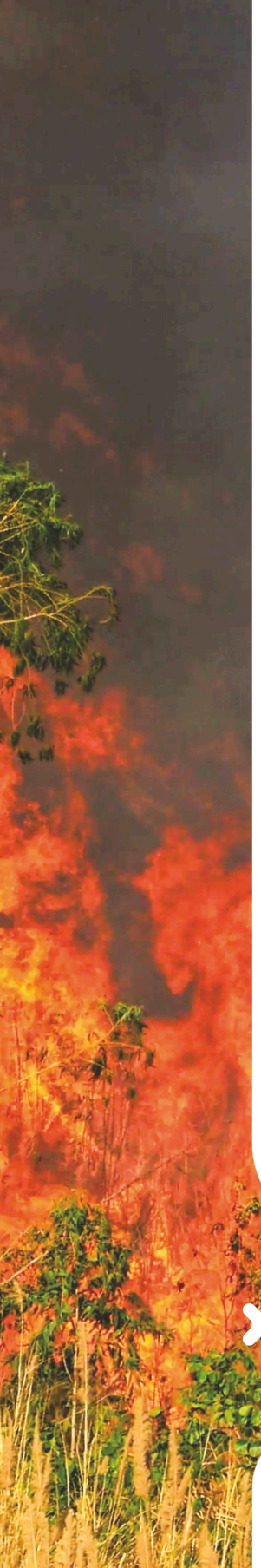

Project Beneficiaries

Forest fire impacts are at multi-scaled hence the beneficiaries will be ranging from local forest communities to the national policy planners. At local level the local village communities, NGOs, youth association, forest development associations, village panchayats and womenfolk well be the primary beneficiaries of the project apart from the state Forest/Wildlife Departments. The project will generate information with respect to impacts of fire on faunal resources and will also create and build capacities of the different stakeholders in different domains through networking of knowledge institutions, NGOs engaged in conservation of biodiversity and management of forest fire in the study area.

Objectives

Following are the four main objectives envisaged in the proposed project: -

1. Assessing impacts of forest fire on faunal resources: Estimation of losses to faunal resources, change in species composition of major vertebrate groups/indicator taxon by comparing pre and post fire conditions in the selected watersheds of the study area.

2. Identification of sites for the establishment of long term monitoring plots: During the proposed study duration a number of sites will be identified in the study area with an aim to carry out long term monitoring of the impacts of forest fire and change in species composition.

3. Capacity building for the frontline staff of forest department: A number of training and workshops will be conducted in the forest fire hot spot sites with respect to effective management of forest fire incidences and conservation of faunal resources with the help of different stakeholders and beneficiaries identified in the project proposal.

4. Building network and development of knowledge products: A network of organization working in the area will be created for handing forest fire issues in the project sites. The organization includes local collages, NGOs, Line departments, universities and international donor organizations (UNCP, UNEP, World Bank, JAIC, GIZ etc). In addition to this knowledge products will be developed with clear and specific messages for different stakeholders.

The outcomes of the project will significantly contribute towards meeting the global commitments under the various international conventions such as CBD, UNFCCC

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UNDERSTANDING THE IMPACT OF FOREST FIRE ON **FAUNAL RESOURCES OF NORTH EASTERN STATES FOR CONSERVATION AND MANAGEMENT**

A Large grant project under National Mission on Himalayan Studies (NMHS) programme

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Principal Investigator

Forests are a major natural resource and they play important role in maintaining environmental balance. The health of a forest in any given area is a true indicator of the ecological conditions prevailing in that area. Globally forest fire has been recognized as major driver of degradation of forests. Forest fires are considered to be a potential hazard with physical, biological, ecological and environmental consequences. In India, forest fires are the most significant, and a steadily increasing, factor in the degradation process, although the extent of total damage is widely disputed. However, it is estimated that the proportion of forest areas prone to fire annually ranges from 33% in some states to over 90% in other. It is estimated that about 3.73 million ha. of forest area is annually affected by forest fires where very heavy, heavy and frequent forest fire damages are noticed over 0.87%, 0.14% and 5.16% of forest areas.

Forest fire destroys all life forms at different levels of organization for examples ground fire destroys the organic matter which is needed to maintain an optimum level of humus in the soil, saplings and seedlings gets completely destroys hence impacting regeneration process and severe fire sometimes destroys ladder fuel as well as crown of fully grown tree species (Mallik and Gimingham, 1985). Furthermore, such types of fires are responsible for the loss of insects and other invertebrates. Several million hectares of forest land are burnt worldwide annually which is having varied impact on countries economics, environment, safety, human health and wildlife. It has also become a common feature in the Indian forest every year, causing immeasurable damage to the forest wealth and ecosystem. The major change in the microclimate of the region in term of soil moisture balance and increased evaporation is also attributed to the fire.

Causes of forest fires can be divided into two broad categories: environmental and human related. In India about 95% forest fire is man made in nature majority of time accidental and at few instances intentional. Traditional methods of fire prevention are not found effective and it is now essential to raise public awareness on the matter, particularly among those people who live close to or in forested areas. Moreover, research and knowledge enhancement with respect to forest fire ecology should be the top priority.

Forest Fire Situation Analysis in the Study Area

Forest fires are a major environmental problem in North East Region (NER) with large tracts of forest areas being affected in every season. It have become a major threat to the forest ecosystems in the region, leading to loss of timber, biodiversity, wildlife habitat and loss to other natural resources. The slash and burn shifting cultivation, or locally known as jhum the predominant form of agriculture in the hill tracts of North East India is found to be the major cause of forest fire in the region. Increased incidences of forest fire have prompted government intervention and schemes aimed at preventing and controlling forest fire in Mizoram (Darlong, 2001). In North Eastern India, Moderate Resolution Imaging Spectro-radiometer (MODIS) on NASA' Aqua satellite data observation reveal numerous fires in the Mizoram and surrounding Indian states of Tripura, Assam, Manipur, and along the border with Myanmar (Figure 1).

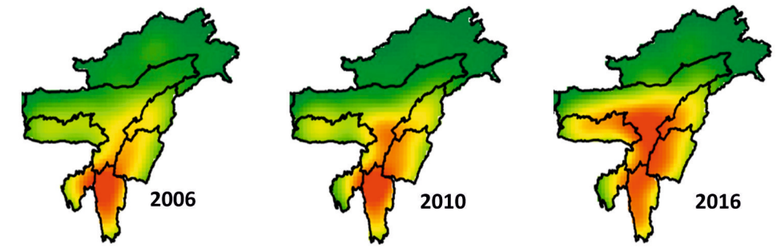

Figure 1: Map showing the fire hot spots in North-Eastern Regions during 2006, 2010 and 2016.

Figure 2: Map showing all study districts located in Mizoram State

The losses due to forest fires range widely from ecological to socioeconomic impacts on the society. Insufficient and disintegrated data on the Indian forest fire especially the intensity, span, and frequency of fire and soil nutrient potential is a big problem in itself to handle and to derive desirable results for the purpose of management of forest fire. At present forest management agencies have information on the area burned because of fire but there is no information available on the impact of fire on the local faunal resources, no information is available how recurrent fire shapes the community structure of different faunal groups such as birds. Hence, the present project has been developed to enhance the scientific understanding of impacts of forest fire in faunal element of mountain ecosystem of the Mizoram and to develop an framework to estimate the impact of fire on faunal resources.

Implementation districts of the project

The present study will be conducted in two (Mamit and Aizwal) districts of Mizoram state of the North Eastern region (figure 2).