

PROJECTS COMPLETED DURING THE YEAR 2014-15

PLAN PROJECTS:

Project 1: Rehabilitation of degraded jhum land through potential bamboo species with reference to carbon sequestration and livelihood development.

Findings: Raised plantation of *Bambusa balcooa*, *Bambusa tulda* and *Bambusa nutans* in degraded jhum land of Karbi Anglong district, Assam (in two locations). Quantified carbon stock of three selected bamboo species raised through rhizome as well as from seedlings. Bamboo planted through seedling showed least value in biomass production compared to rhizome. Aboveground and underground carbon stock alongwith the soil organic carbon was recorded significantly more in *B. tulda*. Study concluded that *B. tulda* has better potential to sequester CO₂ and may be planted in degraded jhum fallow for rehabilitation which may help in mitigating climate change to a certain extent.

Project 2: Studies on the incidence and management of pine mortality in Manipur

Findings: Surveys were carried out in Shillong (Jowai) and Manipur (Ukhrul) where maximum of 40% and 100% of disease incidence were recorded in Khasi pine respectively. Eleven fungal species were identified from rhizospheric soil samples of Shillong and 13 species from Manipur and one fungal genus (*Pestaliopsis*) was found to be associated in the disease sample. The fungus, *Fomitopsis pinicola* was found to be associated with most of the diseased trees in Manipur and Meghalaya. Pathogenicity test was repeated in laboratory and did not yield any conclusive result. Soil samples were collected from different disease prone areas for Physico-chemical and microbial analysis. pH of the soil sample was found to be near neutral to slightly alkaline. Soil texture of the collected samples was analyzed. Available NPK and Organic carbon was done following standard methodology. Control experiments were laid out at Ukhrul using 2 fungicides and 2 biocontrol agents (*Trichoderma harzianum* and *T. viridi*) in 25 plants in five treatments (5 plants for each treatment). Collection of data from the experimental trial was done in regular interval of time and Bavistin @ 0.2% was

found to be effective in checking further spread of the disease. During survey carried out at Ukhrul, Manipur, it was found that the area was prone to soil erosion which may be another reason for the mortality of pine.

Project 3: Ecological Studies on the distribution patterns and food plant resources of butterflies along altitudinal gradients in different forest ecosystems of the Eastern Himalayas (Arunachal Pradesh).

Findings: A GIS database and a Butterfly Atlas of Arunachal Pradesh with distribution maps for each species along with information on their ecology i.e. seasonality, relative abundance, altitudinal distribution, spatial distribution in the state, Wildlife (Protection) Act, 1972 status, larval food plants, forest type association of butterfly habitats, has been prepared.

Project 4: Ecology, Utilization and conservation of *Garcinia* species in upper Brahmaputra Valley, Assam.

Findings: Surveyed 23 different reserve forest in 7 district located Upper Brahmaputra valley, Assam. Distribution and ecological study on different species of *Garcinia* were done in 12 selected study sites. All together 10 species and its associated plant species in natural habitats were worked out in the study sites visited. Studies on the ethno-botany of *Garcinia* species were made in ten different study areas visited. Antioxidants activities of the fruits of *Garcinia kydia* were done.