60,010.00	5,44,164.00	By Leave Salary Pension Con	19,53,839.00	0.00	19,53,839.00	97,61,396.00
To WII Products	17,625.00	0.00	17,625.00	6,719.00	By Base Camp Exp.(Res Project)	1,06,252.00	0.00	1,06,252.00	3,27,594.00
To Misc Receipts	12,22,474.00	0.00	12,22,474.00	16,78,676.00	By Advance for veh insurance	65,359.00	0.00	65,359.00	0.00
To Elect & Water	4,30,030.00	0.00	4,30,030.00	4,17,879.00	By Annual Res Seminar-ARS	4,99,383.00	0.00	4,99,383.00	3,03,875.00
To Telephone	0.00	0.00	0.00	1,253.00	By Estate Security	62,03,086.00	0.00	62,03,086.00	72,13,907.00
To Interest on Saving A/c	19,14,375.00	0.00	19,14,375.00	27,87,579.00	By POL, Hiring of Veh (R/Proj)	5,55,787.00	0.00	5,55,787.00	12,78,250.00
To Loan & Advance	80,550.00	0.00	80,550.00	63,243.00	By Contingencies (Res Proj)	6,31,440.00	0.00	6,31,440.00	16,01,112.00
To EMD Security Deposit	3,16,650.00	0.00	3,16,650.00	0.00	By Travel Expenses (Res. Proj)	4,62,066.00	0.00	4,62,066.00	2,80,232.00
To Hostel Caution Money	1,41,000.00	0.00	1,41,000.00	1,98,500.00	By Lab Expenses-Forc Lab	8,98,776.00	0.00	8,98,776.00	16,37,986.00
To Welfare Fund	0.00	0.00	0.00	5,650.00	By Harberium	34,242.00	0.00	34,242.00	94,527.00
To Intt on HBA	1,72,370.00	0.00	1,72,370.00	1,79,491.00	By M.Sc Expenditure	27,14,779.00	0.00	27,14,779.00	30,20,225.00
To Travel Adv.-GIA	0.00	0.00	0.00	1,48,150.00	By Elect and Water Charges	96,61,368.00	0.00	96,61,368.00	69,53,714.00
To Travel Adv.(R/Proj)	0.00	0.00	0.00	16,308.00	By Advance payment insurance	0.00	0.00	0.00	0.00
To FA (Research Project)	282.00	0.00	282.00	53,781.00	By Hospitality/Entertainment	1,74,215.00	0.00	1,74,215.00	59,805.00
To LTC Adv	0.00	0.00	0.00	14,000.00	By POL of WII Vehicle	6,20,495.00	0.00	6,20,495.00	10,24,922.00
To Medical Adv	40,202.00	0.00	40,202.00	0.00	By Postage & Telegram	1,32,300.00	0.00	1,32,300.00	1,98,930.00

RECEIPTS				Previous Year	PAYMENT				Previous Year
Particulars	Plan	Non Plan	Total		Particulars	Plan	Non Plan	Total	
To M.Sc-FA & TA Advance	125.00	0.00	125.00	5,27,335.00	By Repair & Maint of Vehicle	7,90,171.00	0.00	7,90,171.00	4,86,225.00
To Internal Loan	0.00	0.00	0.00	0.00	By Sport	3,10,300.00	0.00	3,10,300.00	87,671.00
To Camp Equipment	0.00	0.00	0.00	0.00	By Stationery & Consumables	4,26,595.00	0.00	4,26,595.00	4,99,540.00
To Misc income (J&P)	0.00	0.00	0.00	8,01,125.00	By Telephone & Trunk Calls	4,86,360.00	0.00	4,86,360.00	5,16,696.00
To TDS	22,101.00	0.00	22,101.00	0.00	By TDS	0.00	0.00	0.00	0.00
To Loan from othe project	48,02,700.00	0.00	48,02,700.00	0.00	By Legal Expenses	2,87,361.00	0.00	2,87,361.00	1,96,000.00
To Expenses for Capitales	8,68,988.00	0.00	8,68,988.00	1,24,93,178.00	By Operational expenses	6,91,781.00	0.00	6,91,781.00	1,77,764.00
To Sundry Debtors- Outstanding Party	0.00	0.00	0.00	24,96,981.00	By Printing & Binding	34,500.00	0.00	34,500.00	1,44,273.00
To Opening Stock-Library	17,958.00	0.00	17,958.00	1,07,082.00	By Maint of WII Campus	5,42,991.00	0.00	5,42,991.00	4,02,252.00
To Vehicle	0.00	0.00	0.00	0.00	By Repair of equipment/furniture	1,12,527.00	0.00	1,12,527.00	95,952.00
To GPF Recd	0.00	0.00	0.00	0.00	By Computer AMC & Cons.	20,18,912.00	0.00	20,18,912.00	15,14,811.00
To Cancillecation of Ch.	0.00	0.00	0.00	563.00	By EMD Released	0.00	0.00	0.00	1,50,000.00
To Genetic lab	70,000.00	0.00	70,000.00	0.00	By Expenses for Wild Life Health	0.00	0.00	0.00	96,121.00
Adv payment CPWD	21,29,079.00	0.00	21,29,079.00	0.00	By Lab. Expenses-Research Lab	1,94,814.00	0.00	1,94,814.00	2,10,697.00
					By Lab. Expenses-Gen.	1,02,485.00	0.00	1,02,485.00	10,782.00
					By Maint. Of Civil Work	10,11,650.00	0.00	10,11,650.00	9,68,798.00
					By Transferred to Trg A/c	75,00,000.00	0.00	75,00,000.00	70,00,000.00
					By Travel Expenses	12,97,997.00	0.00	12,97,997.00	11,54,926.00
					By GP Funds	5,400.00	0.00	5,400.00	0.00
					By Travel expenses Library	9,740.00	0.00	9,740.00	0.00
					By Lib expenses	90,150.00	0.00	90,150.00	48,633.00
					By Corpus Funds	0.00	0.00	0.00	19,07,171.00
					By Investment Pension	0.00	0.00	0.00	5,19,80,625.00
					By Medical Adv	22,984.00	0.00	22,984.00	40,202.00
					By Forest/Travel Advance (GIA)	4,00,743.00	0.00	4,00,743.00	0.00
					By Forest advance R/Proj	1,69,362.00	0.00	1,69,362.00	282.00
					By Tour Advance -R/Proj	21,000.00	0.00	21,000.00	0.00
					By LTC Advance	42,642.00	0.00	42,642.00	0.00

RECEIPTS				Previous Year	PAYMENT				Previous Year
Particulars	Plan	Non Plan	Total		Particulars	Plan	Non Plan	Total	
					By M.Sc. TA Advance	70,000.00	0.00	70,000.00	0.00
					By M.Sc. FA Advance	3,52,441.00	0.00	3,52,441.00	125.00
					By Computer & Accessories	6,35,553.00	0.00	6,35,553.00	54,553.00
					By Furniture & Fixture	3,68,043.00	0.00	3,68,043.00	0.00
					By Journals & Periodicals	45,15,826.00	0.00	45,15,826.00	16,39,519.00
					By Lab Eqpt (For Lab)	1,84,541.00	0.00	1,84,541.00	0.00
					By Office Eqpt (Res. Proj)	2,04,343.00	0.00	2,04,343.00	12,33,293.00
					By Camp Eqpt (Res. Proj.)	1,25,000.00	0.00	1,25,000.00	2,49,007.00
					By Vehicle	0.00	0.00	0.00	24,96,981.00
					By Office equipment	2,36,611.00	0.00	2,36,611.00	5,395.00
					By Lab Equipment (Res. Lab.)	18,480.00	0.00	18,480.00	79,539.00
					By Welfare fund	5,650.00	0.00	5,650.00	0.00
					By Sport complex	0.00	0.00	0.00	95,498.00
					By Campus Development	1,30,52,641.00	0.00	1,30,52,641.00	1,95,56,275.00
					By Security deposit	0.00	0.00	0.00	9,000.00
					By Loan other Project	0.00	0.00	0.00	48,15,512.00
					By DST Funded Asatic Lion Previous Year bal. Transf.	3,00,000.00	0.00	3,00,000.00	0.00
					By Previous Year bal. Transf.	82,77,000.00	0.00	82,77,000.00	0.00
					By Advance for CPWD	90,76,438.00	0.00	90,76,438.00	21,29,079.00
					By Advance for CCU	0.00	0.00	0.00	4,43,00,000.00
					By Sundry Creditors	33,69,368.00	0.00	33,69,368.00	19,07,356.00
					By Sale for Complementry-Library	17,958.00	0.00	17,958.00	15,517.00
					In Bank	5,44,49,195.04	0.00	5,44,49,195.04	2,40,06,743.04
					In Hand	10,801.00	0.00	10,801.00	28,409.00
A' Total	**28,95,05,905.04**	**1,50,00,000.00**	**30,45,05,905.04**	**36,36,44,357.04**	**A' Total**	**28,95,05,905.04**	**1,50,00,000.00**	**30,45,05,905.04**	**36,36,44,357.04**

Receipt & Payment Accounts for the year 2016-17

GPF

Particulars		Non Plan	Total	Previous Year	Particular		Non Plan	Total	Previous Year
To Opening Bal (Bank)	52,81,496.00	-	52,81,496.00	20,71,794.00	By Final Payment	58,65,962.00		58,65,962.00	1,17,14,805.00
To GP Fund Contribution	2,00,34,157.00	-	2,00,34,157.00	1,98,66,770.00	By Advance/withdrawl	68,78,363.00		68,78,363.00	1,28,23,180.00
To Encashment of RBI Bond	1,80,00,000.00	-	1,80,00,000.00	1,78,80,779.00	By Loan to Deputationists	1,50,000.00		1,50,000.00	23,00,000.00
To Int. on saving a/c	3,07,893.00	-	3,07,893.00	1,89,077.00	By Investment of FDR	3,70,00,000.00		3,70,00,000.00	1,10,81,800.00
To Int. on RBI Bond	97,36,200.00	-	97,36,200.00	12,92,861.00					
To Refunds of Loan	5,50,000.00	-	5,50,000.00	19,00,000.00					
					By Closing Balance (Bank)	40,15,421.00		40,15,421.00	52,81,496.00
F' Total	**5,39,09,746.00**	**-**	**5,39,09,746.00**	**4,32,01,281.00**	**F' Total**	**5,39,09,746.00**	**0.00**	**5,39,09,746.00**	**4,32,01,281.00**

Receipt & Payment Accounts for the year 2016-17

PENSIONS

Particulars		Non Plan	Total	Previous Year	Particular		Non Plan	Total	Previous Year
To Opening Balance									
Cash in Bank	3,43,202.00		3,43,202.00	32,03,771.00	By Investment in FDR	30,00,000.00		30,00,000.00	4,20,27,200.00
To encashment of FDR	51,37,405.00		51,37,405.00	3,74,05,679.00	By Commuted Value of Pension	12,52,502.00		12,52,502.00	53,30,165.00
To encashment of RBI Bond	85,00,000.00		85,00,000.00	80,00,000.00	By Pension/ Family Pension	1,23,06,418.00		1,23,06,418.00	1,07,12,591.00
To Interest (Pension A/c)	2,08,045.00		2,08,045.00	1,97,060.00					
To WII Contribution	32,34,733.00		32,34,733.00	46,50,996.00	By Loan	10,00,000.00		10,00,000.00	-
To Interest on FDRs	2,70,779.00		2,70,779.00	6,28,452.00					
To Interest on RBI Bond	45,97,650.00		45,97,650.00	43,27,200.00					
To Pension Contribution	-		-	-					
To Refund of Loan	10,00,000.00		10,00,000.00	-	Cash in Bank	57,32,894.00		57,32,894.00	3,43,202.00
D' Total	**2,32,91,814.00**	**-**	**2,32,91,814.00**	**5,84,13,158.00**	**D' Total**	**2,32,91,814.00**	**-**	**2,32,91,814.00**	**5,84,13,158.00**

Receipt & Payment Accounts for the year 2016-17

CORPUS FUND

Particulars		Non Plan	Total	Previous Year	Particular		Non Plan	Total	Previous Year
To Opening Balance	3,24,69,551.67		3,24,69,551.67	1,29,18,091.00	By Investment in FDRs	10,82,36,200.00	0.00	10,82,36,200.00	0.00
To Misc Receipts	3,02,78,530.00		3,02,78,530.00	1,83,41,428.00					
To Interests on Saving A/c	10,55,775.00		10,55,775.00	12,10,032.00					
To Encashment of RBI Bond	2,98,00,000.00		2,98,00,000.00	-					
To Interet on RBI Bond	1,61,18,820.00		1,61,18,820.00	-					
To Encashment of FDR	96,94,884.00		96,94,884.00	-					
To Interest on FDR	5,87,117.00		5,87,117.00	-					
Opening difference	-		-	0.67					
					Closing Balance	1,17,68,477.67		1,17,68,477.67	3,24,69,551.67
F' Total	**12,00,04,677.67**	**-**	**12,00,04,677.67**	**3,24,69,551.67**	**F' Total**	**12,00,04,677.67**	**0.00**	**12,00,04,677.67**	**3,24,69,551.67**

Receipt & Payment Accounts for the year 2016-17

TRAINING ACCOUNT

RECEIPTS				Previous Year	PAYMENT				Previous Year
Particulars	Plan	Non Plan	Total		Particulars	Plan	Non Plan	Total	
To Opening in Bank	73,41,493.00		73,41,493.00	90,73,788.95	By Equipment	209801.00		2,09,801.00	0.00
To Grant Received	75,00,000.00		75,00,000.00	70,00,000.00	By Office Equipment	322481.00		3,22,481.00	1784520.00
To Interest Received	2,48,834.00		2,48,834.00	3,11,457.00	By Furniture & Fixture	0.00		0.00	18841.00
To Other Receipts	1,60,56,331.00		1,60,56,331.00	1,59,03,448.00	By Training Material	0.00		0.00	0.00
To Advance for CPWD-Civil	0.00		0.00	23,561.00	By Hostel Items	0.00		0.00	24614.00
To Adv. for Expenses	250000.00		250000.00	30000.00	By Cont/Misc	552159.46		5,52,159.46	1679672.95
To Accrued Intrest FDR	0.00		0.00	6048.00	By Camping Gear	699660.00		6,99,660.00	1001055.00
Interest on FDR	38031		38031.00	0	By Travelling Expenses	5770899.00		57,70,899.00	6549508.00
Encashment of FDR	775166		775166.00	0	By TA/DA & Honorarium	342359.00		3,42,359.00	293225.00
					By Training Allowance	0.00		0.00	0.00

					By POL & Maint of Vehicle	967974.00		9,67,974.00	1020023.00
					By Boarding & Lodging	5961507.55		59,61,507.55	4493589.00
					By Books	71144.00		71,144.00	188238.00
					By Salary & Wages	694642.00		6,94,642.00	357267.00
					By Investment	0.00		0.00	775166.00
					By Other Advance	390181.00		3,90,181.00	100000.00
					By Corpus Funds	200000.00		2,00,000.00	5701000.00
					By Maint of Vehicle	17925.00		17,925.00	778542.00
					By Sports Item	7366.00		7,366.00	67988.00
					By Advances for expenses	145000.00		1,45,000.00	150000.00
					By Maint. Of Civil Work	1064878.00		10,64,878.00	23561.00
					By Closing in Bank	14791877.99		1,47,91,877.99	7341493.00
C' Total	**3,22,09,855.00**	**0.00**	**3,22,09,855.00**	**3,23,48,302.95**	**C' Total**	**3,22,09,855.00**	**0.00**	**3,22,09,855.00**	**3,23,48,302.95**

Receipt & Payment Accounts for the year 2016-17

CONSULTANCY PROJECTS

RECEIPTS				**Previous Year**	**PAYMENT**				**Previous Year**
Particulars	**Plan**	**Non Plan**	**Total**		**Particulars**	**Plan**	**Non Plan**	**Total**	
To Opening Balance:									
at Bank	1,98,04,819.07		1,98,04,819.07	1,33,06,919.07	By Office Equipment	8,11,507.00		8,11,507.00	16,20,228.00
To Grant Received	3,28,37,957.79		3,28,37,957.79	3,50,28,073.00	By Contingenciges/Misc	45,01,708.34		45,01,708.34	22,68,249.00
To Interest Saving A/c	4,95,365.00		4,95,365.00	9,04,128.00	By Fellowship & Wages	22,24,862.00		22,24,862.00	16,87,048.00
To Other Receipt	0.00		0.00	6,38,670.00	By Travel Expenses	32,55,653.00		32,55,653.00	43,60,847.00
To Adv. for CPWD-Civil	0.00		0.00	2,55,189.00	By POL & Maint. of veh.	3,48,954.00		3,48,954.00	11,48,923.00
					By Furniture & Fixture	60,738.00		60,738.00	0.00
					By Stationery items	2,32,966.00		2,32,966.00	4,22,451.00
					By Advance for expenses(FA)	1,24,000.00		1,24,000.00	0.00

CONSULTANCY PROJECTS

RECEIPTS				Previous Year	PAYMENT				Previous Year
Particulars	Plan	Non Plan	Total		Particulars	Plan	Non Plan	Total	
					By Boarding & Lodging	59,59,517.00		59,59,517.00	1,20,40,110.00
					By TA /DA & Honorarium	2,70,693.00		2,70,693.00	7,35,428.00
					By Books	0.00		0.00	0.00
					ByMisc Expenses A/c No 8	0.00		0.00	5,000.00
					By Transf. To Corpus Fund	63,42,872.00		63,42,872.00	38,53,972.00
					By Consultancy fees	28,000.00		28,000.00	1,73,332.00
					By Service tax	0.00		0.00	0.00
					By Report writing	3,76,903.00		3,76,903.00	17,44,050.00
					By Field Equipment	2,15,205.00		2,15,205.00	0.00
					By Building renovation	14,13,350.00		14,13,350.00	2,55,189.00
					By Welfare Funds	0.00		0.00	13,333.00
					By Misc Receipt-Payment	19,78,886.00		19,78,886.00	0.00
					By Bank Balance	2,49,92,327.52		2,49,92,327.52	1,98,04,819.07
E' Total	5,31,38,141.86	0.00	5,31,38,141.86	5,01,32,979.07	E' Total	5,31,38,141.86	0.00	5,31,38,141.86	5,01,32,979.07
Grand Total	57,20,60,139.57		58,70,60,139.6	58,02,09,629.7	0.0	57,20,60,139.6		58,70,60,139.6	58,02,09,629.7

(P.K. Aggarwal)
Finance Officer

(Dr. V.B. Mathur)
Director

FORM OF FINANCIAL STATEMENTS (NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
BALANCE SHEET AS ON 31 MARCH 2017

(Amt. Rs.)

CORPUS /CAPITAL FUND AND LIABILITIES	Schedule	Current Year	Previous Year
CORPUS /CAPITAL FUND	1	476166728.81	371558330.82
RESERVE AND SURPLUS	2	0.00	0.00
EARMARKED FUND	3	24992327.52	19804819.07
SECURED LOAN AND BORROWINGS	4	0.00	0.00
UNSECURED LOAN AND BORROWINGS	5	52503703.00	52302053.00
DEFERRED CREDIT LIABILITIES	6	6279401.00	4365026.00
CURRENT LIABILITIES AND PROVISION	7	207195462.00	179903889.00
TOTAL (A)		**767137622.33**	**627934117.89**
ASSETS			
FIXED ASSETS	8	147639510.10	147883604.11
INVESTMENTS- FROM EARMARKED / ENDOWMENT FUNDS	9	0.00	0.00
INVESTMENTS- OTHERS	10	406877733.00	335550748.00
CURENT ASSETS, LOANS, ADVANCES ETC.	11	212620379.23	144499765.78
MISCELLANEOUS EXPENDITURE			
(to the extent not written off or adjusted)			
TOTAL (B)		**767137622.33**	**627934117.89**

(P.K. Aggarwal)
Finance Officer

(Dr. V.B. Mathur)
Director

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
SHEDULES FORMING PART OF BALANCE SHEET FOR THE YEAR ENDED 31 MARCH 2017

(Amt. Rs.)

SCHEDULE 1: CORPUS/ CAPITAL FUND	Current Year	Previous Year	
Balance as at the beginning of the year	243397014.15	195398944.94	
Add: Contribution towards Corpus/ Capital fund	19873320.00	27212858.47	
Add/(Deduct) : Balance of net income (expenditure) transferred from	23978521.99	20785210.74	
TOTAL	**A**	**287248856.14**	**243397014.15**
Corpus Fund			
Opening Balance		128161316.67	103120222.49
Received during the year		30278530.00	18341428.00
Add Accrued Interest		12716314.00	5568406.00
Add Interest Earned		17761712.00	1210032.00
Add/Less : Opening difference		0.00	-78771.82
Total	**B**	**188917872.67**	**128161316.67**
Total A+B		**476166728.81**	**371558330.82**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
SHEDULES FORMING PART OF BALANCE SHEET FOR THE YEAR ENDED 31 MARCH 2017

(Amt. Rs.)

SCHEDULE 2: RESERVE AND SURPLUS:	Current Year	Previous Year
1. Capital Reserve :		
As per last Account	0.00	0.00
Addition during the year	0.00	0.00
Less : Deductions during the year	0.00	0.00
2. Revaluation Reserve :		
As per last Account	0.00	0.00
Addition during the year	0.00	0.00
Less : Deductions during the year	0.00	0.00
3. Special Reserves :		
As per last Account	0.00	0.00
Addition during the year	0.00	0.00
Less : Deductions during the year	0.00	0.00
4. General Reserve :		
As per last Account	0.00	0.00
Addition during the year	0.00	0.00
Less : Deductions during the year	0.00	0.00
TOTAL	**0.00**	**0.00**

FORM OF FINANCIAL STATEMENTS (NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
SHEDULES FORMING PART OF BALANCE SHEET FOR THE YEAR ENDED 31 MARCH 2017

SCHEDULE3 : EARMARKED FUNDS		Current Year	Previous Year
a)	Opening Balance of the Funds	19804819.07	13306919.07
b)	Addition to the Funds		
	i Grants Received	32837957.79	35028073.00
	ii Interest Received	495365.00	904128.00
	iii Other Receipts	0.00	638670.00
	iv Pre receipted Bill received	0.00	0.00
	v Refund of Loan from A/c No. 50650	0.00	255189.00
Total		**33333322.79**	**36826060.00**
TOTAL (A+B)		**53138141.86**	**50132979.07**
	Utilisation/Expendition towards objectives of funds		
c)	i Capital Expenditures (Fixed Assets)		
	Camp/Field Equipment	215205.00	0.00
	Office Equipment	811507.00	1620228.00
	Furniture & Fixture	60738.00	0.00
	Books	0.00	0.00
	ii Revenue Expenditure		
Contigencies/Misc.		3997102.34	2178930.00
Fellowship & Wages		2224862.00	1687048.00
Travel Expenses		3255653.00	4360847.00
POL & Maint. Of Vehicle		348954.00	1148923.00
Advance for Expenses (FA)		124000.00	0.00
Boarding & Lodging		5959517.00	12040110.00
Misc receipt - Payment (Previous Year)		1978886.00	0.00
Building Renovation		0.00	255189.00
Consultancy Fees		28000.00	173332.00
Repair/ Renovation of Coaches		1413350.00	0.00
Report Writing		376903.00	1744050.00
Corpus fund		6342872.00	3853972.00

Welfare Fund	0.00	13333.00
TA/DA & Honorarium	270693.00	735428.00
Stationery items	232966.00	422451.00
Misc Expenses A/c No. 08	0.00	5000.00
Sport Expenses	0.00	0.00
Training Course Materials	504606.00	89319.00
TOTAL-C	**28145814.34**	**30328160.00**
NET BALANCE AS AT THE YEAR-END (A+B-C)	**24992327.52**	**19804819.07**

FORM OF FINANCIAL STATEMENTS (NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
SHEDULES FORMING PART OF BALANCE SHEET FOR THE YEAR ENDED 31 MARCH 2017

(Amt. Rs.)

SCHEDULE 4 : SECURED LOANS AND BORROWINGS	Current Year	Previous Year
(1) Central Govt.	0.00	0.00
(2) State Govt.(Specify)	0.00	0.00
(3) Financial Institutions		
(a) Term Loans	0.00	0.00
(b) Interest accured and due	0.00	0.00
(4) Banks		
(i) Term Loans		
Interest accured and due	0.00	0.00
(ii) Others Loans (specify)		
Interest accured and due	0.00	0.00
(5) Other Institutions and Agencies	0.00	0.00
(6) Debentures and Bonds	0.00	0.00
(7) Others (specify)	0.00	0.00
TOTAL	**0.00**	**0.00**

FORM OF FINANCIAL STATEMENTS (NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
SHEDULES FORMING PART OF BALANCE SHEET FOR THE YEAR ENDED 31 MARCH 2017

(Amt. Rs.)

SCHEDULE 5 : UNSECURED LOANS AND BORROWINGS	Current Year	Previous Year
(1) Central Govt.	0.00	0.00
(2) State Govt.(Specify)	0.00	0.00
(3) Financial Instittions	0.00	0.00
(4) Banks		
(i) Term Loans	0.00	0.00
(ii) Others (specify)	0.00	0.00
(5) Other Institutions and Agencies	0.00	0.00
(6) Debentures and Bonds	0.00	0.00
	0.00	0.00
(7) Fixed Deposits		
	0.00	0.00
(8) Others (Specify)		
Security Deposit	506968.00	305318.00
Internal Loan	16110.00	51996735.00
Pension Fund	51980625.00	0.00
TOTAL	**52503703.00**	**52302053.00**

FORM OF FINANCIAL STATEMENTS (NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
SHEDULES FORMING PART OF BALANCE SHEET FOR THE YEAR ENDED 31 MARCH 2017

(Amt. Rs.)

SCHEDULE 6 : DEFERRED CREDIT LIABILITIES:	Current Year	Previous Year
(A) Acceptances secured by hypothecation of capital equipment and other assets	0.00	0.00
(B) Others	6279401.00	4365026.00
TOTAL	**6279401.00**	**4365026.00**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
SHEDULES FORMING PART OF BALANCE SHEET FOR THE YEAR ENDED 31 MARCH 2017

(Amt. Rs.)

SCHEDULE 7 : CURRENT LIABILITIES AND PROVISION	Current Year	Previous Year
(A) CURRENT LIABILITIES		
(1) Acceptances		
(2) Sundry Creditors		
(1) For Goods		
(2) For Others		
Other Payments outstanding (Grant in Aid) (12-13)	0.00	277000.00
Other payments outstanding (Res Project) (13-14)	13678.00	13678.00
Other Payments outstanding (Grant in Aid) (15-16)	112200.00	3204568.00
Other Payments outstanding (Grant in Aid) (16-17)	2128153.00	0.00
(3) Advances Received		
Hostel Caution Money	707503.00	566503.00
(4) Interest accrued but not due on		
(1) Secured Loans/Borrowings		
(2) Unsecured Loans/Borrowings		
(5) Statuary Liabilities		
(1) Overdue		
(2) Others (Specify)		
Pension Fund	91935691.00	89645526.00
GP Fund	111517074.00	85546902.00
(6) Others (Specify)		
EMD Received	693308.00	578308.00
Welfare Fund	0.00	5650.00
TOTAL (A)	**207107607.00**	**179838135.00**
(B) Provisions		
(1) For Taxation		
TDS	22101.00	0.00
(2) Gratuity		
(3) Superannuation/ Pension		
(4) Accumulated Leave Encashment		
(5) Trade Warranties/ Claims		
(6) Others (Specify)		
TDS refund paid to GPF, Pension & Corpus	0.00	0.00
CGEGIS	0.00	0.00
GPF	0.00	0.00
Payment to Income Tax	0.00	0.00
Payment made to Sh Rajkishore Mohanto (Res. Project)	0.00	0.00
Fellowship (Arrear)	65754.00	65754.00
TOTAL (B)	**87855.00**	**65754.00**
TOTAL (A+ B)	**207195462.00**	**179903889.00**

FORM OF FINANCIAL STATEMENTS (NON-PROFIT ORGANISATIONS)
Wildlife Institute of India, Dehradun
SCHEDULES FORMING PART OF BALANCE SHEET FOR THE YEAR ENDED 2016-17
SCHEDULE 8 : FIXED ASSETS

Pariculars	Gross Block						DEPRECIATION					NET BLOCK	
		Addition during the year											
	Cost as at the beginning of the year			Deduction during the year	Adjustment change of dep rates	Cost as at the end of the year	As at the beginning of the year		For the year	Deduction during the year	At the end of the year	As at the current year-end	As at the Previous year-end
		Upto 30-Sep	After 30-Sep										
LAND													
BLOCK: 0%													
Land	6607214.58	0.00	0.00	0.00	0.00	6607214.58	0.00		0.00	0.00	0.00	6607214.58	6607214.58
TOTAL	**6607214.58**	**0.00**	**0.00**	**0.00**	**0.00**	**6607214.58**	**0.00**		**0.00**	**0.00**	**0.00**	**6607214.58**	**6607214.58**
BUILDINGS													
BLOCK: 10%													
Arch. & Sprvson Fee	2050441.41	0.00	0.00	0.00	0.00	2050441.41	227827.00	0.10	205044.00	0.00	205044.00	1845397.41	2050441.41
Auditorium	3070474.47	0.00	0.00	0.00	0.00	3070474.47	341164.00	0.10	307047.00	0.00	307047.00	2763427.47	3070474.47
Boundary Fencing	187117.23	0.00	0.00	0.00	0.00	187117.23	20791.00	0.10	18712.00	0.00	18712.00	168405.23	187117.23
Boundary Wall	330844.79	0.00	0.00	0.00	0.00	330844.79	36760.00	0.10	33084.00	0.00	33084.00	297760.79	330844.79
Building Complex	45045462.86	0.00	0.00	0.00	0.00	45045462.86	5005051.00	0.10	4504546.00	0.00	4504546.00	40540916.86	45045462.86
Campus Develop	45875389.70	444377.00	12608264.00	0.00	0.00	58928030.70	4010806.00	0.10	5262390.00	0.00	5262390.00	53665640.70	45875389.7
Tennis Court	121441.51	0.00	0.00	0.00	0.00	121441.51	13494.00	0.10	12144.00	0.00	12144.00	109297.51	121441.51
Sports Complex	167674.46	0.00	0.00	0.00	0.00	167674.46	13325.00	0.10	16767.00	0.00	16767.00	150907.46	167674.46
Road & Culvert	367441.48	0.00	0.00	0.00	0.00	367441.48	40827.00	0.10	36744.00	0.00	36744.00	330697.48	367441.48
BLOCK: 5%													
Staff Quarters	5942688.71	0.00	0.00	0.00	0.00	5942688.71	312773.00	0.05	297134.00	0.00	297134.00	5645554.71	5942688.71
TOTAL	**103158976.62**	**444377.00**	**12608264.00**	**0.00**	**0.00**	**116211617.62**	**10022818.00**		**10693612.00**	**0.00**	**10693612.00**	**105518005.62**	**103158976.62**

Pariculars	Gross Block								DEPRECIATION			NET BLOCK	
		Addition during the year											
	Cost as at the beginning of the year	Upto 30-Sep	After 30-Sep	Deduction during the year	Adjustment change of dep rates	Cost as at the end of the year	As at the beginning of the year		For the year	Deduction during the year	At the end of the year	As at the current year-end	As at the Previous year-end
PLANT MACHINERY & EQPT													
BLOCK: 15%													
Vehicle	4830767.10	0.00	0.00	0.00	0.00	4830767.10	852488.00	0.15	724615.00	0.00	724615.00	4106152.10	4830767.1
Development of Forensic Laboratory	4566524.16	145169.00	39372.00	0.00	0.00	4751065.16	805857.00	0.15	709707.00	0.00	709707.00	4041358.16	4566524.16
Training Equipment	2217155.80	0.00	0.00	0.00	0.00	2217155.80	391263.00	0.15	332573.00	0.00	332573.00	1884582.80	2217155.8
AC Plant	617155.46	0.00	0.00	0.00	0.00	617155.46	108910.00	0.15	92573.00	0.00	92573.00	524582.46	617155.46
Camp Equipment (project)	167780.80	0.00	0.00	0.00	0.00	167780.80	29608.00	0.15	25167.00	0.00	25167.00	142613.80	167780.8
DG Set	832546.39	0.00	0.00	0.00	0.00	832546.39	146920.00	0.15	124882.00	0.00	124882.00	707664.39	832546.39
EPABX	72433.86	0.00	0.00	0.00	0.00	72433.86	12782.00	0.15	10865.00	0.00	10865.00	61568.86	72433.86
Lab Equipment	3543877.98	0.00	18480.00	0.00	0.00	3562357.98	625390.00	0.15	532968.00	0.00	532968.00	3029389.98	3543877.98
Office Equipment	1687713.07	222361.00	14250.00	0.00	0.00	1924324.07	297558.00	0.15	287580.00	0.00	287580.00	1636744.07	1687713.07
Training Equipment (Training A/c)	1962468.01	2773.00	207028.00	0.00	0.00	2172269.01	346318.00	0.15	310314.00	0.00	310314.00	1861955.01	1962468.01
Office Equipment (Project)	8192.97	0.00	0.00	0.00	0.00	8192.97	1446.00	0.15	1229.00	0.00	1229.00	6963.97	8192.97
Office Equipment (Research Project)	3142207.62	0.00	204343.00	0.00	0.00	3346550.62	542970.00	0.15	486657.00	0.00	486657.00	2859893.62	3142207.62
Camp Equipment (Research Project)	6566025.85	94425.00	30575.00	0.00	0.00	6691025.85	1136906.00	0.15	1001361.00	0.00	1001361.00	5689664.85	6566025.85
TOTAL	**30214849.07**	**464728.00**	**514048.00**	**0.00**	**0.00**	**31193625.09**	**5298416.00**		**4640491.00**	**0.00**	**4640491.00**	**26553134.07**	**30214849.07**
FURNITURE, FIXTURES													
BLOCK : 10%													
Furinitures & Fixtures	3174156.73	332319.00	35724.00	0.00	0.00	3542199.73	352684.00	0.10	352434.00	0.00	352434.00	3189765.73	3174156.73

Pariculars		Gross Block							DEPRECIATION			NET BLOCK	
		Addition during the year											
	Cost as at the beginning of the year	Upto 30-Sep	After 30-Sep	Deduction during the year	Adjustment change of dep rates	Cost as at the end of the year	As at the beginning of the year		For the year	Deduction during the year	At the end of the year	As at the current year-end	As at the Previous year-end
Furniture & Fixture (Training)	312276.59	0.00	0.00	0.00	0.00	312276.59	33651.00	0.10	31228.00	0.00	31228.00	281048.59	312276.59
TOTAL	**3486433.32**	**332319.00**	**35724.00**	**0.00**	**0.00**	**3854476.32**	**386335.00**		**383662.00**	**0.00**	**383662.00**	**3470814.32**	**3486433.32**
OFFICE EQUIPMENT													
BLOCK : 15%													
Office Equipment (Training A/c)	2024233.99	277481.00	45000.00	0.00	0.00	2346714.99	285108.00	0.15	348632.00	0.00	348632.00	1998082.99	2024233.99
TOTAL	**2024233.99**	**277481.00**	**45000.00**	**0.00**	**0.00**	**2346714.99**	**285108.00**		**348632.00**	**0.00**	**348632.00**	**1998082.99**	**2024233.99**
COMPUTER/PERIPHERALS													
BLOCK : 60%													
Comp. and Periphrals	130922.73	0.00	0.00	0.00	0.00	130922.73	196384.00	0.60	78554.00	0.00	78554.00	52368.73	130922.73
Comp. & Accessories	439860.71	600644.00	34909.00	0.00	0.00	1075413.71	659791.00	0.60	634776.00	0.00	634776.00	440637.71	439860.71
E Governance	3916.42	0.00	0.00	0.00	0.00	3916.42	5874.00	0.60	2350.00	0.00	2350.00	1566.42	3916.42
TOTAL	**574699.86**	**600644.00**	**34909.00**	**0.00**	**0.00**	**1210252.86**	**862049.00**		**715680.00**	**0.00**	**715680.00**	**494572.86**	**574699.86**
BOOKS : BLOCK : 100%													
Journals & Periodicals	802184.47	247239.00	4267102.00	0.00	0.00	5316525.47	1116506.00	1.00	3182974.00	0.00	3182974.00	2133551.47	802184.47
LIBRARY BOOK:-BLOCK : 15%													
Library Books	1015012.19	0.00	1485.00	0.00	0.00	1016497.19	179120.00	0.15	152363.00	0.00	152363.00	864134.19	1015012.19
TOTAL	**1817196.66**	**247239.00**	**4268587.00**	**0.00**	**0.00**	**6333022.66**	**1295626.00**		**3335337.00**	**0.00**	**3335337.00**	**2997685.66**	**1817196.66**
GRAND TOTAL	**147883604.11**	**2366788.00**	**17506532.00**	**0.00**	**0.00**	**167756924.12**	**18150352.00**		**20117414.00**	**0.00**	**20117414.00**	**147639510.10**	**147883604.11**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
SHEDULES FORMING PART OF BALANCE SHEET FOR THE YEAR ENDED 31 MARCH 2017

(Amt. Rs.)

SCHEDULE :9 INVESTMENTS FROM EARMARKED/ENDOWMENT FUNDS	Current Year	Previous Year
(1) In the Govt. Securities	0.00	0.00
(2) Other approved Securities	0.00	0.00
(3) Shares	0.00	0.00
(4) Debentures and Bonds	0.00	0.00
(5) Subsidaries and Joint Ventures	0.00	0.00
(6) Others (Specify)	0.00	0.00
TOTAL	**0.00**	**0.00**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
SHEDULES FORMING PART OF BALANCE SHEET FOR THE YEAR ENDED 31 MARCH 2017

(Amt. Rs.)

SCHEDULE :10 INVESTMENT - OTHERS	Current Year	Previous Year
(1) In the Govt. Securities		
(2) Other approved Securities		
(3) Shares		
(4) Debentures and Bonds		
Investment in RBI Bond (GPF)	0.00	18000000.00
Investment in RBI Bond (Pension)	0.00	8500000.00
Investment in RBI Bond (Corpus Fund)	0.00	29800000.00
(5) Subsidaries and Joint Ventures		
(6) Others (Specify)		
Investment in GIA	51980625.00	51980625.00
Investment in Training Account	0.00	769118.00
Investment in FDR (GPF)	98199152.00	56397617.00
Autosweep FDR-GPF	3000000.00	5230000.00
Investment in FDR (Pension Fund)	75377842.00	73102698.00
FDR Corpus Fund	163320114.00	59480690.00
Autosweep FDR Corpus fund	10500000.00	32000000.00
Autosweep FDR-Pension Fund	4500000.00	290000.00
TOTAL	**406877733.00**	**335550748.00**

(P.K. Aggarwal)
Finance Officer

(Dr. V.B. Mathur)
Director

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
SHEDULES FORMING PART OF BALANCE SHEET FOR THE YEAR ENDED 31 MARCH 2017

(Amt. Rs.)

SCHEDULE :11 CURRENT ASSETS, LOANS, ADVANCES ETC.	Current Year	Previous Year
(A) CURRENT ASSETS		
(1) Inventories		
Closing Stock of Steel & Cement	0.00	0.00
Advance paid for Journals (Grant in Aid)	0.00	0.00
Closing Balance of WII Publication	318921.00	336879.00
(2) Sundry Debtors		
(1) Debts Outstanding for a period exceeding six months	0.00	0.00
(2) Others (Specify)		
(3) Cash balances in hand (including cheques/drafts and imprest)		
Grant-in-Aid A/c	10801.00	28409.00
Training A/c	0.00	0.00
Pension Fund A/c	0.00	0.00
GPF A/c	0.00	0.00
Corpus Fund	0.00	0.00
(4) Bank Balances		
(1) With Scheduled Banks		
Grant-in-Aid A/c	5,44,49,195.04	2,40,06,743.04
Training A/c	14791878.00	7341493.00
Pension Fund A/c	1232894.00	53202.00
GPF A/c	1015421.00	51496.00
Corpus fund No 4032	1268477.67	469551.67
Endowment Funds	24992327.52	19804819.07
TOTAL (A)	**98079915.23**	**52092592.78**

(B) LOANS, ADVANCES AND OTHER ASSETS	Current Year	Previous Year
(1) Loans		
(1) Staff		
Loan & Advances to Staff FA(MSc) TA(MSc) FA TA LTC Med Adv)	68400.00	148950.00
Advance for expenses (Staff) (352441+70000+43+400700+42642+22984)	888810.00	40327.00
Advance for expenses (Research Projects)	190362.00	282.00
Land Acquisition Charges (Deposited in Hon'ble High Court)	18000000.00	18000000.00
Loan from other projects	12812.00	4815512.00
Advance for expenses (Training Account)	145000.00	150000.00
GPF	5400.00	0.00
Advance for Vehicle Insurance	65359.00	0.00
(2) Other entities engaged in activities /objectives similar to		
(3) Others (Specify) GIA		
Adv for civil work to CPWD 2129079	9076438.00	2129079.00
Loan for World Environment Day (MoEF)	280984.00	280984.00
Loan for WCF workshop	30253.00	30253.00
Advance Payment-GIA	0.00	0.00

Advance payment to CCU	44300000.00	44300000.00
Advance Payment-Training Account	390181.00	100000.00
(2) Advances and other amounts recoverable in cash or in kind or		
(1) On Capital Accounts		
(2) Prepayments		
(3) Others (Specify)		
Security Deposit for Electricity Connection	412283.00	412283.00
TDS to be refunded by the ITO (Pension Fund)	4322984.00	3269897.00
TDS to be refunded by the ITO (GPF)	2277757.00	1075757.00
TDS to be refunded by the ITO (Corpus fund)	2907227.00	1112967.00
(3) Income Accrued		
(1) On Investments from Earmarked / Endowment Funds		
(2) On Invesments -Others		
Interest Accrued on FDR (GIA)	4271427.00	181724.00
Interest Accrued on FDR (Training Account)	0.00	6048.00
Interest Accrued on FDR (GPF)	7024744.00	4792032.00
Interest Accrued on FDR (Pension Fund)	6501971.00	4429729.00
Interest Accrued on FDR (Corpus Fund)	10922054.00	5298108.00
(3) On Loans and Advances		
(4) Others (Specify)		
Training Cost Accrued But not Received	838375.00	838375.00
Pre-receipted bill issued but not received	0.00	0.00
(4) Expenses payable towards capital/fixed Assets		
(1) Grant in Aid (2013-14)	0.00	0.00
(1) Research Project (2013-14)	13678.00	13678.00
(2) Grant in Aid (2015-16)	112200.00	981188.00
(3) Grant in Aid (2016-17)	1481765.00	0.00
TOTAL (B)	**114540464.00**	**92407173.00**
TOTAL (A+B)	**212620379.23**	**144499765.78**

(P.K. Aggarwal)
Finance Officer

(Dr. V.B. Mathur)
Director

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

(Amt. Rs.)

	Schedule	Current Year	Previous Year
INCOME			
Income from Sales/Services	12	0.00	0.00
Grants/Subsidies	13	245126680.00	244487141.53
Fees/Subscriptions	14	25903179.00	25490707.00
Income from Investments (from earmarked/endowment Funds Transferred to funds)	15	0.00	0.00
Income from Royalty, Publication etc	16	2789895.00	3869439.00
Interest Earned	17	4376568.00	499229.00
Other Income	18	0.00	0.00
Increase/decrease in stock of Finished goods and works-in-progress	19	0.00	0.00
TOTAL (A)		**278196322.00**	**274346516.53**
EXPENDITRUE			
Establishment Expenses (Plan & Non Plan)	20	170706897.00	170022917.00
Other Administrative Expenses (Plan & Non Plan)	21	83510903.01	81396061.95
Expenditure on Grants, Subsidies etc.	22	0.00	0.00
Expenditure on Grants, Subsidies etc.	23	0.00	0.00
Significant account Polices (notes on Accounts)	24	0.0	0.0
CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS (Illustrative)	25	0.00	0.00
Total (B)		**254217800.01**	**251418978.95**
Balance being excess of Income over Expenditure (A-B)		23978521.99	22927537.58
Prior period items (Dep 2005-2015)		0.00	-2142326.84
BALANCE BEING SURPLUS (DEFICIT) CARRIED TO CORPUS/CAPITAL FUND		23978521.99	20785210.74

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

(Amt. Rs.)

SCHEDULE :12 INCOME FROM SALES/SERVICES	Current Year	Previous Year
(1) Income from Sales		
(a) Sale of Finished Goods	0.00	0.00
(b) Sale of Raw Material	0.00	0.00
(c) Sale of Scraps	0.00	0.00
(2) Income from Services		
(a) Labour and Processing Charges	0.00	0.00
(b) Professional/Consultancy Services	0.00	0.00
(c) Agency Commission and Brokerage	0.00	0.00
(d) Maintenance Services (Equipment/Property)	0.00	0.00
(e) Other (Specify)	0.00	0.00
TOTAL	**0.00**	**0.00**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

(Amt. Rs.)

SCHEDULE :13 GRANTS/SUBSIDIES	Current Year	Previous Year
(1) Central Government		
Grant -in- Aid from MoEF	265000000.00	271700000.00
Amt capitalized (-)	19873320.00	27212858.47
Total	**245126680.00**	**244487141.53**
(2) State Governments (s)		
(3) Government Agencies	0.00	0.00
(4) Institutions/Welfare Bodies	0.00	0.00
(5) International Organisations	0.00	0.00
(6) Others (Specify)		
WII Contribution (Pension A/c)	0.00	0.00
TOTAL	**245126680.00**	**244487141.53**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

(Amt. Rs.)

SCHEDULE :14 FEES/ SUBSCRIPTIONS	Current Year	Previous Year
(1) Entrance Fees		
M.Sc.Course Fee	2346848.00	2587259.00
(2) Annual Fees/ Subscriptions	0.00	0.00
(3) Seminar/ Program Fees		
Seminar/ Workshop Fees	0.00	0.00
(4) Consultancy Fees		
Consultancy refund		
(5) Others (Specify)		
Other Receipt (Training)	16056331.00	15903448.00
Receipt for Training courses	7500000.00	7000000.00
Misc. Receipt (Corpus Fund)		
Pre-receipted bill issued but not received	0.00	0.00
Receipt for Training Cost	0.00	0.00
TOTAL	**25903179.00**	**25490707.00**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

(Amt. Rs.)

SCHEDULE :15 INCOME FROM INVESTMENTS	Investment from Earmarked fund		Investment-Other	
(income on Investment from Earmarked/Endowment funds transferred to Funds)	Current Year	Previous Year	Current Year	Previous Year
1. Interest				
(a) On Govt Securities	0.00	0.00	0.00	0.00
(b) Other Bonds/Debentures	0.00	0.00	0.00	0.00
2. Dividends:				
(a) On Shares	0.00	0.00	0.00	0.00
(b) On Mutual Fund Securities	0.00	0.00	0.00	0.00
3. Rents	0.00	0.00	0.00	0.00
4. Others (Specify)	0.00	0.00	0.00	0.00
TOTAL	**0.00**	**0.00**	**0.00**	**0.00**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

(Amt. Rs.)

SCHEDULE :16 INCOME FROM ROYALTY, PUBLICATION ETC.	Current Year	Previous Year
(1) Income from Royalty		
(2) Income from Publications		
(3) Others (Specify)		
Genetic lab	70000.00	0.00
Misc. Receipts	1222474.00	1678676.00
Intrest on HBA	172370.00	179491.00
Misc Income from Lib	0.00	801125.00
WII Products	17625.00	6719.00
House Licence Fee	660010.00	544164.00
Bus Charges	217386.00	240132.00
Electricity & Water Charges	430030.00	417879.00
Telephone	0.00	1253.00
TOTAL	**2789895.00**	**3869439.00**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

	(Amt. Rs.)	
SCHEDULE :17 INTEREST EARNED	**Current Year**	**Previous Year**
(1) On Term Deposits		
(1) With Scheduled Banks		
Int. on Bank Deposit	0.00	0.00
Interest on FDR	0.00	
Interest on Investment	0.00	0.00
(2) With Non-Scheduled Banks	0.00	0.00
(3) With Institutions	0.00	0.00
(4) Others (Specify)		
Int. on Investment(Training)	0.00	0.00
Interest (Training)	0.00	0.00
(2) On Savings Account		
(1) With Scheduled Banks		
Int. on Savings Account	0.00	0.00
Accrued Interest on FDR A/c (GIA)	4089703.00	181724.00
Accrued Interest on FDR A/c (Training A/c)	0.00	6048.00
Interest on Saving A/c (Training A/c)	248834.00	311457.00
Interest Received Training account against FDR	38031.00	0.00
(2) With Non-Scheduled Banks		
(3) Post Office Savings Account		
(4) Others (Specify)		
(3) On Loans		
(1) Interest on Loan & Advance		
(2) Others	0.00	0.00
(4) Interest on Debtors and Other Receivables		
TOTAL	**4376568.00**	**499229.00**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

		(Amt. Rs.)
SCHEDULE :18 OTHER INCOME	**Current Year**	**Previous Year**
(1) Profit on Sale/Disposal of Assets		
(1) Owned Assets	0.00	0.00
(2) Assets acquired out of grants, or received free of cost	0.00	0.00
(2) Export Incentives realized		
(3) Fees for Misc. Services		
(4) Others (Specify)		
Misc. Receipts	0.00	0.00
EMD Forfeited	0.00	0.00
Receipt for Project	0.00	0.00
TOTAL	**0.00**	**0.00**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

(Amt. Rs.)

SCHEDULE :19 INCREASE/DECREASE IN STOCK OF FINISHED GOODS	Current Year	Previous Year
(1) Closing Stock		
(1) Finished Goods		
Closing Stock of WII Publication	0.00	0.00
(2) Work-in-progress	0.00	0.00
(2) Less : Opening Stock		
(1) Finished Goods	0.00	0.00
(2) Work-in-progress	0.00	0.00
TOTAL	**0.00**	**0.00**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

(Amt. Rs.)

SCHEDULE :20 ESTABLISHMENT EXPENSES	Less of Last yr committed	Current Year		Previous Year	
		Plan	Non Plan	Plan	Non Plan
(1) Salaries and Wages					
Salary & Wages (Training A/c)		694642.00		357267.00	
Honorarium		99400.00		33000.00	
Medical		6584065.00		5730857.00	
Fellowship - Forensic Cell		1469287.00	0.00	968874.00	0.00
Salaries & Allowances		134440280.00	15000000.00	127235957.00	13500000.00
Stipend		666401.00		795859.00	
Fellowship & Wages (Research Project)		3031632.00		3349578.00	
(2) Allowances and Bonus					
Bonus		909385.00		376383.00	
OTA		105986.00		155480.00	
LTC		1816184.00		1686897.00	
Corpus Fund (Training)		0.00		0.00	
Transferred to Corpus Fund		0.00		0.00	
Honorarium (Training A/c)		0.00		0.00	
(3) Others (Specify)					
(4) Contribution to Other Fund (Specify)		1953839.00		9761396.00	
Leave Salary and Pension Contr.					
(5) Staff Welfare Expenses Uniforms		0.00		0.00	
(6) Expenses on Employees Retirement and Terminal Benefits					
Final Payment					
Leave Encashment & Gratuity		3829544.00		5743775.00	
(7) Others (Specify)					
Camp Expenses (Research Project)		106252.00		327594.00	
TOTAL		**155706897.00**	**15000000.00**	**156522917.00**	**13500000.00**

(P.K. Aggarwal)
Finance Officer

(Dr. V.B. Mathur)
Director

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

(Amt. Rs.)

SCHEDULE :21 OTHER ADMINISTRATIVE EXPENSES	R&P	Committed	Current Year		Previous Year	
			Plan	Non Plan	Plan	Non Plan
AMC of Computers	2018912	0	2018912.00	0.00	1514811.00	0.00
Annual Research Seminar	499383	0	499383.00	0.00	303875.00	0.00
Contingencies/Misc. (Research Project)	631440	0	631440.00	0.00	1601112.00	0.00
Cont./Misc. (Training Account)	1665322.46	0	1665322.46	0.00	3186804.95	0.00
Expenses for Library	99890	0	99890.00	0.00	48633.00	0.00
Electricity and Water Charges	9661368	0	9661368.00	0.00	6953714.00	0.00
Estate Maintenance	542991	0	542991.00	0.00	402252.00	0.00
Estate Security	6203086	0	6203086.00	0.00	7213907.00	0.00
Lab Expenses (Research lab)	194814	33713	228527.00	0.00	273764.00	0.00
Lab Expenses (Forensic Lab)	898776	395190	1293966.00	0.00	3798299.00	0.00
Lab Expenses (Genetic Lab)	102485	100326	202811.00	0.00	10782.00	0.00
Legal Expenses	287361	0	287361.00	0.00	196000.00	0.00
M.Sc. Course Expenditure	2714779	0	2714779.00	0.00	3020225.00	0.00
Operational Expenses (174215+691781)	865996	0	865996.00	0.00	237569.00	0.00
Corpur Fund Transfer (Training Account)	200000.00		200000.00	0.00	5701000.00	0.00
POL & Maintenance of Vehicle (Research Project)	555787	0	555787.00	0.00	1278250.00	0.00
POL & Maintenance of Vehicle (Training A/c)	967974	0	967974.00	0.00	1020023.00	0.00
POL for Vehicles	620495	0	620495.00	0.00	1024922.00	0.00
Postage & Telegrams	132300	0	132300.00	0.00	198930.00	0.00
Printing & Binding	34500	0	34500.00	0.00	144273.00	0.00
Borading & Lodging (Training Account)	5961507.55	0	5961507.55	0.00	4493589.00	0.00
Repair & Maintenance of Vehicles	790171	0	790171.00	0.00	486225.00	0.00
Repair of Vehicle (Training Account)	17925	0	17925.00	0.00	778542.00	0.00
Repair & Maintenance furniture & Fixture	112527	0	112527.00	0.00	95952.00	0.00
Sports	310300	0	310300.00	0.00	87671.00	0.00
Sport Goods (Training Account)	7366	0	7366.00	0.00	67988.00	0.00
Stationery	426595	17159	443754.00	0.00	499540.00	0.00
Training Allowance	0	0	0.00	0.00	0.00	0.00
Telephone & TC	486360	0	486360.00	0.00	516696.00	0.00
Training & Skill Upgradation of Staff	0	0	0.00	0.00	0.00	0.00
Training Cost Expenditure	7500000	0	7500000.00	0.00	7000000.00	0.00
Travel Exp. (Grant in Aid)	1297997	0	1297997.00	0.00	1154926.00	0.00
Travel Exp. (Research Project)	462066	0	462066.00	0.00	280232.00	0.00
Travelling Expenses (Training A/c)	5770899	0	5770899.00	0.00	6549508.00	0.00
Maintenancae of civil work	1011650	0	1011650.00	0.00	968798.00	0.00

(Amt. Rs.)

SCHEDULE :21 OTHER ADMINISTRATIVE EXPENSES	R&P	Committed	Current Year		Previous Year	
			Plan	Non Plan	Plan	Non Plan
Add : Expenditure Plant & Treee (As pointed out by Audit)	0	0	0.00	0.00	0.00	0.00
Wild Life Health Lab	0	100000	100000.00	0.00	96121.00	0.00
Herbarium	34242	0	34242.00	0.00	94527.00	0.00
Sales for Complementary-Lib.	17958	0	17958.00	0.00	15517.00	0.00
Repair of Building (Training Account)	1064878	0	1064878.00	0.00	23561.00	0.00
DST Funded Asiatic Lion & GPS telemetry	300000	0	300000.00	0.00	0.00	0.00
Fund Transfer to GIA-(Intt. For Corpus)	8277000	0	8277000.00	0.00	1907171.00	0.00
Depriciation during the year (19427240+690174)	20117414.00	0.00	18150352.00	0.00		
TOTAL	**646388.00**		**83510903.01**	**0.00**	**81396061.95**	**0.00**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

(Amt. Rs.)

SCHEDULE :22 EXPENDITURE ON GRANTS, SUBSIDIES ETC...	Current Year		Previous Year	
	Plan	Non Plan	Plan	Non Plan
(a) Grants given to Institutions/Organisation	0.00	0.00	0.00	0.00
(b) Subsidies given to Institution?Organisations	0.00	0.00	0.00	0.00
TOTAL	**0.00**	**0.00**	**0.00**	**0.00**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

(Amt. Rs.)

SCHEDULE :23 EXPENDITURE ON GRANTS, SUBSIDIES ETC...	Current Year		Previous Year	
	Plan	Non Plan	Plan	Non Plan
(a) On Fixed Loans	0.00	0.00	0.00	0.00
(b) On other Loans (including Bank Chargs)	0.00	0.00	0.00	0.00
(c) Other (Specify)	0.00	0.00	0.00	0.00
TOTAL	**0.00**	**0.00**	**0.00**	**0.00**

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

SCHEDULE – 24 SIGNIFICANT ACCOUNTING POLICIES (Notes on Accounts)

1 ACCOUNTING CONVENTION

The financial statement are prepared on the basis of historical cost convention, unless otherwise stated and on the accrual method of accounting.

2 INVENTORY VALUATION

2.1 Stores and spares (including machinery spares) are valued at cost.

2.2 Nil

3 INVESTMENTS

3.1 Investments classified as Long term investments are carried at cost. Provision for decline, other than temporary, is made on carrying cost of such investments.

3.2 Investments classified as current are carried at lower of coast and fair value. Provision for shortfall In the value of such investments is made for each investment considered individually and not on a global basis.

3.3 Cost includes acquisition expenses like brokerage, transfer stamps.

4 EXCISE DUTY

Nil

5 FIXED ASSETS

5.1 Fixed assets are stated at cost of acquisition inclusive of inward freight, duties and taxes and incidental and direct expenses related to acquisition. In respect of projects involving construction, related pre-operational expenses (including interest on loan for specific project prior to its completion), form part of the value of the assets.capitalized

5.2 Fixed assets received by way of non-monetary grants, (other than towards the Corpus Fund), are capitalized at values stated by corresponding credit to capital Reserve.

6 DEPRECIATION

6.1 Depreciation is provided on "Written Down Value method" as per specified in the Income-tax, 1961 except depreciation on cost adjustments arising on account of conversion of foreign currency, liabilities for acquisition of fixed assets, which is amortized over the residual life of the respective assets.

6.2 In respect of additions to/deductions from fixed assets during the year, depreciation is considered on pro-rata basis.

6.3 Nil

7 MISCELLANEOUS EXPENDITURE

Nil

8 ACCOUNTING FOR SALES

Nil

9 GOVERNMENT GRANT/SUBSIDIES

9.1 Government grants of the natures of contribution towards capital cost of setting up projects are treated as Capital Reserve

9.2 Government grants in respect of specific assets acquired are shown as a deduction from the cost of the releated assets.

9.3 Government grants /subsidy are accounted on realization basis.

10 FOREIGN CURRENCY TRANSACTION

10.1 Transaction denominated in foreign currency are accounted at the exchange rate prevailing at the date of the transaction.

10.2 Current assets, foreign currency loans and current liabilities are converted at the exchange rate prevailing as at the year end and the resultant gain/loss is adjustment to cost of fixed assets, if the foreign currency liability related to fixed assets, and in other cases is considered to revenue

11 LEASE

Lease rentals are expensed with reference to lease terms.

12 RETIREMENT BENEFITS

The pension scheme followed in the institute is based on CCS Pention Rules, for the employees appointed prior to 01 Jan 2004. The New Pension Scheme(NPS) is in operation for the employees recruited on or after 01 Jan 2004

13 PRIOR PERIOD ITEMS

13.1 Prior period items, Extraordinary items and changes in Accounting Policies are accounted in accordance with Accounting Standard-5.

FORM OF FINANCIAL STATEMENTS(NON-PROFIT ORGANISATIONS)
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

(Amt. Rs.)

SCHEDULE :25 - CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS (Illustrative)	Current Year		Previous Year	
	Plan	Non Plan	Plan	Non Plank
1 CONTINGENT LIABILITIES				
1.1 Claims against the Entity not acknowledged as debts	-	-	-	-
1.2 In respect of :				
Bank guarantees given by/on behalf of the entity	-	-	-	-
Letters of Credit opened by Bank on behalf of the Entity	-	-	-	-
Bills discounted with banks	-	-	-	-
1.3 Disputed demands in respect of :				
Income Tax	-	-	-	-
Sales-Tax	-	-	-	-
Municipal Taxes	-	-	-	-
1.4 In respect of claims from parties for non-execution of orders, but contested by the Entity	-	-	-	-
2 CAPITAL COMMITMENTS				
Estimated value of contracts remaining to be executed on capital account and not provided for (net of advance)	-	-	-	-
3 LEASE OBLIGATIONS				
Future obligations for rentals under finance lease arrangements for Plant and Machinery amount to	-	-	-	-
4 CURRRENT ASSESTS, LOANS AND ADVANCES				
In the opinion of the Management, the current assets, loans and advances have a value on realization in the ordinary course of business, equal at least to the aggrerate amount shown in the Balance Sheet.	-	-	-	-
5 TAXATION				
In view of there being no taxable income under Income-tax Act 1961, no provison for income tax has been considered necessary	-	-	-	-
6 FOREIGN CURRENCY TRANSACTIONS				
6.1 Value of Imports calculated on C.I.F. Basis :				
Purchase of finished Goods	0.00	0.00	0.00	0.00
Raw Materials & Components (including in transit)	0.00	0.00	0.00	0.00
Capital Goods	0.00	0.00	0.00	0.00
Stores, Spares and Consumables	0.00	0.00	0.00	0.00
6.2 Expendidtudre in foreign currency:				
a) Travel	0.00	0.00	0.00	0.00
b) Remittances and Interest payment to Financial Institutions/ Banks in Foreign Currency	0.00	0.00	0.00	0.00
c) Other expenditure:				
Commission on Sales	0.00	0.00	0.00	0.00
Legal and Professional Expenses	0.00	0.00	0.00	0.00
Miscellaneous Expenses	0.00	0.00	0.00	0.00
6.3 Earnings:				
Value of Exports on FOB basis	0.00	0.00	0.00	0.00

(Amt. Rs.)

SCHEDULE :25 - CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS (Illustrative)	Current Year		Previous Year	
	Plan	Non Plan	Plan	Non Plank
6.4 Remuneration to auditors				
As auditors				
Taxation Matters	0.00	0.00	0.00	0.00
For Management Services	0.00	0.00	0.00	0.00
For certification	0.00	0.00	0.00	0.00
other	0.00	0.00	0.00	0.00
7 Corresponding figures for the previous year have been regrouped/ rearranged, wherever necessary	0.00	0.00	0.00	0.00
8 Schedules 1 to 25 are annexed to and form an integral part of the Balance Sheets as at 31 Mar 2016 and the Income and Expenditure Account for the year ended on that date.	0.00	0.00	0.00	0.00
TOTAL	**0.00**	**0.00**	**0.00**	**0.00**

GENERAL PROVIDENT FUND ACCOUNT NO. 518502010001297
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

Income		Expenditure	
Particulars	**Amount**	**Particulars**	**Amount**
Opening Balance	5281496.00	Final payment of GPF	5865962.00
Interest Received on Saving Account	307893.00	Investment	37000000.00
Interest Earned on RBI Bond	9736200.00	Advance/Withdrawal paid	6878363.00
GPF Contribution	20034157.00	Interest Accrued and invested	7024744.00
Encashment of RBI Bonds	18000000.00	TDS on Interest if FDR	0.00
Interest Accrued on FDR	7024744.00	Loan to Deputationists	150000.00
Refunded of Loan	550000.00	Bank Balance	4015421.00
Total	**60934490.00**	**Total**	**60934490.00**

PENSION FUND ACCOUNT NO. 518502010000018
WILDLIFE INSTITUTE OF INDIA, CHANDRABANI, DEHRADUN
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 2016-17

Income		Expenditure	
Particulars	**Amount**	**Particulars**	**Amount**
Opening Balance	343202.00	Investment in FDR	3000000.00
Interest Received on Saving Account	208045.00	Commuted Value of Pension	1252502.00
Interest Earned on FDR	270779.00	Family Pension/ Pension	12306418.00
Interest Earned on RBI Bonds	4597650.00	Interest Accrued and invested	6501971.00
WII Contribution	3234733.00	Loan	1000000.00
Encashment of FDR	5137405.00		
Encashment of RBI Bonds	8500000.00		
Interest Accrued	6501971.00		
Refund of Loan	1000000.00	Bank Balance	5732894.00
Total	**29793785.00**	**Total**	**29793785.00**

FORM OF FINANCIAL STATEMENTS (NON-PROFIT ORGANISATIONS)
Wildlife Institute of India, Dehradun
Fixed Assets Purchased from Funds reflected in Schedule-3

Pariculars	Gross Block					DEPRECIATION				NET BLOCK	
		Addition during the year									
	Cost as at the beginning of the year	Upto 30-Sep	After 30-Sep	Deduction during the year	Cost as at the end of the year	As at the beginning of the year	For the year	Deduction during the year	At the end of the year	As at the current year-end	As at the Previous year-end
PLANT MACHINERY & EQPT											
BLOCK: 15%											
Office Equipment	5274881.36	724442.00	87065.00	0.00	6086388.36	0.00	906428.38	0.00	906428.38	5179959.98	5274881.36
Camp Equipment	3846448.19	193205.00	22000.00	0.00	4061653.19	0.00	607597.98	0.00	607597.98	3454055.21	3846448.19
TOTAL	**9121329.55**	**917647.00**	**109065.00**	**0.00**	**10148041.57**	**0.00**	**1514026.38**	**0.00**	**1514026.38**	**8634015.19**	**9121329.55**
FURNITURE, FIXTURES											
BLOCK : 10%											
Furnitures & Fixtures	184270.95	60738.00	0.00	0.00	245008.95	0.00	24500.90	0.00	24500.90	220508.06	184270.95
TOTAL	**184270.95**	**60738.00**	**0.00**	**0.00**	**245008.95**	**0.00**	**24500.90**	**0.00**	**24500.90**	**220508.06**	**184270.95**
BOOKS : BLOCK : 60%											
Books	69537.04	0.00	0.00	0.00	69537.04	0.00	41722.22	0.00	41722.22	27814.82	69537.04
TOTAL	**69537.04**	**0.00**	**0.00**	**0.00**	**69537.04**	**0.00**	**41722.22**	**0.00**	**41722.22**	**27814.82**	**69537.04**
GRAND TOTAL	**9375137.54**	**978385.00**	**109065.00**	**0.00**	**10462587.56**	**0.00**	**1580249.50**	**0.00**	**1580249.50**	**8882338.06**	**9375137.54**

(P.K. Aggarwal)
Finance Officer

(Dr. V.B. Mathur)
Director

WII - BCRLI Project
RECEIPT & PAYMENT ACCOUNT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	17,29,798.28	Biological Indicators for assessing conservation objectives	18,10,072.00
Grant Received	70,00,000.00		
Interest on Saving Bank Account	45,325.00	Ecological Mapping	6,31,519.00
Advances of TA/FA recovered	30,341.00	WII Input/support	51,723.00
		Lessons learnt visits	60,790.00
		Regional Workshop	1,74,000.00
		Developing Learning material	1,45,506.00
		Courses for Range Officers	4,55,595.00
		Publication Materials	40,340.00
		Subscription of E-journals	19,89,780.29
		Study tours	2,79,368.00
		Equipment	30,660.00
		Salary/Fellowship	9,06,894.00
		Vehicle hiring	1,15,207.00
		Consumables	61,691.00
		Advances given for TA/FA	15,000.00
		Total Expenditure`	67,68,145.29
		Cash & Bank Balance (Closing) A/c No. CC-33049/SA-55237	20,37,318.99
Grand Total	**88,05,464.28**	**Grand Total**	**88,05,464.28**

WII - RE-INTRODUCTION OF CHEETAH PROJECT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	27,190.00	Biologists / sociologist	5,884.00
Intrest	874.00	Travel Exp	3,284.00
		Total Expenditure	9,168.00
		Bank Balance as on 31.03.2017 UBI-52366	18,896.00
Grand Total	**28,064.00**	**Grand Total**	**28,064.00**

AN ASSESSMENT OF BREEDING ,FORAGING AND HABITAT USE PATTERNS OF A THREATENED PISCIVOROUS COLONIAL NESTING WATERBIRD,ORIENTAL DARTER AT BHITARKANIKA MANGROVES
RECEIPT & PAYMENT FROM 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	5,57,781.00	Manpower	1,18,040.00
Bank Interest for F.Y. 2016-17	31,638.00	Contingency	43,847.00
		Equipment	46,848.00
		Total Expenditure	2,08,735.00
		Bank Balance as on 31.03.2017 UBI A/c No.: 55104	3,80,684.00
Grant Total	**5,89,419.00**	**Grant Total**	**5,89,419.00**

AITEP 2013-15/MSTRIPS/EVA PHY STREES & REPRODUCTIVE POTENTIAL TIGER CORBETT RADIO TELEMETRY, DIBANG, GENETIC CONNECTIVITYPROJECT RECEIPT & PAYMENT FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	97,22,008.70	Equipment (Camera Trap, Compass, Range Finder etc.)	43,47,883.00
MSTrIP Project	72,68,000.00	Contractual tech for data collection	33,78,469.00
Intrest	4,09,834.00	Vehicle hiring for data collection	7,75,265.00
A/c No 8	27,39,200.00	Wages for field assistant	6,65,563.00
Tiger Cell	20,76,900.00	Travel exp(including International for Conferences)	10,68,567.00
Misc Grant (MP)	6,70,000.00	Training Workshop (Six)	0.00
Grant 21.06.2016	2,84,000.00	GIS Staff (Contructual for Data Analysis)	9,03,900.00
Grant15.09.2016 (MP)	13,98,000.00	Contingencies	14,75,164.00
GTF 4,41,659.00		Pub & Trg material	11,02,746.00
A/c No 55580 (E Bird)	10,00,000.00	A/c No 8	33,15,200.00
Vetnary Grant 7/2/17	1,40,000.00	Misc Grant transfer	35,18,559.00
Genetic Connectivity	2,00,000.00	Loan to other project(T/Cell)	15,00,000.00
Sunderban TR	2,00,000.00	Advances (FA/TA)	1,31,768.00
Dibang Project	1,82,000.00	Total expenditure	2,21,83,084.00
Radio Telematory	6,00,000.00		
TATR Project	11,73,520.00		
Goa State	1,85,000.00		
Tiger Cell	5,05,515.00		
Kahna Project	5,00,000.00		
Loan Eco Impact Assement	6,00,000.00	Bank Balance as on 31.03.2017 UBI A/c 50968	81,12,552.70
Grand Total	**3,02,95,636.70**	**Grand Total**	**3,02,95,636.70**

WII - LONG TERM MONITORING OF TIGER AT TATR, GREAT INDIAN BUSTARD AND MAPPING & EVALUATION PATTERN OF LANDSCAPE RECEIPT & PAYMENT FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	26,74,112.32	Salaries & Wages	10,49,967.00
Grant Received TATR	9,58,000.00	Travel	10,27,999.00
Grant recd TATR	30,00,000.00	contingences	2,73,965.00
Intrest from Bank	1,61,178.00	Equipment	36,28,757.00
New Project (A/c No 55244)	23,90,000.00	A/c No 55244	23,90,000.00
		Expenses for advance	6,469.00
		Total expenditure	83,77,157.00
		Bank Balance as on 31.03.2017 UBI A/c 53431	8,06,133.32
Grand Total	**91,83,290.32**	**Grand Total**	**91,83,290.32**

HABITAT IMPROVEMENT & CONSERVATION BREEDING OF THE INDIAN BUSTARD
RECEIPT & PAYMENT
FROM 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	94,18,436.00	Staff engagement	25,98,891.00
Advance for expenses	20,000.00	Conservation Breeding	63,910.00
Interest Received	2,47,245.00	Applied Research	57,18,786.82
FDR Interest	6,13,505.00	Capacity Building and Awareness	3,80,347.00
FDR withdrawal	1,00,00,000.00	Pilot Habita Management	49,691.00
		Advance to Management Unit	60,35,936.00
		Advance Outstanding	3,24,719.00
		Total Expenditure	1,51,72,280.82
		Bank Balance as on 31.03.2017 UBI A/c 55292	51,26,905.18
Grand Total	**2,02,99,186.00**	**Grand Total**	**2,02,99,186.00**

DEVELOPMENT OF CONSERVATION PLAN FOR RIVER DOLPHINS
RECEIPT & PAYMENT
FROM 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	60,38,795.00	Manpower engagement	26,72,849.00
Advance for expenses	80,000.00	Capacity Building & Awareness	5,69,556.00
Interest Received	1,19,810.00	Research	73,69,994.31
FDR Interest	7,75,272.00	Misc/Contingency	3,70,304.00
FDR withdrawal	1,25,00,000.00	Advance to Management Unit	59,69,253.00
		Advance Outstanding	4,05,494.00
		Total Expenditure	1,73,57,450.31
		Bank Balance as on 31.03.2017 UBI A/c 55293)	21,56,426.69
Grand Total	**1,95,13,877.00**	**Grand Total**	**1,95,13,877.00**

WII - ECOLOGICAL IMPACT ASSESSMENT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Grant Received	20,18,560.00	Fellowship	4,66,998.00
Bank Intrest	64,609.00	POL & Vehicle hiring	2,820.00
		Travel expenses	40,827.00
		Loan	7,00,000.00
		Contingency	26,292.00
		Field equipment	9,960.00
		Total Expenditure	12,46,897.00
		Bank Balance as on 31.03.2017 UBI A/c 55338	8,36,272.00
Grand Total	**20,83,169.00**	**Grand Total**	**20,83,169.00**

REVOLVING FUND FOR GUEST HOUSE MAINTENANCE A/C NO. 54189
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	15,25,900.00	Operational Expenses	68,73,822.00
Rent Charges received	45,13,450.00	Fixed Assets: Equipment	0.00
Hostel Accomodation Charges	18,65,315.00	Almirah	18,788.00
Food Bill Charges	4,66,841.00	Fitting of PVC Panel	28,050.00
Interest credited by UBI	38,718.00	Geyser	9,010.00
Misc. Receipts	1,37,554.00	Heat Converters	11,750.00
		RO System	1,93,000.00
		Total Expenditure	71,34,420.00
		Bank Balance at UBI (A/C No 54189)	14,13,358.00
Grand Total	**85,47,778.00**	**Grand Total**	**85,47,778.00**

WII MANAGEMENT EFFECTIVENESS EVALUATION (MEE) OF PROTECTED AREAS
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	25,22,733.04	Travel Expenses	21,25,686.00
Interest received 2016-17	99,306.00	Sitting Fee	3,96,000.00
Grant received for MEE of NPs & WLS	42,51,000.00	Per diem to evaluation team	4,73,098.00
		Report Writing Cost	1,08,000.00
		Project Initiation Cost	3,49,515.00
		Project Management Cost	10,34,118.00
		Miscellaneous & unforeseen Expenses/Overheads	94,306.00
		Expenditure MEE Tiger Reserve	4,66,305.00
		Total Expenditure	50,47,028.00
		Bank Balance A/C No - 62	18,26,011.04
Grant Total	**68,73,039.04**	**Grand Total**	**68,73,039.04**

PROJECT TIGER CO-PREDATOR, PREY & HABITAT PHASE IV
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	1,95,992.00	Fellowships	53,788.00
Interest received 2016-17	5,105.00	Consumeable	23,811.00
		Contingencies	3,156.00
		Equipment	4,072.00
		Total Expenditure	84,827.00
		Bank Balance A/C No - 50673	1,16,270.00
Grand Total	**2,01,097.00**	**Grand Total**	**2,01,097.00**

Housing & Enclosure Enrichment of Some Species in selected Indian Zoos
Receipt & Payments
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	3,51,058.00	Travel	81,120.00
Interest received 2016-17	13,772.00	Equipment	5,610.00
		Transfer to Corpus Fund	2,78,100.00
		Total Expenditure	3,64,830.00
		Bank Balance A/C No - 50912	0.00
Grand Total	**3,64,830.00**	**Grand Total**	**3,64,830.00**

MACROECOLOGY OF THE TERRESTRIAL HERPETOFAUNA IN ANDAMAN & NICOBAR ARCHIPELAGO
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	3,50,192.00	Equipment	11,100.00
Interest received 2016-17	16,442.00	Institutional charges	3,55,534.00
		Bank Balance A/C No - 51031	0.00
Grand Total	**3,66,634.00**	**Grand Total**	**3,66,634.00**

ECOLOGY OF LEOPARD PANTHERA PARDUS IN RELATION TO PREY ABUNDANCE & LAND USE PATTERN IN KASHMIR VALLEY
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	1,19,261.57	Equipment	12,876.00
Interest received 2016-17	5,479.00	Consumeable	64,600.00
		Institutional charges	47,264.57
		Bank Balance A/C No - 51480	0.00
Grand Total	**1,24,740.57**	**Grand Total**	**1,24,740.57**

ECOLOGICAL ASSESSMENT OF BANJ OAK FORESTS IN KEDARNATH WILDLIFE SANCTUARY, WESTERN HIMALAYA WITH REFERENCE TO INVASION BY PINE
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	2,83,723.00	Institutional charges	2,95,056.00
Interest received 2016-17	11,333.00		
		Bank Balance A/C No - 51671	0.00
Grand Total	**2,95,056.00**	**Grand Total**	**2,95,056.00**

DIVERSITY OF MOTHS ASSEMBLAGE AND THEIR POTENTIAL ROLE AS CONSERVATION TOOL IN DIFFERENT PROTECTED AREAS OF UTTRAKHAND
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	59,950.00	Fellowships	19,600.00
Grant received	18,350.00	Consumeable	7,658.00
Interest received 2016-17	1,838.00	Travel	19,485.00
		Bank Balance A/C No - 53258	33,395.00
Grand Total	**80,138.00**	**Grand Total**	**80,138.00**

PREPARING AND UPDATING STUD BOOKS OF 34 ENDANGERED SPECIES (14 OLD AND 20 NEW)
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	9,35,310.08	Salaries	6,20,054.00
Interest received 2016-17	26,844.00	Travel (Data colletion from Zoos)	49,022.00
Grant received	10,63,000.00	Stationery	27,820.00
		Miscellaneous & contingencies	13,155.00
		Bank Balance A/C No - 53274	13,15,103.08
Grand Total	**20,25,154.08**	**Grand Total**	**20,25,154.08**

PATTERN OF BIOMASS PRODUCTION BY WETLANDS AND ITS USE BY WILD UNGULATES IN KAZIRANGA LANDSCAPE
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	4,49,939.00	Manpower	1,46,400.00
Interest received 2016-17	12,835.00	Consumable	30,563.00
Refund of FA	45,000.00	Travel	1,08,329.00
		Contingency	23,000.00
		Bank Balance A/C No - 53439	1,99,482.00
Grand Total	**5,07,774.00**	**Grand Total**	**5,07,774.00**

STUDYING THE DISPERSAL OF TIGERS ACROSS THE EASTERN
RECEIPT AND PAYMENT
FOR THE PERIOD OF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	73,24,981.00	Fellowship & Wages	7,34,812.00
Intrest received	2,07,602.00	Travel Exp.	5,97,138.00
Grant received	19,00,000.00	Base Camp Exp.	1,22,918.00
Advance for expenses	81,000.00	Contingencies	62,460.00
		Field equipment	60,77,124.00
		Total expenditure	75,94,452.00
		Balance UBI A/C No 55244	19,19,131.00
Grand Total	**95,13,583.00**	**Grand Total**	**95,13,583.00**

STUDY IN SHIVALIK AND ARAVALI AREAS
RECEIPT AND PAYMENT
FOR THE PERIOD OF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	14,99,440.00	Manpower	4,00,450.00
Intrest received	45,760.00	Contingencies	33,776.50
Advance for expenses	5,000.00	Travel	1,16,508.00
		Institutional charges	2,25,000.00
		Total expenditure	7,75,734.50
		Balance UBI A/C No 55257	7,74,465.50
Grand Total	**15,50,200.00**	**Grand Total**	**15,50,200.00**

POPULATION ESTIMATION AND HOME SITE
RECEIPT AND PAYMENT
FOR THE PERIOD OF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	4,74,276.00	Fellowship & Wages	2,49,735.00
Intrest received	7,763.00	Travel Exp.	81,838.00
Grant Received	5,99,200.00	Contingencies	46,123.00
		Equipment	1,20,000.00
		Total expenditure	4,97,696.00
		Balance UBI A/C No 55281	5,83,543.00
Grand Total	**10,81,239.00**	**Grand Total**	**10,81,239.00**

CONSERVING GREAT INDIAN BUSTARD LANDSCAPES
RECEIPT AND PAYMENT
FOR THE PERIOD OF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	19,84,000.00	Manpower	2,25,000.00
Intrest	56,501.00	Field Logistic	67,447.00
		contingencies	4,256.00
		Advances (FA/TA)	2,00,000.00
		Total expenditure	4,96,703.00
		Balance UBI A/C No 55339	15,43,798.00
Grand Total	**20,40,501.00**	**Grand Total**	**20,40,501.00**

Genetic Assessment of Wild Caught Leopard in the State of Maharashtra.
RECEIPT AND PAYMENT
For the period of 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	2,50,000.00	Sample collection	1,60,450.00
Intrest received	9,828.00	Diease investigation/Genetic and Forensic	10,800.00
Grant Received	4,76,400.00	Total expenditure	1,71,250.00
		Balance UBI A/C No 55280	5,64,978.00
Grand Total	**7,36,228.00**	**Grand Total**	**7,36,228.00**

WII-BUILDING PARTNERSHIP TO SUPPORT UNESCO WORLD HERITAGE PROGRAMME
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	3,60,807.33	Boarding & Lodging	1,900.00
Ineresstt. Received	8,560.00	Purch. Of Stationery	12,779.00
		Misc. & Contigencies	19,668.00
		Advance for Expenses	2,71,050.00
		Expenditure Total	3,05,397.00
		Bank Balance A/c No. 50246	63,970.33
Grand Total	**3,69,367.33**	**Grand Total**	**3,69,367.33**

WII-ENVIS PROJECT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	11,72,414.75	Fellowship and Wages	9,65,542.00
Intt. Received	56,569.00	Travelling Expenditure	62,072.00
Grant Received	13,73,804.00	Contigency	93,544.00
Misc. Income (Entry Fee of QuiZ-2015)	23,000.00	Report Writing	2,64,000.00
Payable Salary	76,563.00	Office Equipment	1,40,453.00
Xpression Print & Graphices	2,32,500.00	Quiz Programme Expenditure	26,138.00
		Payable Salary	47,003.00
		Expenditure Total	15,98,752.00
		Bank Balance A/c No. 32	13,36,098.75
Grand Total	**29,34,850.75**	**Grand Total**	**29,34,850.75**

WII-UNESCO PROJECT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	25,12,921.41	Travel Expenses	1,03,991.00
Intt.Received	64,490.00	Contigencies Expenses	20,000.00
Loan Received From D/WII A/c No. 51241	1,00,000.00	Advance for Expenses	1,68,600.00
		Expenditure Total	2,92,591.00
		Bank Balance A/c No. 44	23,84,820.41
Grand Total	**26,77,411.41**	**Grand Total**	**26,77,411.41**

WII-DGH SEATURTLE TELEMETRY PROJECT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	8,28,951.28	Printing Expenses	13,860.00
Intt. Received	30,851.00		
		Expenditure Total	13,860.00
		Bank Balance A/c No. 59	8,45,942.28
Grand Total	**8,59,802.28**	**Grand Total**	**8,59,802.28**

WII-GRATUITY OF CONTRIBUTION
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	23,361.00	Contigencies	15.00
Gratuity of Fund	49,794.00		
Interest Received	1,441.00		
		Expenditure Total	15.00
		Bank Balance A/c No. 55326	74,581.00
Grand Total	**74,596.00**	**Grand Total**	**74,596.00**

TIGER RESPONSE TO PRAY HUMAN DISTURBANCE
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	14,95,714.30		
Interest Received	55,665.00		
		Expenditure Total	0.00
		Bank Balance A/c No. 60	15,51,379.30
Grand Total	**15,51,379.30**	**Grand Total**	**15,51,379.30**

ISRO-GBP PROJECT ON LULC DYNAMICS & BIOFIN PROJECT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	14,552.00	Salary & Wages	15,53,763.00
Grant Received-BIOFIN Project	44,35,083.00	Boarding & Lodging	4,695.00
Intt. Received	49,884.00	Travel Expenses	2,81,728.00
		Institutional Charges	4,03,189.00
		Misc. & Contigencies	90,721.13
		Advance for Expenses	2,465.00
		Loan Refund A/c No. 44	1,00,000.00
		Expenditure Total	24,36,561.13
		Bank Balance A/c No. 51241	20,62,957.87
Grand Total	**44,99,519.00**	**Grand Total**	**44,99,519.00**

INTERRATED DEVELOPMENT OF WILDLIFE HABITATS
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	48,868.00	Travel Expenditure	45,184.00
Intt. Received	2,250.00	Contigencies	5,990.00
Advance for Expenses	55,000.00		
		Expenditure Total	51,174.00
		Bank Balance A/c No. 51240	54,944.00
Grand Total	**1,06,118.00**	**Grand Total**	**1,06,118.00**

WII-MONITORING LAND-USE BY WILDLIFE. LIVESTOCK AND HUMAN IN KHANGCHENDZONGA BIOSPHERES RESERVE
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	63,425.10		
Intt. Received	2,361.00	Expenditure Total	0.00
		Bank Balance A/c No. 51411	65,786.10
Grand Total	**65,786.10**	**Grand Total**	**65,786.10**

I U C N CELL
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	2,93,742.39	Travel Expenditure- Resoruce Personal	1,03,563.00
Intt. Received	16,221.00	Travel Expenditure- Administration IUCN	32,190.00
Member Ship Fees	2,52,000.00	Report Printing	33,503.00
		Misc. and Meeting and Confrenace	4,077.00
		Expenditure Total	1,73,333.00
		Bank Balance A/c No. 41	3,88,630.39
Grand Total	**5,61,963.39**	**Grand Total**	**5,61,963.39**

WESTERN TRAGOPAN PROJECT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	15,14,948.00	Travel Expenses	33,345.00
Intt. Received	55,139.00	Contigencies	13,016.00
		Advance for Expenses	20,000.00
		Expenditure Total	66,361.00
		Bank Balance A/c No. 52465	15,03,726.00
Grand Total	**15,70,087.00**	**Grand Total**	**15,70,087.00**

STRUCTURAL AND FUNCTIONAL ATTRUBUTES OF PLANT COMMUNITIES IN COLD ARID REGION OF NANDA DEVI BIOSPHERE RESERVE, UTTARAKHAND
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	10,195.00	Expenditure Total	0.00
Intt. Received	379.00		
		Bank Balance A/c No. 52529	10,574.00
G. Total	**10,574.00**	**G. Total**	**10,574.00**

ASSESSMENT OF DUGONG DISTRIBUTION, HABITAT AND RISKS DUE TO FISHERIES AND OTHER ANTHROPOGENIC RELATED ACTIVITIES IN INDIA
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	1,43,763.00	Corpus Fund Transfer A/c No. 4032	1,49,767.00
Intt. Received	6,004.00		
		Expenditure Total	1,49,767.00
		Bank Balance A/c No. 53244	0.00
Grand Total	**1,49,767.00**	**Grand Total**	**1,49,767.00**

ASSESSMENT OF ECOLOGICAL SETTING AND BIODIVERSITY VALUES OF PAPIKONDA NATIONAL PARK AND INDIRA SAGAR (POLAVARAM) MULT. PROJECT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	5,87,529.00	Expenditure Total	0.00
Intt. Received	21,866.00		
		Bank Balance A/c No. 53223	6,09,395.00
Grand Total	**6,09,395.00**	**Grand Total**	**6,09,395.00**

ECOLOGY AND CONSERVATION OF SEA TURTLE OFF COAST OF THE SINDHUDURG USING SATELLITE TRACKING TECHNIQUES DEVELOPMENT OF INTERGRATED MANAGEMENT PLAN OF THE THANE CREEK FLAMINGO SANCTUARY
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT AMOUNT (In Rs.)		PAYMENT	AMOUNT (In Rs.)
Opening Balance	7,00,332.00	Fellowship & Wages	5,97,503.00
Intt. Received	12,264.00	Travel Expenses	2,83,169.00
Grant-Development of Intergrated	4,77,048.00	Contigencies	3,455.00
Advance for Expenses	1,599.00	Expenditure Total	8,84,127.00
		Bank Balance A/c No. 54273	3,07,116.00
Grand Total	**11,91,243.00**	**Grand Total**	**11,91,243.00**

WII-UNESCO C 2 C PROJECT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT AMOUNT (In Rs.)		PAYMENT	AMOUNT (In Rs.)
Opening Balance	1,75,05,984.00	Salaries	58,09,897.00
		Fellowship & Visting Fellow	10,95,368.00
Intt. Received	7,97,536.00	Travel Expenditure	6,79,391.00
Director U Cost, Dehradun	4,00,000.00	Contigencies/Misc. Expenses	8,98,401.00
Assam State Biodiversity Board (ASBB)	10,68,800.00	Office Equipment	1,69,315.00
Open Standard Workshop	19,888.00	Database Development & Maintenance	7,38,096.00
The Sahyadri Tiger Cons. Foundation	10,46,500.00	Report Writing	2,01,505.00
		Training & Workshop Expenses	43,30,289.00
		Advance for Expenses	1,14,030.00
		Expenditure Total	1,40,36,292.00
		Bank Balance A/c No. 54034	68,02,416.00
Grand Total	**2,08,38,708.00**	**Grand Total**	**2,08,38,708.00**

WII-THE UNIVERSITY OF BRITISH COLUMBIA
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	99,160.34	Boardig & Loding	2,67,050.00
Grant 6,61,222.00		Travel Expenses	1,791.00
Intt. Received	13,221.00	POL & Vehicle Maint.	19,423.00
		Contigencies	270.32
		Advance for Expenses	1,16,693.00
		Expenditure Total	4,05,227.32
		Bank Balance A/c No. 55061	3,68,376.02
Grand Total	**7,73,603.34**	**Grand Total**	**7,73,603.34**

WILD LIFE INSTITUTE OF INDIA
FOREIGN CONTRIBUTION ACCOUNT
RECEIPT & PAYMENT ACCOUNT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance		Fellowship & Wages	10,39,538.00
UBI A/c No 518502010000010	1,30,80,245.67	Travel Expenditure	29,11,369.86
Interest Received	4,93,686.00	Base Camp Expenses	1,25,916.00
Fund Received		Contigencies	13,62,823.23
ZSL-GFD on Lion Conservation Project	34,49,645.00	Field Equipemt	1,08,246.00
Orientation Cum Training of Offical in WL Forensics	5,35,018.00	Fund Transferred	10,84,160.00
Wildlife Management & Nature Conservation Division, Banladesh	32,98,693.00	Boarding & Lodging	6,31,345.00
National Trust for Nature, New Delhi	4,48,430.49	Corpus Funds	36,19,966.00
World Wide Fund for Nature, New Delhi	10,84,160.00	Report & Writing	9,95,000.00
IPBES Asia Pacific W/shop on 10-11 Nov. 2016	42,12,000.00	Advance for Payment	2,67,887.00
One Month Orientation Cum Tech. Training Forest Officer, Bangladesh	10,19,600.00		
Eco Friendly Measures to Mitigate The Impacts of Lines Infravtruction of Wildlife	27,00,000.00		
Annual Coordinaton Meeting of The UNESCO World Heritage	4,99,030.88	Total Expenditure	1,21,46,251.09
WWF-India (Elephand Expert)	4,70,000.00		
International Center for Intergrated	1,77,252.00		
Advance for Payment	3,89,711.00		
		UBI A/c No 518502010000010	1,97,11,220.95
Grand Total	**3,18,57,472.04**	**Grand Total**	**3,18,57,472.04**

DST-NMSHE PROGRAMME PROJECT-MICRO FLORA AND FAUNA & WILDLIFE ANIMAL POPULATION & DST-NMSHE TEK PROJECT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	24,71,950.00	Manpower	69,77,018.00
Advance for Expenses	1,51,18,325.00	Equipment	37,90,322.00
Grant Received (Project 1)	1,28,73,987.00	Travel & field work	24,38,575.00
Bank Interest for F.Y. 2016-17	2,10,715.00	Consumables	7,32,923.00
Loan received from NMCG project	75,00,000.00	Overhead	4,00,000.00
		Workshop report & Miscellaneous	15,87,410.00
		Printing of reports/Contingencies	69,764.00
		Advance for Expenses	1,91,88,077.00
		Total Expenditure	3,51,84,089.00
		Balance as on 31.03.2017 (A/C No - (54272)	29,90,888.00
Grand Total	**3,81,74,977.00**	**Grand Total**	**3,81,74,977.00**

GIZ STRENTHENING CAPACITY FOR SUSTAINABLE AND PARTICIPATORY MANAGEMENT OF COASTAL & MARINE PROTECTED AREAS IN INDIA
RECEIPT & PAYMENT A/C
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	22,63,113.19	Workshops Training	65,22,836.09
Grants	72,72,968.00	Support Training	1,12,565.00
Interest	54,947.00	Project Cordination	9,55,259.00
		Consumables & Training Equipment	1,70,611.00
		Institutional Charges	8,03,475.00
		Advances for Expenses	2,20,000.00
		Total Expenditure	87,84,746.09
		Balance as on 31.03.2017 (A/C No - 54145)	8,06,282.10
Grand Total	**95,91,028.19**	**Grand Total**	**95,91,028.19**

SARANDA FORESTS
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	6,12,466.00	Consumables	0.00
Interest Received	13,652.00	Equipment	2,68,535.00
Adv for expenses	11,739.00	Fellowship	4,75,670.00
Loan from UNDP	4,00,000.00	Field Camp Establishment	21,100.00
		Mis Expenses	42,899.00
		Travel	28,837.00
		Vehicle Hiring	44,910.00
		Advance for expenses	12,500.00
		Total expenditure	8,94,451.00
		Bank Accounts Saving A/c No. 55074	1,43,406.00
Grand Total	**10,37,857.00**	**Grand Total**	**10,37,857.00**

GEF-UNDP-GOI MUNNAR LANDSCAPE PROJECT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	9,50,267.20	Fellowship	12,500.00
Interest Received	21,913.00	Contingency	50,241.00
Advance for Expenses	15,000.00	Equipment	82,735.00
		Vehicle Hiring	8,275.00
		Travel Expenses	36,337.00
		Advance for Expenses	4,31,381.00
		Total expenditure	6,21,469.00
		Bank Accounts Saving A/c No. 55075	3,65,711.20
Grand Total	**9,87,180.20**	**Grand Total**	**9,87,180.20**

RAPID ASSESSMENT OF ECOLOGICAL IMPACTS OF CAMPING OPERATIONS FOR RIVER RAFTING ALONG THE GANGA
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	86,840.00	Consumables	2,000.00
Grant Received	2,02,500.00	Contingency	14,465.00
Bank Interest for F.Y. 2016-17	8,181.00	Travel	6,128.00
Opening Balance of FA	4,684.00	Total Expenditure	22,593.00
		Balance as on 31.03.2017 A/c No.: 55325	2,79,612.00
Grand Total	**3,02,205.00**	**Grand Total**	**3,02,205.00**

"ASSESSMENT OF IMPACTS ON WILDLIFE OF KEDARNATH VALLEY DUE TO HELICOPTER SERVICES"
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	9,52,236.00	Base Camp Expenses	1,46,220.00
Interest Received	49,065.00	Consumables	5,91,567.00
Grant Received	8,00,000.00	Contigences & Mis	36,763.00
Advance for Expenses	1,15,000.00	Loan repaid to NMSHE	34,936.00
		Travel Expenditure	1,16,298.00
		Wages	1,09,500.00
		Advance for Expenses	1,10,000.00
		Total expenditure	11,45,284.00
		Bank Accounts Saving A/c No. 55282	7,71,017.00
Grand Total	**19,16,301.00**	**Grand Total**	**19,16,301.00**

FORENSIC CELL REVOLVING FUND
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	51,86,427.41	Contingency	1,04,064.00
Advance for Expenses	40,348.00	Travel	2,04,289.00
Grant Received	10,04,977.75		
Interest Received	1,95,839.00		
		Total Expenditure	3,08,353.00
		Balance as on 31.03.2017 A/c No.:- 53911	61,19,239.16
Grand Total	**64,27,592.16**	**Grand Total**	**64,27,592.16**

MONITORING OF RE-INTRODUCED TIGERS IN SARISKA TIGER RESERVE
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	13,35,656.55	Fellowship	4,04,264.00
Grants	28,24,080.00	Travel	73,182.00
Interest	31,241.00	Field Asstt/ wages	9,82,350.00
		Vehicle P.O.L and maintenance	4,36,100.00
		Purchase of 10 VHF Radio Collars & Accessories	14,80,112.00
		Laboratory analysis	12,000.00
		Insurance liability to researchers.	12,596.00
		Misc/Contingency/Base Camp	58,826.00
		Total Expenditure	34,59,430.00
		Bank UBI-50545	7,31,547.55
Grand Total	**41,90,977.55**	**Grand Total**	**41,90,977.55**

RADIO COLLARING OF TIGERS IN SUNDERBANS TIGER RESERVE
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	Grand Total	AMOUNT (In Rs.)
Opening Balance	15,70,617.58	Fellowship & Wages	4,73,548.00
Loan from A/c No 55338	1,00,000.00	Veh POL & Boat hiring	3,46,232.00
Interest 50,067.00		Equipment	96,376.00
Advance for expenses	20,000.00	Travel	1,50,950.00
		Contingencies	43,873.38
		Total expenditure	11,10,979.38
		Bank UBI-50546	6,29,705.20
Grand Total	**17,40,684.58**	**Grand Total**	**17,40,684.58**

MONITORING OF SOURCE POPULATION OF TIGERS IN RANTHAMBORE TIGER RESERVE
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	4,85,161.84	Fellowship and wages	4,46,209.00
Interest	12,655.00	Vehicle Hiring	18,709.00
		Base Camp	6,000.00
		Total Expenditure	4,70,918.00
		Bank UBI - 64	26,898.84
Grand Total	**4,97,816.84**	**Grand Total**	**4,97,816.84**

MONITORING OF RE-INTRODUCED GAUR IN BANDHAVGARH TIGER RESERVE
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	7,08,728.50	Purchase of 10 VHF Radio Collars & accessories	6,13,100.00
Grants Received	8,50,500.00	Insurance liability to researchers and field assistant and driver	6,298.00
Interest 31,438.00		Fellowship & wages/HRA/Mess Bill	3,75,615.00
		TA/DA for the researcher/Investigators (Travel)	1,49,567.00
		Vehicle POL and maintenance	1,49,752.00
		Contingency	50,128.00
		Total Expenditure	13,44,460.00
		Bank UBI-50629	2,46,206.50
Grand Total	**15,90,666.50**	**Grand Total**	**15,90,666.50**

RADIO TELEMETRY MONITORING SOURCE POPULATION OF TIGERS IN KANHA TIGER RESERVE
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	47,53,099.18	TA	6,000.00
Grants	80,000.00	Travel	31,179.00
Interest	1,58,781.00	POL	5,83,547.00
		Fellowship/Wages	5,48,124.00
		Base Camp	2,590.00
		Contingency & Publication	1,48,891.00
		Total Expenditure	13,20,331.00
		Bank UBI-50685	36,71,549.18
Grand Total	**49,91,880.18**	**Grand Total**	**49,91,880.18**

OKHALA BIRD SANCTUARY MANAGEMENT PLAN
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	1,67,633.00	Corpus Funds	1,69,271.00
		Interest	1,638.00
		Total expenditure	1,69,271.00
		Bank UBI - 50885	0.00
Grand Total	**1,69,271.00**	**Grand Total**	**1,69,271.00**

ECOLOGICAL MONITORING OF TIGER POPULATION IN PANNA LANDSCAPE (MP)
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	72,66,412.48	Man Power	11,20,752.00
Grants Received	14,00,000.00	Field Assistant of Wages	4,23,314.00
Interest	2,42,362.00	Vehicle Hiring & Fuel	15,09,663.00
		Contingency/Mis	2,21,202.00
		Travel	95,316.00
		Equipment	1,42,529.00
		Total expenditure	35,12,776.00
		Bank UBI-50908	53,95,998.48
Grand Total	**89,08,774.48**	**Grand Total**	**89,08,774.48**

"CAUSES OF AVIAN DIVERSITY GRADIENTS ALONG THE HIMALAYAS"
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	5,69,861.23	Manpower	2,17,846.00
Grant Received	40,000.00	Contingencies	34,808.00
Bank Interest	10,825.00	Equipment	9,929.00
		Travel & Accomodation	3,48,989.00
		Total Expenditure	6,11,572.00
		Balance as on 31.03.2016 A/c No. 53582	9,114.23
Grand Total	**6,20,686.23**	**Grand Total**	**6,20,686.23**

"EFFECT OF CLIMATE CHANGE ON RIVERINE FORESTS AND INDICATOR SPECIES ALONG RIVER GANGA IN UTTARAKHAND"
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening balance	3,19,621.00	Manpower	9,300.00
Bank Interest	8,818.00	Contingencies	45,505.00
		Total Expenditure	54,805.00
		Balance as on 31.03.2016, A/c no 53319	2,73,634.00
Grand Total	**3,28,439.00**	**Grand Total**	**3,28,439.00**

DISTRIBUTION, POPULATION STATUS & CONSERVATION GENETICS OF CHEER PHEASANT (CATERUS WALLICHI) IN HIMACHAL PRADESH
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	6,587.00		
Bank Interest	245.00		
		Total Expenditure	0.00
		Balance as on 31.03.2016 A/C No - 53669	6,832.00
Grand Total	**6,832.00**	**Grand Total**	**6,832.00**

"DIVERSITY OF SPIDER (ARACHNIDA: ARANEAE) ASSEMBLAGES IN ASKOT WILDLIFE SANCTUARY" UTTARAKHAND, WESTERN HIMALAYA
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	1,35,667.00	Manpower	3,12,495.00
Grant Received From SERB	3,50,000.00	Consumables	57,131.00
Bank Interest	5,556.00	Contingencies	10,482.00
		Travel	16,694.00
		Total Expenditure	3,96,802.00
		Balance as on 31.03.2016 A/c No - 53752	94,421.00
Grand Total	**4,91,223.00**	**Grand Total**	**4,91,223.00**

"ECOLOGY OF SLOTH BEAR IN AND AROUND RATAN MAHAL, JAMBUGHODA SANCTUARIES"
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	5,66,022.00	Manpower	1,65,000.00
Bank Interest	17,111.00	Advance for Expenses	40,000.00
Advance for Expenses	40,000.00		
		Total Expenditure	2,05,000.00
		Balance as on 31.03.2016, A/c No - 53632	4,18,133.00
Grand Total	**6,23,133.00**	**Grand Total**	**6,23,133.00**

ECOLOGY OF THE ENDANGERED ASIATIC LIONS USING SATELLITE AND GPS TELEMETRY
Receipt & Payments
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	1,61,364.00	Travel and Accomodation	41,266.00
Grant Received	7,00,000.00	Manpower	3,49,480.00
Bank Interest	6,009.00	Consumables	4,319.00
		Contingencies	1,08,280.00
		Total Expenditure	5,03,345.00
		Balance on 31.03.16, A/c No - 53583	3,64,028.00
Grand Total	**8,67,373.00**	**Grand Total**	**8,67,373.00**

"ECOLOGY TAXONOMY AND CONSERVATION OF FISH DIVERSITY IN SUBANSIRI RIVER BASIN OF ARUNACHAL PRADESH"
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	5,46,832.00	Equipments	47,467.00
Grant Received	1,50,000.00	Manpower	1,86,400.00
Bank Interest	13,236.00	Consumables	79,438.00
		Contingencies	27,468.00
		Travel	1,81,272.00
		Total Expenditure	5,22,045.00
		Balance as on 31.03.2016, A/c No - 53803	1,88,023.00
Grand Total	**7,10,068.00**	**Grand Total**	**7,10,068.00**

"PLANT PHENOLOGICAL RESPONSES TO CLIMATIC VARIATIONS ALONG TIMBERLINE ECOTONE IN OUTER FRINGES OF ASKOT WILDLIFE SANCTUARY"
Receipt & Payments
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	1,50,320.00	Manpower	2,23,300.00
Grant received	3,00,000.00	Consumables	7,200.00
Bank Interest	6,898.00	Contingencies	14,700.00
		Travel	5,735.00
		Total Expenditure	2,50,935.00
		Balance as on 31.03.2016, A/c No - 53605	2,06,283.00
Grand Total	**4,57,218.00**	**Grand Total**	**4,57,218.00**

"KAILASH SACRED LANDSCAPE CONSERVATION AND DEVELOPMENT INITIATIVE (KSLCDI)"
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	17,76,515.99	Equipment	3,258.00
Grant received	30,97,411.68	Manpower	19,10,381.00
Bank Interest	82,112.00	Travel	4,30,938.00
		Miscellaneous Expenses	1,87,349.00
		Material Supply	64,500.00
		IT Communication/ Stationary	16,018.00
		Overhead/ Institutional Charges	3,00,000.00
		Field work and field base rental	1,03,717.00
		Advance for Expesnes	80,000.00
		Total Expenditure	30,96,161.00
		Balance as on 31.03.2016, A/c No. 53475	18,59,878.67
Grand Total	**49,56,039.67**	**Grand Total**	**49,56,039.67**

PATTERN OF SPATIAL AND TEMPORAL HABITAT OCCUPANCY IN RELATION TO CROP RAIDING BEHAVIOUR AND GENETIC VARIATION OF FREE-RANGING ASIAN ELEPHANT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	4,728.00	Travel	4,991.00
Bank Interest	366.00	Total Expenditure	4,991.00
		Balance as on 31.03.2016, A/c No. 53957	103.00
Grand Total	**5,094.00**	**Grand Total**	**5,094.00**

5TH NATIONAL REPORT TO CONVENTION ON BIOLOGICAL DIVERSITY (CBD) UNDER GEF DIRECTOR ACCESS PROJECT & REVISION OF NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN (NBSAP) UNDER GEF DIRECT ACCESS PROJECT TITLED "STRENGTHENING THE ENABLING ENVIRONMENT AND MANAGEMENT IN INDIA"
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	10,96,730.00	Equipment	18,900.00
Bank Interest	40,605.00	Total Expenditure	18,900.00
		Balance as on 31.03.2016, A/c No - 53203	11,18,435.00
Grand Total	**11,37,335.00**	**Grand Total**	**11,37,335.00**

POPULATION GENETIC STRUCTURE AND GENE FLOW IN BROWN BEAR POPULATION IN INDIA AND ASSESS EXTENT OF GENE FLOW BETWEEN POPULATION OF INDIA & PAKISTAN
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	2,11,939.00	Equipment	1,39,464.00
Grant received from SERB	10,00,000.00	Manpower	5,79,958.00
Bank Interest	13,644.00	Consumables	2,92,961.00
Advance for Expenses	112.00	Travel	57,009.00
		Contingencies	80,897.00
		Total Expenditure	11,50,289.00
		Balance as on 31.03.2016 A/c No. 55018	75,406.00
Grand Total	**12,25,695.00**	**Grand Total**	**12,25,695.00**

GENETIC ASSESSMENT OF SAMBAR RUSA UNICOLOR POPULATION IN NORTH-EAST INDIA
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	7,77,225.00	Equipment	3,55,373.00
Grand Received	8,00,000.00	Manpower	2,10,398.00
Bank Interest	29,068.00	Consumables	1,76,508.00
		Travel	99,214.00
		Contingencies	1,01,941.00
		Total Expenditure	9,43,434.00
		Balance as on 31.03.2016 A/c No. 54947	6,62,859.00
Grand Total	**16,06,293.00**	**Grand Total**	**16,06,293.00**

DST- INSPIRE FACULTY FELLOW &
DST FUNDED: METAPOPULATION DYNAMIC OF TIGER IN TERAI ARC LANDSCAPE PROJECT & POPULATION GENETICS OF SWAMP DEER
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	26,45,740.00	Equipment	16,03,004.00
Bank Interest	71,567.00	Consumables	2,73,197.00
		Travel	73,193.00
		Contingency	37,585.00
		Overheads	3,00,000.00
		Total Expenditure	22,86,979.00
		Balance as on 31.03.2016 A/c No. 54269	4,30,328.00
Grand Total	**27,17,307.00**	**Grand Total**	**27,17,307.00**

EVALUATION OF PREY AVAILABILITY AND HABITAT SUITABILITY FOR TIGER AND ITS RANGING PATTERN IN SANJAY TIGER RESERVE (M.P.)
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	4,02,118.00	Equipment	21,400.00
Grant Received	14,76,200.00	Manpower	9,36,378.00
Bank Interest	36,113.00	Travel	5,33,686.00
		Contingencies	36,921.00
		Institutional Charges	3,62,870.00
		Total Expenditure	18,91,255.00
		Balance as on 31.03.2016 A/c No. 54159	23,176.00
Grand Total	**19,14,431.00**	**Grand Total**	**19,14,431.00**

ASSESSMENT OF THE CONSERVATION VALUE OF MANGROVES OF GUJARAT (PROJECT 1)
MAPPING OF MARINE PROTECTED AREAS OF INDIA COAST INCLUDING ISLANDS (PROJECT 2)
MARINE TURTLE PROJECT ALONG THE COAST OF PUDUCHERRY & KARAIKAL REGION (PROJECT 3)
DETERMINATION OF CONSERVATION VALUE OF MANGROVES OF GOA (PROJECT 4)
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	4,16,287.00	Project Staff/Fellowship/ Field Assistant	18,000.00
Grant Received for Mangroves of Goa (NCSCM)	3,20,000.00	Research Contingency including Inst. Charges	1,88,814.00
Grant Received for Mapping Marine (NCSCM)	4,78,400.00	Travels	1,99,296.00
Bank Interest	24,028.00	Contigencies	3,000.00
		Institutional Charges	1,79,250.00
		Total Expenditure	5,88,360.00
		Balance as on 31.03.2016 A/c No. 54919	6,50,355.00
Grand Total	**12,38,715.00**	**Grand Total**	**12,38,715.00**

HYDRO ELECTRICAL PROJECT & BELLARY MACRO LEVEL STUDY
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	4,55,367.00		
Bank Interest	16,943.00		
		Total Expenditure	0.00
		Balance as on 31.03.2016 A/C No. - 52127	4,72,310.00
Grand Total	**4,72,310.00**	**Grand Total**	**4,72,310.00**

EVALUATING ECOLOGICAL STATUS OF LEOPARDS IN KALESAR NATIONAL PARK, H.R. RECONNAISSANCE SURVEY FOR BLACKBUCK AND ITS HABITAT IN AND ADJOINING LANDSCAPE OR NPCIL COLONY SITE (H.R.) MAPPING LANDUSE/ LANDCOVER PATTERNS IN ARAVALLIS, HARYANA WITH SPECIAL REFERENCE TO STATUS OF KEY WILDLIFE SPECIES LONG TERM MONITORING OF LEOPARDS AND ITS PREY IN KALESAR NATIONAL PARK HARYANA
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	22,31,935.00	Base Camp Establishment & Operational Costs	7,623.00
Grant Received	6,07,750.00	Contingency	66,513.00
Bank Interest	61,863.00	Equipment	3,21,886.00
Xpression Print & Graphics	29,766.00	Consumables	3,050.00
		Printing of Report	1,51,684.67
		Travel & Vehicle Hiring for Field Work	1,17,813.00
		Other Expenses	3,05,787.00
		Manpower	5,82,096.00
		Institutional Charges	72,302.00
		Total Expenditure	16,28,754.67
		Balance as on 31.03.2016 A/c No. 54196	13,02,559.33
Grand Total	**29,31,314.00**	**Grand Total**	**29,31,314.00**

WCT PENTHRA FUNDED: UNDERSTANDING METAPOPULAION DYNAMIC OF TIGERS IN TERAI ARC LANDSCAPE, INDIA PROJECT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	16,26,963.55	Manpower	1,45,600.00
Grant Received	20,96,010.00	Fuel, Vehicle Hiring, Maintenance and Logistics	1,99,194.00
Bank Interest	77,438.00	Consumables	6,08,711.00
		Contingencies	64,788.00
		Institutional Charges	6,23,700.00
		Equipment	3,600.00
		Advance for Expenses	50,000.00
		Total Expenditure	16,95,593.00
		Balance as on 31.03.2016 A/c No. - 54992	21,04,818.55
Grand Total	**38,00,411.55**	**Grand Total**	**38,00,411.55**

POPULATION GENETIC STRUCTURE OF NILGIRI TAHR IN WESTERN GHATS, INDIA CONSERVATION & FORENSIC IMPLICATIONS
DBT- STIPEND FOR DBT-RA
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	14,55,139.00	Equipment	5,21,179.00
Grant Received for Population Gentics Structure Nilgir	14,44,394.00	Manpower	6,97,652.00
Grant Received from Indian Institute of Science DBT	5,49,200.00	Consumable	6,18,530.00
Bank Interest	41,973.00	Contingency	1,23,139.00
Advance for Expenses	50,000.00	Travels	4,74,919.00
		Overhead Charges	1,50,000.00
		Stipend with HRA	4,27,200.00
		Advance for Expenses	13,717.00
		Total Expenditure	30,26,336.00
		Balance as on 31.03.2016 A/c No. - 55157	5,14,370.00
Grand Total	**35,40,706.00**	**Grand Total**	**35,40,706.00**

CONSERVATION OF MANIPUR'S BROW ANTLERED DEER OF SANGAI AN INTEGRATED APPROACH
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	25,98,575.00	Manpower	15,90,280.00
Bank Interest	79,200.00	Infrastructure and Equipment	14,07,655.00
FDR Withdrawal	50,00,000.00	Research & Monitoring	12,50,718.00
Advance for Expenses	4,40,000.00	Base Camp Expenses	59,356.00
Interest on FDR	2,97,406.00	Advance to Management Unit	16,91,992.00
		Advance for Expenses	89,245.00
		Total Expenditure	60,89,246.00
		Balance as on 31.03.2016 A/c No. - 55295	23,25,935.00
Grand Total	**84,15,181.00**	**Grand Total**	**84,15,181.00**

RECOVERY OF DUGONGS AND THEIR HABITATS IN INDIA AN INTEGRATED PARTICIPATORY APPROACH
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Opening Balance	18,14,170.00	Manpower Engagement	16,64,172.00
Bank Interest	36,596.00	Capacity Building	23,926.00
FDR Withdrawal	1,00,00,000.00	Research Monitoring Species and Habitat	24,25,110.00
Interest on FDR	4,88,623.00	Advance to Management Unit	60,35,936.00
		Total Expenditure	1,01,49,144.00
		Balance as on 31.03.2016 A/c No. - 55294	21,90,245.00
Grand Total	**1,23,39,389.00**	**Grand Total**	**1,23,39,389.00**

EVALUATION OF WALLS AND OTHER BARRIERS USED FOR STOPPING CROP DEPREDATION BY ELEPHANTS & WILD PIGS
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Grant received	19,78,500.00	Manpower	5,91,318.00
Interest	55,363.00	Hiring of vehicle	1,66,342.00
		Contingency	44,484.00
		Base camp expenditure	7,380.00
		Total Expenditure	8,09,524.00
		Balance as on 31.03.2016 A/c No. - 55351	12,24,339.00
Grand Total	**20,33,863.00**	**Grand Total**	**20,33,863.00**

SWAMP DEER- FUNDED BY UTTARAKHAND FOREST DEPARTMENT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Grant received	18,92,900.00	Manpower	24,000.00
Interest	52,114.00	Consumables	1,76,592.00
		Travel	27,554.00
		Institutional Charges	2,46,900.00
		Advance Outstanding	20,000.00
		Total Expenditure	4,95,046.00
		Balance as on 31.03.2016 A/c No. - 55350	14,49,968.00
Grand Total	**19,45,014.00**	**Grand Total**	**19,45,014.00**

DEVELOPING GENETIC DATABASE TO UNDERSTAND METAPOPULATION DYNAMICS & CONNECTIVITY OF TIGERS
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Grant received	23,90,000.00	Laboratory reagents & Consumables	1,87,359.00
Interest	26,076.00	Field Vehicle hiring	40,474.00
		Insurance & Medical	3,514.00
		Miscellaneous cost	35,088.00
		Institutional charges	3,89,550.00
		Total Expenditure	6,55,985.00
		Balance as on 31.03.2016 A/c No. - 55479	17,60,091.00
Grand Total	**24,16,076.00**	**Grand Total**	**24,16,076.00**

ECOLOGY OF WOLVES WITH EMPHASIS ON DISPERSAL IN A HUMAN DOMINATED LANDSCAPES
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

RECEIPT	AMOUNT (In Rs.)	PAYMENT	AMOUNT (In Rs.)
Grant received	38,55,379.00	Institutional charges	4,50,000.00
Interest	43,650.00		
		Total Expenditure	4,50,000.00
		Balance as on 31.03.2016 A/c No. - 55480	34,49,029.00
Grand Total	**38,99,029.00**	**Grand Total**	**38,99,029.00**

NATIONAL MISSION ON HIMALAYAN STUDIES (NMHS)-HUMAN WILDLIFE CONFLICT PROJECT (PROJECT 1)
NATIONAL MISSION ON HIMALAYAN STUDIES (NMHS)-FELLOWSHIP PROJECT (PROJECT 2)
NATIONAL MISSION ON HIMALAYAN STUDIES (NMHS)-TREELINE PROJECT (PROJECT 3)
RECEIPT & PAYMENT FROM 01.APRIL.2016 TO 31.APRIL.2017

Receipt	Amount	Payment	Amount
Opening Balance	0	Expenses: Project - 1	
Grant Received (Project 1)	2,24,36,400	Manpower	22,89,423
Grant Received (Project 2)	78,15,720	Consumables	2,65,849
Grant Received (Project 3)	21,46,800	Contingency	3,45,397
Bank Interest for F.Y. 2016-17	8,11,360	Travel	4,59,258
		Equipment	34,89,519
		Activities & Other project cost	9,64,814
		Expenses: Project - 2	
		Manpower	28,84,095
		Contingency including travelling	93,535
		Institutional Charges	7,10,520
		Expenses : Project - 3	
		Manpower	2,34,510
		Consumables	6,742
		Contingency	79,283
		Travel	56,340
		Equipment	2,98,080
		Other Cost	65,000
		Advance Outstanding	2,80,907
		Total Expenditure	1,25,23,272
		Balance as on 31.03.2017 (A/c No - 55352)	2,06,87,008
Grand Total	**3,32,10,280**	**Grand Total**	**3,32,10,280**

PROJECT MANAGEMENT UNIT
RECEIPT & PAYMENT
FROM 1ST APRIL 2016 TO 31ST MARCH 2017

Receipts	Amount	Payments	Amount
Balance as on 1st April 2016	0.00	Manpower	1640669.00
Receipt from Dugong	6035936.00	Contingency	187381.00
Receipt from GIB	6035936.00	Travel	60899.00
Receipt from Dolphin	5969253.00	Workshop Expense	565235.00
Receipt from Sanghai	1691992.00	Office Establishment	15975.00
Interest Received	135311.00	Lab Equipment	13500000.00
		Field Equipment	12968.00
		Total Expenditure	15983127.00
		Balance as on 31st March 2017 (A/C No 55357)	3885301.00
Total	**19868428.00**	**Total**	**19868428.00**

WII - TIGER CELL
RECEIPT & PAYMENT
FOR THE PERIOD WEF 24 MAY 2016 TO 31 MAR 2017

Particulars	Amount	Particulars	Amount
Grant	11,86,800.00	Manpower (JRF/Field Assistant)	27,53,152.00
Grant	8,90,100.00	Miscellaneous	1,23,084.00
Loan A/c No 50968	15,00,000.00	Travel (Researcher/Investigator)	3,79,244.00
Interest	19,020.00	Equipment (Lab/Field)	40,173.00
		Total expenses	32,95,653.00
		Bank UBI-55367	3,00,267.00
	35,95,920.00		**35,95,920.00**

WII - GLOBAL TIGER FOURAM
RECEIPT & PAYMENT
FOR THE PERIOD WEF 16 DEC 2016 TO 31 MAR 2017

Particulars	Amount	Particulars	Amount
Grant	4,36,060.00	Miscellaneous	1,440.00
Interest	763.00	Travel (Researcher/Investigator)	23,922.00
Grant	5,599.00	Total expenses	25,362.00
		Bank UBI-55566	4,17,060.00
	4,42,422.00		**4,42,422.00**

AN INVESTIGATION OF SPECIES OCCUPANCY PATTERNS AND NICHE DIFFERENTIATION
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

Receipt	Amount	Payment	Amount
Grants	600000.00	Manpower, Consumbles, National Travel, Contingencies and Minor Equipments	346679.00
Interest	13624.00	Overhead Charges	40000.00
		Grand Total	386679.00
		Bank UBI - 55358	226945.00
	613624.00		**613624.00**

NTCA- E-BIRD TECHNOLOGY FOR TIGER CONSERVATION DEVELOPMENT AND INTEGRATION OF UN-MANNED AERIAL VEHCILES AS A SURVEILLANCE AND MONITORING TOOL FOR PROTECTION OF TIGERS AND CAPACITY BUILDING OF FRONTLINE STAFF
RECEIPT & PAYMENT
FROM 01.02.2017 TO 31.03.2017

Receipt	Amount	Payment	Amount
Ist Installment Received From NTCA	1000000.00	Manpower	6000.00
IInd Installment Received From NTCA	1000000.00	Equipment	4280.00
IIIrd Installment Received From NTCA	1000000.00	Travel & Lodging	27355.00
		Contingency	6405.00
		Miscellaneous	35210.00
		Total Expenditure	79250.00
		Balance as on 31.03.2017 A/c No. 55580	2920750.00
Grand Total	**3000000.00**	**Grand Total**	**3000000.00**

PRIORITIZATION AND PREPARATION OF BRIEF DOCUMENT FOR NOTIFICATION UNDER WETLANDS RULES, 2010 IN CHHATTISGARH RECEIPT & PAYMENT
FROM 28.APRIL.2017 TO 31.MARCH.2017

Receipt	Amount	Payment	Amount
Grant Received	1415000.00		0.00
		Total Expenditure	0.00
		Balance as on 31.03.2017 A/c No. 55688	1415000.00
Grand Total	**1415000.00**	**Grand Total**	**1415000.00**

RESEARCH ON FLAGSHIP SPECIES IN DACHIGAM NATIONAL PARK
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

Receipt	Amount	Payment	Amount
Grants	500000.00	Salaries/Wages	44000.00
Interest	10185.00	Other Costs	50000.00
		Grand Total	94000.00
		Bank UBI -55384	416185.00
	510185.00		**510185.00**

ECOLOGY OF CLOUDED LEOPARD (NEOFELIS NEBULOSA) IN AN EAST HIMALAYAN BIODIVERSITY HOTSPOT
RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

Receipt	Amount	Payment	Amount
Grants	2682000.00	Manpower	132436.00
Interest	7252.00	Consumables	78523.00
		Travel	58582.00
		Contingencies	50628.00
		Equipment	975780.00
		Overhead Costs	120000.00
		Grand Total	1415949.00
		Bank UBI - 55559	1273303.00
	2689252.00		**2689252.00**

RECONCILING DEVELOPMENT WITH CONSERVATION:DELINEATING HABITAT PATCHES AND CORRIDORS FOR GIR LIONS RECEIPT & PAYMENT
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

Receipt	Amount	Payment	Amount
Grants	1000000.00	15% Institutional Charges	278130.00
		Grand Total	278130.00
		Bank UBI - 55692	721870.00
	1000000.00		**1000000.00**

BLACK KITE PROJECT
RECEIPT & PAYMENTS
FOR THE PERIOD WEF 01 APRIL 2016 TO 31 MARCH 2017

Receipt	Amount	Payment	Amount
Raptor Research & Conservation Foundation, Mumbai	1549886.00	Manpower Wages to Fd Asst	134552.00
Interest received 2016-17	43256.00	Contingencies	39000.00
Recd from A/c No 8	100000.00		
		Bank Balance A/C No - 55500	1519590.00
Grant Total	**1693142.00**	**Grant total**	**1693142.00**

ECOLOGICAL RECONNAISSANCE AND CONSERVATION ASSESSMENT OF AVIFAUNA IN SAHAYADRI TIGER RESERVE
RECEIPT & PAYMENT
FROM 01.APRIL.2016 TO 31.MARCH.2017

Receipt	Amount (In Rs.)	Payment	Amount (In Rs.)
Opening Balance	-	Manpower	3,06,171.00
Ist Grant Received	9,98,000.00	Contingency	43,327.00
Bank Interest for F.Y. 2016-17	9,320.00	Travel	1,08,354.00
		Engagement of project interns/Volunteers	35,600.00
		Institutional charges	1,30,000.00
		Equipments	1,02,988.00
		Advance Outstanding	10,000.00
		Total Expenditure	7,36,440.00
		Balance as on 31.03.2017 A/c No. - 55467	2,70,880.00
Grand Total	**10,07,320.00**	**Grand Total**	**10,07,320.00**

NMCG- BIODIVERSITY CONSERVATION AND GANGA REJUVENATION PART 1 (COMPONENT- 1, 3 & 4)
RECEIPT & PAYMENT
FROM 01 APRIL 2016 TO 31 MARCH 2017

Receipt	Amount (In Rs.)	Payment	Amount (In Rs.)
Opening Balance	-	Component -1	
Grant Received	3,11,69,160.00	Contingency/Misc	3,32,676.00
Bank Interest for F.Y. 2016-17	4,30,616.00	Manpower	18,61,803.00
		Travel & Field Work	4,17,358.00
		Equipment	13,03,615.00
		Operational	7,00,570.00
		Total Expenditure (A)	46,16,022.00
		Component -3	
		Contingency/Misc	26,167.00
		Manpower	40,268.00
		Travel & Field Work	1,19,543.00
		Operational	9,30,764.00
		Total Expenditure (B)	11,16,742.00
		Component -4	
		Contingency/Misc	2,84,796.00
		Manpower	2,52,848.00
		Travel & Field Work	10,46,577.00
		Equipment	1,03,774.00
		Operational	6,46,487.00
		Institutional charges	28,33,560.00
		Advance Outstanding	1,00,000.00
		Total Expenditure ©	52,68,042.00
		Total Expenditure (A+B+C)	1,10,00,806.00
		Balance as on 31.03.2017 A/c No.: 55408	2,05,98,970.00
Grand Total	**3,15,99,776.00**	**Grand Total**	**3,15,99,776.00**

UNDERSTANDING THE AMUR FALCON FALCO AMURENSIS, THEIR STOP OVER SITES IN NAGALAND AND THEIR MIGRATORY ROUTES FOR BETTER CONSERVATION PLANNING
RECEIPT & PAYMENT
FROM 01.APRIL.2016 TO 31.MARCH.2017

Receipt	Amount (In Rs.)	Payment	Amount (In Rs.)
Opening Balance	-	Satellite tagging and tracking	17,05,416.29
Grant Received	20,28,250.00	Manpower	37,800.00
Bank Interest for F.Y. 2016-17	6,376.00	Travels	1,28,510.00
		Accommodation expenses for the Research Team	1,25,078.00
		Field equipment	4,222.00
		Miscellaneous	24,953.00
		Total Expenditure	20,25,979.29
		Balance as on 31.03.2017 A/c No.: 55510	8,646.71
Grand Total	**20,34,626.00**	**Grand Total**	**20,34,626.00**

NMCG- BIODIVERSITY CONSERVATION AND GANGA REJUVENATION PHASE- 2 (COMPONENT 2, 5 & 6)
RECEIPT & PAYMENT
FROM 01.APRIL.2016 TO 31.MARCH.2017

Receipt	Amount	Payment	Amount
Opening Balance		Component 2	
Grant Received	7,11,02,460.00	Manpower	44,906.00
Bank Interest for F.Y. 2016-17	3,52,631.00	Equipment	-
		Operational Expenses	-
		Travels	64,102.00
		Other Expenses	2,53,209.00
		Institutional charges	39,16,600.00
		Total Expenditure (A)	42,78,817.00
		Component 5	
		Manpower	2,32,736.00
		Equipment	-
		Operational Expenses	3,40,486.00
		Travels	2,70,578.00
		Other Expenses	2,01,465.00
		Institutional charges	11,34,780.00
		Total Expenditure (B)	21,80,045.00
		Component 6	
		Manpower	84,000.00
		Equipment	
		Operational Expenses	
		Travels	1,46,659.00
		Other Expenses	47,111.00
		Institutional charges	14,12,480.00
		Total Expenditure ©	16,90,250.00
		Total Expenditure (A+B+C)	81,49,112.00
		Outstanding loan to DST- NMSHE Project	75,00,000.00
		Balance as on 31.03.2016 A/c No. - 55526	5,58,05,979.00
Grant Total	**7,14,55,091.00**	**Grant Total**	**7,14,55,091.00**

TIGER RECOVERY STRATEGY AND LONG TERM MONITORING IN SAHAYADRI TIGER RESERVE, MAHARASHTRA
RECEIPT & PAYMENT
FROM 01.APRIL.2016 TO 31.MARCH.2017

Receipt	Amount (In Rs.)	Payment	Amount (In Rs.)
Opening Balance	-	Manpower	1,98,985.00
Grant Received	45,98,000.00	Contingency	83,408.00
Interest Received	18,652.00	Travel	78,918.00
		Equipment	25,490.00
		Institutional Charges	5,00,000.00
		Total Expenditure	8,86,801.00
		Balance as on 31.03.2017 A/c No.: 55541	37,29,851.00
Grand Total	**46,16,652.00**	**Grand Total**	**46,16,652.00**

IMPLEMENTING RHINO DNA INDEXING SYSTEM TO COUNTER RHINO POACHING THREAT AND AID POPULATION MANAGEMENT IN INDIA
RECEIPT & PAYMENT
FROM 01.APRIL.2016 TO 31.MARCH.2017

Receipt	Amount (In Rs.)	Payment	Amount (In Rs.)
Grant Received	10,84,160.00	Laboratory Reagents	1,69,930.00
		Contingency	158.00
		Institutional charges	1,45,200.00
		Total Expenditure	3,15,288.00
		Balance as on 31.03.2017 A/c No.: 55585	7,68,872.00
Grand Total	**10,84,160.00**	**Grand Total**	**10,84,160.00**

STATUS OF FISH DIVERSITY IN SAHYADRI TIGER RESERVE, MAHARASHTRA
RECEIPT & PAYMENT
FROM 01.APRIL.2016 TO 31.MARCH.2017

Receipt	Amount (In Rs.)	Payment	Amount (In Rs.)
Grant Received	4,31,000.00		
		Balance as on 31.03.2017 A/c No.: 55691	4,31,000.00
Grand Total	**4,31,000.00**	**Grand Total**	**4,31,000.00**

(P.K. Aggarwal)
Finance Officer

(Dr. V.B. Mathur)
Director

Annexure

1. **Adequacy of Internal Audit System**

   The internal audit of WII, Dehradun was conducted upto 2013-14 by the MoEF&CC. Hence the internal audit system is not adequate.

2. **Adequacy of the Internal Control System:** There is scope of improvement in the Internal Control System of WII in the following areas:

   i) Cash Book was not in prescribed form i.e. GAR 3.

   ii) Surprise verification of cash was not done.

   iii) Denomination-wise details of closing balance were not mentioned during physical verification of cash at the end of each month.

   iv) Accounting Manual and Internal Audit Manual had not been prepared by WII.

   v) Broad sheet of long term advances were not maintained. In the absence of broad sheets, audit could not verify the correctness of the amount of long term advances as reflected in the annual accounts.

   vi) The Expenditure Control Register (GAR9/TR28-A) to ensure that the expenditure under various heads remained within budget allocations was not maintained.

   vii) Works Control Register and Register of Contracts were not maintained.

   viii) Register of Valuables (GAR 5), Accession Register (GFR 35), Grants in Aid Register (GFR 39), Stock Register of Consumables (GFR 41) and Investment Register (GFR9) were not maintained in prescribed format.

3. System of Physical Verification of Assets

1. Physical verification of fixed Assets was not done during the year 2016-17.
2. As per Rule of GFR 190, all Govt. organizations are required to maintain a separate register known as Assets Register for their fixed assets in Form GFR-40. The same was not maintained in prescribed form.

4. System of Physical Verification of Inventory

1. Physical verification of stationery, consumable and library books items was not done during the year 2016-17.
2. Physical verification of library books items was not conducted during 2016-17.

5. Payment of Statutory Dues

WII is regular in payment of Statutory Dues.

Director (EA)

Replies to the Audit objections made by Wildlife Institute of India

Sl. No.	Audit Para	WII Response
Para 1	**A. Balance Sheet**	
	(i) WII purchased Library Books amounting to Rs. 10,16,497/- under Schedule -8 Fixed Assets and rate of depreciation also charged 15% (Rs. 1,52,363) instead of 60% (Rs.6,09,453), the difference of depreciation amounting to Rs. 4,57,090/- resulting in overstatement of assets and understatement of expenditure in income and expenditure due to charging of lower rate of depreciation.	(i) Depreciation on the purchase of library books @ 60% will be depicted in the Balance Sheet for the year 2017-18. Compliance will be shown during next audit.
	(ii) Similarly, WII had shown AC Plant Rs. 617155.46 (cost as at the end of the year) under schedule-8 Fixed Assets in Plant Machinery & Equipment and charged depreciation @15% (Rs. 92,573) instead of Furniture Fixture & Fittings @ 10% (61716), resulting in difference of depreciation of Rs. 30,857/-. Thus, understatement of assets and overstatement of expenditure in income and expenditure due to charging of higher rate of depreciation.	(ii) Noted for future compliance.
	B. Income & Expenditure Account	
	(i) As per Schedule 13- Grants/Subsides an amount of Rs. 2451.27 lakh was shown as received and taken into "Income and Expenditure Account" as income during the year. However, this amount includes Rs. 82.77 lakh which was unspent balances of Grant-in-aid during 2015-16 was not revalidated and remained with WII which needs to be refunded back to controlling Ministry i.e. MoEF&CC. Hence, the above discrepancy in the Income and Expenditure Account. This has resulted in overstatement of Income by Rs. 82.77 lakh and understatement of Liabilities to the same extent.	(i) The unspent amount of Grant-in-aid Rs. 82.77 lakhs during 2015-16 under Salary Head was intimated to the MoEF&CC. The MoEF&CC has adjusted this amount during the year 2016-17. Total sanctioned amount of Grant-in Aid for the year 2016-17 was Rs. 26.50 crores. Out of which Rs. 25.6723 crores was released by the MoEF&CC after adjusting the unspent balance of Rs. 82.77 lakhs.
	(ii) Amount of Rs. 17,625/- was shown as Income from WII Products (Sale of Publication). Whereas in Receipt & Payments Accounts an amount of Rs. 17,625/- has been depicted as "in the Receipts side. This was again shown in Schedule 16 (Income from Royalty, Publication etc.) of Income & Expenditure Account. This resulted in overstatement of Income by Rs. 17,625/- in the Income and Expenditure Account and overstatement of Corpus/Capital Fund in the Balance Sheet to the same extent.	(ii) The audit observation has been noted and necessary corrections will be made and compliance shall be intimated to the next audit.
	C. Grant-in-Aid:	
	Out of total grant-in-aid 26.50 crore (which include Rs. 23.00 crore in Revenue, Rs. 2.00 crore in Capital Plan and Rs. 1.50 crore under Non-Plan heads received during 2016-17, unspent grant of previous year Rs. 0.83 crore i.e. (2015-16). WII utilized Rs. 25.51 crore leaving unutilized grant of Rs. 0.99 crore.	The total unspent amount of Rs. 99 lakhs was due to non-filling up the post of Scientists, IFS officers on deputation and Group-C posts. The recruitment process could not be completed due to administrative reasons. As such unspent balance of Rs. 99 lakh under salary head was depicted in bank balance.
	D. General	
	(i) In Schedule 5: Unsecured Loans and borrowings, Rs. 5,06,968.00 was depicted as Security deposit out of which Rs. 3,05,318/- were outstanding since 2012-13. Reasons for outstanding more than 3 years may please be elucidated. Further, Rs. 16,110.00 was entered as Internal Loan from 2014-15. Details of loan and reasons for static figure from 2014-15 to 2016-17 may also be elucidated.	(I Details of outstanding security deposit Rs. 3,05,318/- and internal loan of Rs. 16,110/- are being worked out. Compliance will be shown to next audit.

Sl. No.	Audit Para	WII Response
	(ii) Rs. 65,754.00 was depicted as fellowship arrear respectively in Schedule 7: Current Assets and Liabilities & Provisions. The figures remained static since 2010-11 respectively. Reasons for the same may please be elucidated.	(ii) Actions are being taken to clear the fellowship arrears and compliance will be shown to next audit.
	(iii) In Schedule 11: Current Assets, Loans and Advances etc. (B), Rs. 2,80,984.00 was depicted against Loan to MoEF&CC for World Environment Day (MoEF&CC) which was remained static since 2011-12 (Rs. 2,67,298.00) & 2012-13 (Rs.13,686). Rs.30,253.00 against Loan for WCF workshop remained static since 2012-13 and Training cost accrued but not received amounting to Rs. 8,38,375.00 remained static from 1996-97 (Rs. 1,000.00), 2005-06 (Rs. 6,60,000), 2001-02 (Rs.26,500) & 1999-00 (Rs. 1,50,875). Reasons for these may also be elucidated.	(iii) Efforts are being made to receive the outstanding amount of Rs. 2,80,984/- from the MoEF&CC, New Delhi. Compliance will be shown during next audit. As regards outstanding amount of Rs. 8,38,375/-, matter is under persuasion with the concerned State Government and compliance will be shown to next audit.
	(iv) Office Equipments, EPABX, Office Equipment (Projects), Office Equipments (Research Projects) have been included under Plant & Machinery the same should be depicted under Office Equipments in Schedule 8 Fixed Assets.	(iv) Observation has been noted for future compliance.
	(v) Provision for Audit Fee Provision has to be made for all known liabilities and losses even though the amount cannot be determined with substantial accuracy (and the amount of provision represents only a best estimate in the light of available information), under Section B of Schedule 7- Current Liabilities and Provisions. Provision means any amount written off or retained by way of known liability, the amount of which cannot be determined with substantial accuracy. Audit of WII is being conducted by the CAG of India every year for certification of Annual Accounts for placing before the Parliament, and WII is liable to pay Audit Fee to the CAG of India every year. However, WII has not made any provision for Audit Fee in the Annual Accounts for the year 2016-17, thereby resulting in understatement of Liabilities in the accounts to that extent.	(v) Observation has been noted for compliance. A separate budget line for payment of Audit Fee to C&AG will be introduced in the Budget Head of the Institute.
	E. Management Letter Deficiencies which have not been included in the Separate Audit Report have been brought to the notice of WII, Dehradun through a Management letter issued separately for remedial/corrective action.	
	(v) Subject to our observations in the preceding paragraphs, we report that the Balance Sheet, Income & Expenditure Account and Receipt & Payment Account dealt with by this report are in agreement with the books of accounts.	Noted
	(vi) In our opinion and to the best of our information and according to the explanations given to us, the said financial statement read together with the accounting policies and notes in accounts, and subject to significant matters stated above and other mentioned in Annexure to this report give a true and fair view in conformity with accounting principles generally accepted in India.	Noted

Sl. No.	Audit Para	WII Response
	a. In so far as it related to the Balance Sheet, the state of affairs of the Wildlife Institute of India, Dehradun as at 31st March, 2017 b. In so far as it relates to the Income & Expenditure Accounts the deficit for the year ended on that date.	
	Annexure	
	1. Adequacy of Internal Audit System	
	The internal audit system was inadequate. The internal audit of WII, Dehradun was conducted upto 2013-14 by the MoEF&CC and there were 23 outstanding paras as on 31.03.2017.	Reply to outstanding 24 paras of Internal Audit Report of MoEFCC for the period upto 2014 has been sent to the PAO MoEF&CC, New Delhi vide letter no. WII/FIN/2014-15/30 dated 04.12.2017 and after discussions with the audit team of MoEFCC, 16 audit paras have been dropped. For remaining 08 paras, corrective actions are being taken and efforts will be made to drop the audit paras and compliance shall be intimated to audit.
	2. Adequacy of the Internal Control System: There is scope of improvement in the Internal Control System of WII in the following areas, as deficiencies were noticed:	
	i. Cash Book was not being maintained in prescribed form i.e. GAR 3.	i. Noted for future compliance
	ii. Surprise verification of cash was not done.	ii. Observation noted and compliance is being made.
	iii. Denomination-wise details of closing balance were not mentioned during physical verification of cash at the end of each month.	iii. Compliance is being made.
	iv. Accounting Manual and Internal Audit Manual had not been prepared by WII.	iv. Noted for future compliance.
	v. Broad sheet of long term advances were not maintained. In the absence of broad sheets, audit could not verify the correctness of the amount of long term advances as reflected in the annual accounts.	v. No long-term advances have been paid to the employees by WII since last 10 years. However, long-term advances already paid are being recovered from the concerned employee after preparation of broad sheet. Compliance shall be shown to the next audit.
	vi. The Expenditure Control Register (GAR9/TR28-A) to ensure that the expenditure under various heads remained within budget allocation was not maintained.	vi. Observation has been noted for future compliance.
	vii. Works Control Register and Register of Contracts were not maintained.	vii. The construction and repair work are being carried by WII through CCU Unit of MoEFCC and CPWD. Works Control Register will be shown to next audit.
	viii. Register of Valuables (GAR 5), Accession Register (GFR 35), Grants in Aid Register (GFR 39), Stock Register of Consumables (GFR 41) and Investment Register (GFR 9) were not maintained in prescribed format.	viii. Observation has been noted for future compliance.
	3. System of Physical Verification of Assets	
	1. Physical verification of fixed assets was not done during the year 2016-17.	1. Physical verification of fixed assets for 2016-17 is under progress and compliance will be shown to next audit.
	2. As per Rule of GFR 19, all Govt. organizations are required to maintain a separate register known as Assets Register for their fixed assets viz. Tool & plant, office equipment, furniture fixtures & fitting computer & peripherals etc. in Form GFR-40 and this register should be closed at the close of financial year. The value of fixed assets shown in the Assets Register should tally with the value of assets shown in the	2. Compliance will be shown to next audit.

Sl. No.	Audit Para	WII Response
	Annual Accounts. Register of fixed assets were not maintained properly in prescribed form GFR40, due to which the value of fixed assets of 14.76 crore shown in the annual accounts (Schedule 8) could not be verified.	
	4. System of Physical verification of Inventory	
	1. Physical verification of stationery and consumable items was not done during the year 2016-17.	1. Physical verification of stationery and consumable items is in progress. Compliance will be shown to next audit.
	2. Physical verification of library books items was not conducted during 2016-17.	2. Physical verification of library books is in progress. Compliance will be shown to next audit.
	5. Payment of statutory dues	
	WII is regular in payment of Statutory Dues.	Noted