New Initiated ICFRE Research Projects, 2010-11- RFRI

Sl. No.	Projects	Name of PI	Thrust Area	Current Status
1	Assessment of insect pest problems of selected bamboo species in Assam and their management **(3 years, April 2010)**	R. Raja Rishi, Scientist -B	Forest Protection (Insect pest, diseases and control)	The following study locations of nurseries (5 Nos.) and plantations (19 Nos.) were selected for the pest surveys: **Nurseries:** SFD nursery of *Bambusa tulda* at Jakahalabandha ; *B.tulda* tissue culture raised nursery at Hingiri; RFRI nursery at Jorhat for *B.tulda*, *B.nutans*, *B.pallida* and *B.balcooa*; SFD nursery of *Bambusa tulda* and *B.Balcooa* at Salna and SFD nursery of *B.balcooa* and *B.tulda* at Somdar. **Plantations:** Hingiri (SFD), Dhenukhanda pahar (HP), Nambogoribari (HP), Natujamuguri (HP), Doomdooma (HP), and Gamani (JFM) in **Sonitpur** district: Solal (Jakahalabandha) (SFD), Senchowa(HP), Ghai-majgaon(HP), Bhelwguri(HP), Demoruguri (HP) in **Nagaon** district: RFRI, Sothai, Satra in **Jorhat** district: Galakey (JFM), Napambaratia(HP), Chenuniali(HP), Ponabola(HP), Henosagaon(HP), Amguri(HP) in **Sivasagar** district: **The following pests were recorded during the pest surveys on the selected *Bamboo* species :** ***Bambusa tulda*** : **2 Sap suckers (1.** *Antonina* sp. 2. Mealy bug Not identified **), 5 defoliators (** **1.** *Psara licarsisalis* **2.** *Crocidophora* sp**. 3.** *Discophora* sp. **4.** Paint brush swift *Baoris farri* (Moore) **5**. Grass hopper *Hexacentrus unicolor* (Tettigoniidae))**, 1 shoot borer (**un identified) **-**

				Total: 8 *Antonina* sp., *Psara licarsisalis*, *Crocidophora* sp**.** *Hexacentrus unicolor* are categorized as major pests**.** ***Bambusa nutans*** : **2 Sap sucker (1.** Aphid **2.** Mealy bug Not identified **), 2 defoliators (1.** *Psara licarsisalis* **2.** *Crocidophora* sp**.) - Total: 4** *Crocidophora* sp**.** is categorized as major pest**.** ***Bambusa pallida :*** **4 defoliators** *(1.Discophora sp., 2. Psara licarsisalis 3. Crocidophora sp.4. Oxya nitidula (Walk) (Acrididae))* **, 1 shoot borer** (unidentified), **2 sap *suckers*** (1.Aphid unidentified 2. Leaf hopper - unidentified) – **Total: 7** *Crocidophora sp., Oxya nitidula (Walk) (Acrididae)* are categorized as major pests**.** ***Bambusa balcooa:*** **3 defoliators** (1. *Psara licarsisalis 2. Crocidophora sp.3. Holotricha sp*.) ***1*** Termite species. **– Total: 4** *Psara licarsisalis* and *Crocidophora sp.* are categorized as major pests**.** **The following natural enemies were recorded on the major pests of selected Bamboo species:** 1 Entomopathogenic fungus *Beauveria bassiana* on *Crocidophora* sp*. ;* 2 different predatory spiders (1 *Oxyopes* sp., and 1 un identified.) on the larvae of *Crocidophora* sp*.,* and *Psara licarsisalis* respectively **New host record:** **1 New host was recorded as Paint brush swift *Baoris farri* (Moore) on *Bambusa tulda***

2	Conservation, management and utilization of selected rattans of Assam **(3 years, April 2010)**	Dr. T.N. Manohara, Scientist–C	Forest Productivity (Silviculture)	• Visited BSI, Shillong and consulted herbarium specimens of rattans and recorded information pertaining to diversity, distribution and morphology etc. • Literature pertaining to research topic was collected from different institutional libraries- Forest Research Institute Dehradun, University of Delhi, North Eastern Hill University, Toklai Tea Research Station etc. • Initiation has been made to develop nursery and germplasm bank of rattans at RFRI campus. • Field survey in Gibbon WLS and Kaziranga NP carried out, phenological data recorded; herbarium sample, soil samples were collected and processed. • Consulted working plan/management plan of different forest divisions.
3	Development of vegetative propagation protocol of selected bamboo species. **(2 years, June 2010)**	Dr. K.C. Pathak, Scientist- C	Genetic Improvement (Vegetative Propagation)	• Surveyed and collected two noded culm cuttings of *B. polymorpha* from SFRI, Arunachal Pradesh. • Survey of four target species of bamboo in Mizoram has been completed. • Two noded culm cuttings of *B. polymorpha* and *B. bambos* respectively have been planted in the nursery beds to study the concentration of different hormone, their application and standardization. • Growth data is being collected at regular interval. • Watering and weeding is being continued. • Prepared and finalized the list of materials, chemicals, nursery tools, stationary items and others for the project period 2010-2011. Purchase of these items is under process.

				• Monthly report and quarterly report prepared and submitted.
4	Development of viable technique for efficient charcoal production from different bamboo specie of Northeastern India. **(3 years, July 2010)**	Dhruba Gurung, R.O.	Wood Products (Value Addition and Utilization)	• Surveyed Ri-Bhoi and East Khasi Hill districts of Meghalaya; Aizawl, Mizoram and three districts of Manipur has been done and samples of charcoal collected for calorific value estimation. • Charcoal preparation from different species of bamboo completed using foil method has been completed. • Studies on drying of bamboo in progress. • Procurement of equipments has been completed. • Preliminary studies on calorific values of different charcoals prepared and collected during the survey is in progress.
5	Ethno-medico-botanical studies of Khasi, Garo and Karbi tribes. **(2 years, April 2010)**	Sri H.N. Dhungana, R.O	Ecosystem Conservation and Management (Tribals and Traditional Knowledge System)	• Fourteen villages were selected for the study of use of medicinal plants and collection of related data from the targeted tribes. • The villages selected are Umlangpur, Jorbil, Umpher, Maikhuli, Pillangkata, Ronghona, Nongthymmai, Rangsakuna, Umdoh, Nongkhrah and Marangar (Ri-Bhoi District, Meghalaya) ; Morokdola, Sonaigaon and Aparikola (Kamrup District, Assam) • Umlangpur, Maikhuli, Morokdola, Sonaigaon, Pillangkata, Umpher and Aparikola were surveyed and information on the use of medicinal plants by the targeted tribes were collected. • Preliminary information revealed that the use of traditional medicine decreased. This is due to availability of modern medicine and young generation has not learned the uses from their parents or grand parents. The other cause is reduced forest resources. • Some very common medicinal plants available nearby house or villages are still in use for minor ailments**.**
6	Exploration and conservation of genetic resources of	Shri H.R. Bora, R.O	Ecosystem Conservation and	• Survey had been carried out in Nambor Reserve Forest and in different parts of Karbi-anglong district, Assam, Mon district, Nagaland and Cheerapunjee, Mawsinram and Dawki, Meghalaya, and explored the distribution of Livistona jenkinsiana, Gnetum gnemon, Vanda

	selected rare and endemic plants of Northeast India **(3 years, April 2010)**		Management (Biodiversity)	coerulea, and Renanthera imschootiana. • Documented traditional uses of *L. jenkinsian*, *G. gnetum.* • 400 propagules of L.jenkinsiana and 100 cuttings of G. gnemon and 13 plantlets of V. coerulea and R. imschootiana had been collected and nursery trials is in progress.
7	Exploration of diversity and utilization potential of Sphagnum species of forestry importance in North–East India **(3 years, April 2010)**	Dr. Praveen Kumar Verma, R.O	Ecosystem Conservation and Management (Biodiversity)	• To begin with, primary information collected from SFDs of North eastern region, Botanical Survey of India Shillong, Dehradun, and Sikkim circles, National Institute of Orchid Research, Sikkim, G.B. Pant Institute of Himalayan Environment & Development, Sikkim; NEIST, Arunachal Pradesh, SFRI Arunachal Pradesh, Orchid Research Institute, Tipi, Bryology units of National Botanical Research Institute, Lucknow, Lucknow university and several other user groups (including commercial and departmental nurseries) • To assess the taxonomic variability of *Sphagnum* species, extensive survey of *Sphagnum* rich localities in Sikkim, Meghalaya and Arunachal Pradesh under progress. • The taxonomical characterization of different species of *Sphagnum* under progress includes morphological, anatomical and reproductive characters. • Macro-propagation by Air layering using *Sphagnum* and other media under progress on some selected plants.
8	Genetic evaluation of *Aquilaria malaccensis* in North Eastern India and establishment of Gene Bank **(2 years, April 2010)**	Dr. N.Ravi, Scientist-B	Genetic improvement (Conservation of Forest Genetic Resources)	• 25 trees have already been selected from state of Assam, Arunachal Pradesh, Mizoram and Manipur. • 14 Trees from the concluded project have been included (Suggestion by M & E) **Molecular Marker Study** • The protocol for DNA extraction using CTAB buffer is standardized. • The quality of the extracted DNA is tested using electrophoresis and the purity is tested by using spectrophotometric method. • Optimizations for PCR reactions have been initiated.

9	Phytodiversity Assessment of Khasi Sub-Tropical Wet Hill Forests in Meghalaya **(2 years, April 2010)**	Dr. Vaneet Jishtu, Scientist – B	Ecosystem Conservation and Management (Biodiversity)	**Field Survey Studies:** • Visited the Study area and formulated the strategy for conducting the phyto-sociological studies. • Laid quadrates for data collection. • Collected plant specimens for preparing barium sheets her : **Laboratory Studies:** • Initiated the process for preparation of voucher specimens. • Identification of specimen samples by available floras and visits to BSI, Shillong. • Documentation of field data.
10	Productivity Enhancement in abandoned Jhum land through Agroforestry Management and Value Addition **(3 years, April 2010)**	Sri Pawan K Kaushik, Scientist C	Forest Productivity (Social Forestry, Agro-forestry/ Farm Forestry)	• The sites were visited and survey conducted to select the participating farmers in the On-farm research. • The willing farmers were interacted for their problems and prospects. A questionnaire was also tested to record their socio-economic status. • Seasonal market status for jhum based products were recorded during July – Aug. • Participatory appraisal for their crop preferences and planning for field trials is under progress. • To facilitate better participation with motivation in planning and implementation of the On-farm Research, an awareness and appraisal program has been conducted in Kawnpui (Kolasib District, Mizoram) • The sites were demarcated and field preparation completed for current season cultivation in both the sites.
11	Reproductive biology of *Aquilariamalaccensis* Lamk. a critically endangered and economically	Dr. T.N. Manohara, Scientist- C	Genetic Improvement (Tree Improvement)	• Field survey for selection of population has been carried out in some parts of Assam, Nagaland and Meghalaya. • Data on Phenology, pollinators has been collected for the current season. • Seed germination studies are in progress. • SEM studies of pollen samples and Stigma was done.

	important species for effective conservation **(3 years, April 2010)**			• Embryological studies is in progress
12	Studies on seed viability in three recalcitrant species *Dipterocarpus retusus* Bl. (Hollong), *Shorea assamica* Dyer (Makai) and *Aquilaria malaccensis* Lamk. (Agar) **(3 years, April 2010)**	N.P. Mahadevan, Scientist-B	Forest Productivity (Silviculture)	➢ Germination trials were conducted on seeds of *Dipterocarpus retusus* (Hollong) and *Aquilaria malaccensis* (Agar) collected from two different periods to study the effect of seed collection period on germination**.** • The effect of grading Hollong fruits into big, medium and small on germination was also studied. As germination is poor with small seeds, they should be discarded for nursery practices**.** ➢ Initial moisture content of Agar seeds were determined using Hot Air Oven method and it was found to be 31%. The seeds were then desiccated to desired moisture contents (25% and 20%) by non-destructive method. ➢ To determine the optimum seed storage condition for prolonging the viability of seeds, germination trials were conducted on the seeds of Hollong stored for 25, 40 and 55 days a) in paper bags at ambient condition, b) in polythene bags at 10°C, c) in mud pots embedded in moist sand bed and d) by treating in liquid paraffin wax.
13	Studies on species diversity of *Ganoderma* in Assam with reference to utilization and cultivation of its selected species **(2 years, April 2010)**	R. K. Kalita, Scientist 'D'	Forest Protection (Mycorrhizae, rhizobia and other useful microbes)	**Survey, collection of *Ganoderma* in major agro ecological zones of Assam**: • Fruit bodies of *Ganoderma* spp. were collected from different agro ecological zones of Assam. • Study on macromophological characters was done by following standard method for enabling identification among the collected fruiting bodies. • New Hosts (3) of *Ganoderma* recorded from surveyed areas

				Isolation and Pure Culture of Collected *Ganoderma:* • Isolation and Pure culture of collected fungi were done • Microscopic characters were studied. • Artificial cultivation of *Ganoderma* was carried out
14	Quality and yield improvement in agroforestry based food produce through iodine biofortification under integrated nutrient management. **(3 years, April 2010)**	Dr. Triyugi Nath	Forest Productivity (Social Forestry, Agro-forestry/ Farm Forestry)	• Collected literature through reputed journals and different libraries • Soil sample from different agro-climatic zone of Assam under progress (Till now samples have been collected from Satra, Melang, Kamrup, Naogaon, Silchar) • Physical properties of samples were analyzed.