PROJECT BRIEF

Name of Project	Project Brief
Estimation of economic losses in real term per hectare basis due to forest fire in Uttarakhand and Madhya Pradesh	A multi-disciplinary and multi-institutional project **"**Estimation of economic losses in real term per hectare basis due to forest fire in Uttarakhand and Madhya Pradesh", has to be conducted on pilot basis in the forest fire prone forest types of Uttarakhand and Madhya Pradesh to develop a framework methodology for estimation of economic losses in real terms on per hectare basis. This multi-facet project has several objectives as per the institutional expertise, however, the Wildlife Institute of India has to focus mainly for terrestrial and avi-faunal aspects. This will provide a framework/approach/methods/tools and techniques to estimate tangible and intangible losses due to forest fire on per hectare basis and may be used in other similar forests/areas.
Monitoring Freshwater Fish population in selected Indian Landscapes with reference to the changing climatic variables	Long Term Ecological Observatories (LTEO) is a flagship project under the Climate Change Action Programme of Ministry of Environment Forest and Climate Change, Government of India. The goals of this programme are to develop and support long-term ecological research and monitoring in India with reference to climate change impacts. In order to achieve the goals a consortium of organizations formed under the umbrella of the Centre for Ecological Sciences, Indian Institute of Science, Bengaluru to undertake long term research on various theme. Under this programme, the Wildlife Institute of India is leading the Fish Population monitoring programme across five biogeographic regions (Western Ghats, Central India, Western Himalaya, North Eastern Himalaya and Andaman Islands) of India. The primary mandate of this project to generate baseline data on freshwater fish population in different landscapes for long-term monitoring of aquatic habitats with reference to changing climate variables.
Basic Study Design of Biodiversity Assessment for Himachal Pradesh	The project has been undertaken to document the biodiversity of the State of Himachal Pradesh. It entails a basic task of detailed assessments in select areas to improve scientific conservation and management of biodiversity. The study aims to undertake also a threat assessment and ranking for the biodiversity (both flora and fauna). A long term model will be developed and proposed through established baselines and monitoring indicators through the study.

NMHS - Himalayan Alpine Biodiversity Characterisation and Information System Network	Himalayan Alpine Biodiversity Characterisation and Information System Network is an multi-institutional project coordinated by Indian Institute of Remote Sensing and funded by National Mission for Himalayan Studies. The scope of the work to be carried out in the project includes: 1. Characterising spatial extent and patterns of alpine plant communities in Laddakh UT using multi-scale Earth Observation (EO) data; 2. Assessment of alpine vegetation composition and diversity; 3. Determining the EO-based environmental proxies of alpine biodiversity and ecosystem dynamics; 4. Developing predictive models for multi-scale prediction of Indian Himalayan alpine plant diversity patterns linking environmental proxies and habitat variables; 5. Developing a data/information system for planning and management.
Assessment of spatial and temporal occupancy of tiger and elephant in relation to habitat characteristics and anthropogenic factors for the creation of Eco-Sensitive Areas in Sawantwadi and Dodamarg talukas of Sindhudurg district in Western Ghats of Maharashtra, India	The proposed project is aimed to assess (i) spatial and temporal variation in occupancy of tiger and elephant and (ii) functionality of corridor in 25 villages identified for the creation of the Eco-sensitive zone in Sawantwadi and Dodamarg talukas of Sindhudurg district for connecting northern with the central Western Ghats. Areas of significant use by wildlife species in these 25 villages will be determined based on Land use-Land cover using remote sensing data in GIS domain for the intensive study area (ISA). Since corridors are known to have low-intensity use by the wildlife species, therefore, we will determine spatial and temporal variation in the probability of occurrence of tiger and elephant based on the “Presence” data determined using a systematic sampling of signs survey (pugmark/foot print and faceal matter) and camera trapping. We will correlate probability of occurrence of tiger and elephant in relation to habitat characteristics and anthropogenic factors. The functionality of this area as corridor will also be assessed for tiger and leopard based on molecular scatology approaches developed for the scat samples collected from the northern and the central Western Ghats. Findings of the probability of occurrence, habitat suitability, the extent of genetic connectivity would enable us to suggest areas for the creation of “Eco-Sensitive” in Sawantwadi and Dodamarg talukas of Sindhudurg district in Western Ghats of Maharashtra, India.

"Assessment of disease prevalence in ungulates in Mizoram"	Factors associated with habitat destruction, climate change and rise in globalization have led to increased incidences of diseases not only in humans and domestic animals but also in wild animals. In India, significant attention has been given to diseases of livestock, but records of wildlife diseases and information on disease processes in wild animals and at the wildlife-livestock interface remains limited. In recent past, several mass mortalities due to infectious diseases have been reported in various wild species. This warrants the immediate attention for studies and research on wildlife disease and epidemiology as diseases are common drivers of population declines and can wipe out entire populations easily. This study aims at intensive surveillance of wildlife diseases in protected areas and susceptible interface areas from Mizoram. Molecular epidemiology and intensive surveillance like the present study would give us understanding of the biological and anthropogenic processes that promote contact between wildlife and livestock, prevalence and transmission pathways of diseases which is critical for limiting pathogen transmission at the interface, but also help identify critical issues faced in managing diseases at the livestock–wildlife interface and to identify potential technical and policy strategies for addressing these issues.
"Securing habitats for threatened mountain ungulates through robust population assessment and conservation planning"	Mountain ungulates hold a key position in the functioning of an ecosystem. However, due to increasing human population, they face immense competition for resources from livestock populations. There is also an increasing interface for disease spread. A collapse in the ungulate population can completely disrupt the functioning of the ecosystem and result in severe negative ecological consequences. However, we lack crucial baseline information like population abundance, distribution, genetic variation and habitat requirements to effectively conserve this species complex. We do not yet have a robust scientific monitoring of mountain ungulates in place, due to the terrain complexity, and lack of focussed research in developing methodology for mountain systems. This proposal aims to a) develop a scientifically robust monitoring protocol for mountain ungulates, and b) assess the abundance, habitat relationship, genetic and health status of serow and goral, in Arunachal Pradesh.
Response to Anthropocene and Climate change: Movement ecology of selected mammal species across the Indian Himalayan Region	Study of high-altitude species has ample amount of significance in promoting ecological and conservation studies in the IHR along with management of different landscapes of this region. The project will use existing information from studies done in the IHR about species occurrences to identify areas for intensive research for movement ecology. This will maintain a flow of ecological information from existing information to current research which in turn will contribute in building a national and individual state level database for

	the IHR. The research from the proposed project will also contribute in management decisions, conservation action plans and policy making for rare and threatened mammals of the IHR paving way for future research. The proposed project aims to study the movement ecology of selected mammal species with different ecological adaptations across the IHR. The selected mammal species are Pallas's cat (Otocolobus manul), Himalayan wolf (Canis lupus) and Himalayan marmot (Marmota himalayana). The work involves capture and tagging of target species and intensive monitoring in tough and rugged terrain of Ladakh India to understand movement ecology of the selected mammalian species.
"Ecological impacts of major invasive alien plants (IAPs) on native flora in Rajaji Tiger Reserve, Uttarakhand"	Invasive alien plant species (IAPs) pose one of the most serious threats to biodiversity, economy and human health. Steady increase in their number and abundance leads to homogenization of global biota and replacement of native biodiversity affecting ecosystem functioning and reduction in productivity. Tropical ecosystems and islands are particularly vulnerable to biological invasions. Well established Protected Areas (PAs), once infested by aggressive invasive alien plants, become unsuitable for several native species and gradually fail to achieve the basic objectives for which they were established. Hence, identifying the causes and pathways of invasive species and prioritizing the management actions has been listed as one of the important National Biodiversity Targets (Target 4) by the Government of India, in accordance with the Aichi Biodiversity Targets. This calls for in depth analysis of current status, patterns of invasion and identification of most threatened and endemic species and habitats which are most vulnerable due to rapid spread of IAPs. The present study proposes to understand the impact of major invasive plants on the soil and vegetation in Rajaji Tiger Reserve, Uttarakhand, India; to map major invasive plant species and record the floral assemblage across the gradient of invasion. The study also aims to assess the variation in edaphic characters against the invasion gradient. The obtained information on edaphic characters, invasion magnitude and floral assemblage will help to understand the pathway through which invasive species restructure the native forest ecosystem. The study will not only provide the ecological impacts of IAPs on native flora for immediate management actions, but will also identify mechanism through which the invasive species have cascading effects on native forests. It will help to identify the species and patches which are vulnerable to invasions and identify high risk areas in PAs. If executed as desired, it will provide a role experiment that could be replicated in other PAs of the country for evidence based management of IAPs, in accordance with the National Wildlife Action Plan.

Assessment of impacts of the proposed Nagpur-Mumbai Super Communication Expressway, Maharashtra, Samriddhi Corridor on wildlife values and measures recommended to mitigate negative impacts	The importance of transportation in the economic development of a country cannot be understated. Land-based transportation infrastructure networks including roads facilitates the movement of goods, passengers, and services with Indian roads catering to 80% of the passenger traffic and 65% of its freight. India's road density is the second highest in the world. As an emerging economy, it is imperative to consider the expansion and upgradation of road infrastructure to connect people and centers of trade and commerce across the country. As a part of the project we shall undertake the assessment of the impact of the expressway on wildlife species and habitats, and suggest mitigation options to address impacts to ensure connectivity of the landscape and to secure safe passages for wildlife movements across the expressway route corridor. These measures would largely focus on regulatory controls, prescriptions for management of wildlife species and their habitats and design modifications of road structures. The work involves conducting baseline studies to characterize land cover, landscape, and wildlife features through road sections in wilderness areas around the proposed road alignment, and delineation of suitable habitat for different wildlife species within the three different conservation landscapes that fall within the project area. Evaluation of design features of proposed structures would be undertaken after construction is complete. Candidate will work with multi specialized team in creation of spatial database and other relevant GIS related work
Forest Dynamics Research in the Long-Term Ecological Observatories (LTEO) programme	The Ministry of Environment Forest and Climate Change is launching the Long-Term Ecological Observatories (LTEO) Programme, a multi-institutional, multi-disciplinary, all India coordinated project, which will be led by the Indian Institute of Science, Bengaluru. In its first phase, the LTEO programme will monitor a range of themes and taxa across the Indian subcontinent including soil, forests, grasslands, invertebrates, fish, herpetofauna, birds, animal movement and marine ecosystems. The work will be initiated at 6 sites representing different biogeographic zones including the Western Himalaya, in which Wildlife Institute of India is responsible for **Forest Dynamics Research in the Long-Term Ecological Observatories in** the Western Himalaya.

Ecology and Conservation of Major Carnivores & Ungulates of Semi-Arid Grassland-Scrub-Agro-Systems of Karnataka	The project, funded by Karnataka Forest Department intends to assess the status and distribution of major carnivores & ungulates of semi-arid grassland-scrub-agro-systems of Karnataka and generate the in-depth knowledge of ecological and behavioral attributes of these species, while simultaneously assessing the possible disease spill-over risk from domestic animals in the study area. The project also envisages to establish a web-based summary analytics for assessing the status of wildlife crime, patrol intensity, species occurrence and habitat status for producing standard reports using modern technology in semi-arid grassland-scrub-agro-systems of Karnataka. The project, which will be carried out in close association with Karnataka Forest Department will play an important part in developing future management and conservation action plan for the state.
Promoting community participation in conservation and conflict resolution in the fringe villages of Kaziranga Tiger Reserve through Eco development.	Management issues of Kaziranga TR: Promoting community participation in conservation and conflict resolution in the fringe villages of Kaziranga Tiger Reserve through Eco development. The project aims to study the people – park interaction in Kaziranga landscape with an aim to mitigate the impact on both; people and park so as to promote mutual coexistence. This project is sponsored by the NTCA.
Landscape Sustainability Challenges in the proposed Similipal - Satkosia corridor Region due to Collective Mining Regime: Mining-Wildlife Habitat Linkages and Impacts.	Landscape sustainability challenges in the proposed Similipal - Satkosia wildlife corridor due to collective mining regime. This study proposes to examine the impact of expansion of Daitari iron ore mine on the wildlife value of Similipal - Satkosia corridor and proposes measures to mitigate the impacts. This project is sponsored by MoEFCC, Government of India.