




SFRI



**STATE FOREST RESEARCH INSTITUTE**  
**ARUNACHAL PRADESH**  
**ITANAGAR**  
**2002**



Arunachal Pradesh famed as one of the two biodiversity hotspots in India, is also one of the largest forest covered states in India . With over 82% geographical area under forest, it has an unparalleled biodiversity in the country accounting for over 50% of floral wealth . There are over 20 forests types . A great number of tribes - 25 major tribes and over 100 sub-tribes inhabit these hills and harness the natural resources taking advantage of plethora of forest products . With the recent developments and changing life style, there is evidence of mounting pressures on the natural ecosystem and environment. Systematic research and studies are indispensable for proper understanding, development, management and sustainable utilization of forest resources in the state. This hilly state's economy revolves around the forests . The abundance of forest resources particularly the wide range of non-timber forest produce ( NTFP ) has prompted to harness the NTFP in a more sustainable and ecofriendly manner. This warrants higher scientific inputs.

To meet this demand of research support, Government of Arunachal Pradesh under the department of Environment and Forests has established the one and only State Forest Research Institute in North East India in 1993 at Itanagar by amalgamating the already existing research facilities in the department like the Van Vigyan Kendra, Chessa and the Orchid Research and Development Centre Tipi.

With the increasing population , day by day there is progressive demand for forestland and resources . Various factors both natural and man made cause serious threat of depletion and degradation of natural forest cover of Arunachal Pradesh . Hence systematic research and studies are indispensable for proper understanding , development and management of the forests of the state and this task has been entrusted to the State Forest Research Institute ( SFRI) to augment forestry research in the state .

### **LOCATION**

The institute is located at Van Vihar ( $27^{\circ}4'V$  N &  $93^{\circ}36'E$  ) , Itanagar at an altitude of 311 mtrs. in the Capital complex along Itanagar - Gohpur road in Papum Pare district on an elevated plot of land on the bank of River Chimpu. With the hilly surroundings , it enjoys salubrious climate with moderate warm summers and cool winters . The central location facilitates accessibility to other institutes and organizations situated in Itanagar in addition to better networking with national and regional institute.

### **THE SET-UP**

The SFRI is an institute fully owned by the State Government under the Department of Environment and Forests . Its main resources are from state aid and has a mandate to do research covering the whole of Arunachal Pradesh.

The institute is headed by the Director who coordinates the R & D works of different Scientific Divisions and formulates projects suited to local needs and in consultation with Research Advisory Board of the institute headed by the Principal Chief Conservator of Forests and Principal Secretary ( E & F) as its chairman. There are 7 divisions at present pursuing research in various disciplines viz Silviculture, Forest Genetics , Orchidology, Systematic Botany, Soil Science , Forest Zoology and Ecology.

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## THE MEN

To man these disciplines the institute has a select breed of dedicated scientists , professionals and executive staff . The staff is highly qualified and experienced . At present there are 7 Scientists , 1 Forest Professional, 6 Reseach Range Officers and other field executive and ministerial staff.

## THE FACILITIES

(A) In-house facilities : The Institute has at present Laboratories for Forest Genetics , Soil Science, Seed testing , Taxonomy, entomology and two Tissue Culture laboratories (one at Tipi and the other at Itanagar ) ,in addition to a well stocked library, a Herbarium, a Zoological museum and a botanical museum for bamboo , cane ( Rattan ) and medicinal plants .



(B) Field facilities : Under the institute, there are 6 Research Ranges and 5 sub centres located under different altitudinal and climatic regions of Arunachal Pradesh covering over 2000 ha . of experimental area to carry out field trials and site specific research . Each of these centres has well maintained nurseries . There are a number of field trial plots like sample plots , observation plots and linear increment plots .



## THE OBJECTIVES

The institute has identified areas of work and drawn up different projects and programmes conforming to the research priority set up by the state government as follows.

- Undertake studies on *ex-situ* and *in-situ* conservation of natural resources of flora and fauna ,
  - Evolve appropriate agroforestry techniques for restoring degraded forests and environment and to provide alternative means of earning and upliftment of rural economy .
  - Study biological diversity and maintain and evaluate the germ-plasm useful in forestry and allied subjects .
  - Breeding , improvement and micropropagation of native as well as suitable exotic species .
  - Provide training and extension services to the foresters , researchers and entrepreneurs engaged in forestry activities , forest based industries, government organizations , local farmers and NGOs .
  - Create a data base on forestry and allied subjects .
  - Net work and receive funds for forestry research in the region and publish research findings .
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## THE ACTIVITIES

Conforming to the objectives the institute is engaged in the following activities :

### SILVICULTURE

The goal of this division is to evolve silvicultural knowledge on indigenous species and thereby support the mass afforestation programmes and ensure the successful plantation activities. Progress in this direction are: completion, of Phenological studies on more than 100 native species Standardization of nursery techniques for most of the important local tree species, medicinal plants, bamboos and other NTFPs. Establishment of over 43 observation / sample / linear increment plots for growth studies and collection of data on growth and increment. Establishment preservation plots in different forest types. Completion of performance trial on 17 fast growing species. Demonstration plots of multitier plantation models, have been established in addition to bamboo and cane.



### FOREST GENETICS

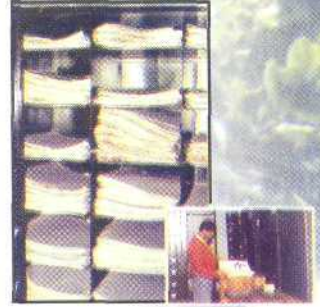
This division aims at improving productivity by genetic selection process and by adopting clonal multiplication and suitable propagation technologies. The achievements are : As part of genetic improvement programme, selected and maintained 805 plus trees and 25 bamboos of important species . Maintained 42 ha seed orchards and 10 ha of Germplasm Bank for 10 local species. Commercial production of quality seeds for *Gmelina arborea* , *Michelia champaca*, *Terminalia myriocarpa*, *Chukrasia tabularis* *Phoebe goalparentis* and *Acrocarpus fraxinifolius* have been started . Progeny trials on *Gmelina*, *Michelia* and *Phoebe* have been initiated . Seed testing for all available species are routinely carried out and a seed testing laboratory is maintained with central assistance . Established an airconditioned seed store . Vegetative propagation using air layering, budding, grafting, branch cutting , culm cutting, etc are practiced for different species and suitable method perfected .



## SYSTEMATIC BOTANY

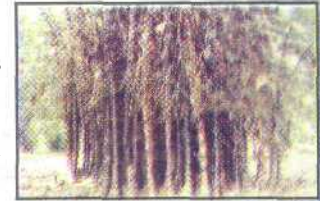
The task of this division is to botanically explore and bring out the economic potential particularly the non-timber forest produce like bamboo, cane, medicinal plants etc. Noteworthy achievements are :

Exploration of floristic diversity of the state with -30 expeditions. These have resulted in detailed information on distribution of canes, bamboos, medicinal plants, rare and endangered species etc. Development of referral Herbarium of the state with - 15,000 sheets of 5,200 collection in 260 families, 950 genera and 2990 species belonging to Gymnosperms, Pteridophytes, and Angiosperms. Creation of two Arboreta- 8 ha one at Chessa with 170 species and another at Dirang covering the subtropical zone; Development of Medicinal plant garden with 150 species cultivated. Establishment of Bambusetum, one of the largest collection of bamboo species in India with 57 species. Establishment of Rattan garden (Canetum) with 14 Species from the region at FRS Chessa. Preparation of districtwise distribution map of medicinal plants, bamboo and rattans. Identification and extension services rendered to different user agencies and public. Establishment of a cane, bamboo and medicinal plant museum highlighting the resource potential.



## SOIL SCIENCE

This division's objective covers forest soil classification, soil analysis and amelioration, phytochemical screening of forest plants etc. Achievements so far are : Survey and classification in 7 districts. Edaphic requirements for 8 tree species. Site characteristics for 3 species. Study on nutrients for some timber species at nursery stage. Nutrient-analysis of jhum fallows. Screening of tree-borne oil seeds of 100 species 27 found commercially viable. Under Phytochemical studies, 3 new compounds identified. Soil surveys in protected forest areas initiated.



## FOREST ZOOLOGY

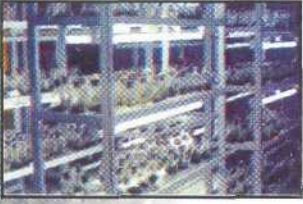
The division envisages to bring to light the faunal diversity, its ethno-biological values and traditional knowledge system in the state. A museum development and extension programmes are also in the aim of this discipline.



### Significant achievements are :

Faunistic survey in 10 districts, Development of pest control measures for 3 species; Development of Zoological museum containing over 100 specimen of snakes, 1800 insects and 320 others. Studies on Ethnozooology. Distribution and habitat of major faunal groups, traditional knowledge system and conservation practice initiated.





## FOREST ECOLOGY

This division is engaged in studies of the fragile ecosystems, man forest interactions, successional forests , quality analysis etc .

Community based ecological studies made . Implimented SALT technique for slope management. Ecological studies in protected areas are some of the projects being carried out . The State Biodiversity strategy and Action Plan (SBS AP) preparation for Arunchal Pradesh is facilitated by this division.



## ORCHIDOLOGY

The state is known for its rich orchid flora and the division is engaged in scientific studies and extension activities aimed at technological development in orchid farming with people's participation and contribute towards economy and floriculture . Significant achievements are



Surveys and habitat studies - 550 species collected ; Orichid flora - developed herbarium and districwise distribution of species compiled. Discovered and described 30 new species, one new genus and 150 new records of occurrence . Orchid santuary - 100 sq. Km for *in-situ* conservation established . Orchidaria - established in 8 different zones with over 2 lakh orchids cultivated . Tissue culture Standardized for major species of *Cymbidium* , *Dendrobium* , *Wanda* and their hybrids with successful field trials ; commercial production started, Breeding -15 hybrids developed and five registered viz 1, Renades 'Arunodaya' , 2 . Arachno-centron ' Tipi ' jubilee star " , 3 . Esmeranda ' Millennium Dawn ' , 4. Ascocenda 'Tipi Blue boy', 5 . *Cymbidium* Sessa' Green Beauty'.



- Induction of polyploidy in 4 Vandaceous genera .
- Extension and development of six *Cymbidium* farms involving local enepreneurs and women.
- Introduction of capsule course in tissue culture of orchids .
- Organised festival of flowers 5 times during last one decade .
- Published two books , two booklets , 128 research papers , several stickers and publicity materials



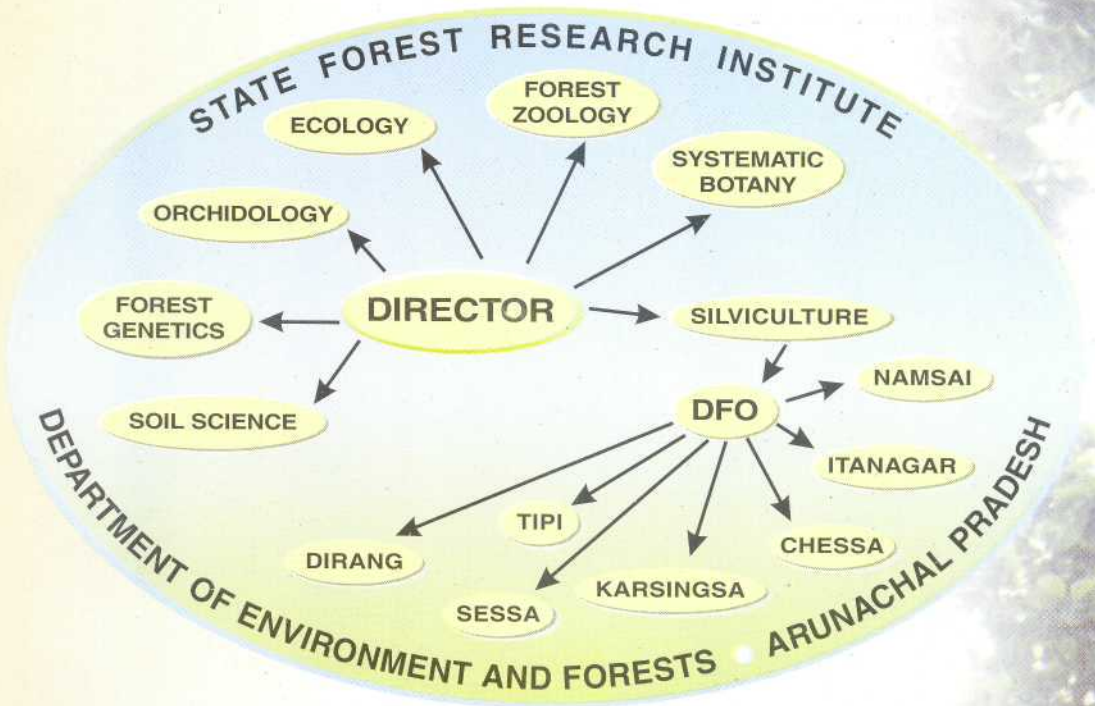
## PUBLICATIONS :

2 Books , 15 bulletins and over 200 Research papers .

## JOURNAL :

Arunachal Forest News- biannual.

## ORGANISATIONAL SET-UP



### **CONTACT US**

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## ACHIEVEMENT - HIGHLIGHTS

- Establishment of first ever seed orchards
  - Application of tissue culture technology and standardization of protocols for 65 Orchid species and hybrids including 4 tree species .
  - Vegetative propagation techniques of *Taxus* and *Illicium*
  - Development of indigenous technique for control of pests in nursery for *Michelia champaca* .
  - The second Asian collection of an Endangered snake viz *O. erithrorachis*
  - First ever attempt on ethno - zoological studies in the state
  - Establishment a Referral Zoological Museum
  - Screening of forest trees for oil
  - Implimentation SALT Technique in hill slopes
  - Development of orchids as a supplemental economic Resource for the state
  - Development of 5 new registered hybrids of orchids
  - Transfer of technology from lab . to land and promotion of private venture in orchid farming.
  - Maintains the largest number of living orchid species in India over 550 species .
  - The first ever Orchid Sanctuary in India established
  - Botanical survey in remote areas highlighting the importance of biodiversity in sustainable development.
  - Establishment of largest bambusetum and canetum in N E India
  - Studies on NTFPs especially bamboo , cane and medicinal plant resource and distribution, highlighting their economical potential in the state .
  - Introduction and trial of fast growing tree species like : *Mangium*, *Pongamia*, *Poplar*, and bamboos like : *Phyllostachys pubescence* , *Dendrocalamus asper* etc .
  - Maintains 8 preservation plots , 15 observation plots and 28 sample plots .
  - Standardization of bark harvesting techniques for NTFP.
  - Capsule course in Tissue - culture ,
  - Publication of books, bulletins extension materials and Arunachal Forest News the only research journal from the state
  - Recognition of the institute by the Universities (Gauhati & Arunachal) as centre for Ph.D research . Three students got Ph.D
  - Successfully completed over 10 research projects
  - Preparation of state Biodiversity Strategy and Action Plan for Arunachal Pradesh .
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