



# ENVIS

Newsletter

ENVIRONMENTAL INFORMATION SYSTEM




जहाँ है हरियाली!  
वहाँ है खुशहाली!!

Vol.13 (2): 2008



## From Director's Desk

I am delighted to be back all over again with the second issue of ENVIS Newsletter as committed to the Ministry for two issues in a year. This has in fact turned out well in advance and prior to the closing of the current Action Plan year (2008-2009). The vulnerable status of the tree fern, *Alsophila* from N.W. Himalaya, an in depth account on *Schizostachyum arunachalensis*, the bamboo with distinctive and long internodes from Arunachal Pradesh, the *Ficus* for its edible leaves and the wild *Capsicum* with local uses are some articles that are included in this issue. The documented uses of plant wealth by tribal populations from Jalpaiguri and Purulia districts, West Bengal are also added in the current issue. I congratulate the editorial committee for the additional efforts put in for this issue and, am sure, like previous ones, this one too generates the desired attentiveness for the conservation of plant diversity in the country, the focus on which this centre has been striving for since its establishment.

  
M. Sanjappa  
Director  
Botanical Survey of India

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## The vanishing tree fern of N.W. Himalaya

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The tree ferns are the relict of primitive vegetation that existed during the Carboniferous period about 200 million years ago. They survived through the drastic climatic changes on this earth. The tree ferns belong to the family Cyatheaceae and comprise of over 650 species representing 6 genera (Pichi-Sermolli, 1977) and are scattered through cool, humid tropical and subtropical regions of the world. The species are extremely slow growing and take several years to reach maturity. They vary greatly in size and the tallest has a trunk as long as 15 m with an umbrella like crown of very large leaves. From India, so far, only 17 species and 1 variety of tree ferns are known. Of these 16 species and 1 variety belong to the genus *Alsophila* R. Br. and 1 species to *Cibotium* Kaulf. (Chandra, 2000). The tree ferns are highly attractive and majestic in appearance and look like a palm. Unfortunately these magnificent vascular cryptogams which are already under severe threat for their survival due to fast changing climatic conditions are further subjected to various biotic factors leading to their rapid depletion from nature. The tree ferns are variously used. In horticulture they are used as ornamental plants. The foliage is used for thatching and as cattle feed, while pith from the trunk is used to prepare intoxicating beverage and the dried tree trunk blocks are used for growing orchids although their trade is restricted through inclusion in the Appendix-II of CITES. The north-eastern region of India abounds in tree ferns. However, in N.W. Himalaya only one species of the genus *Alsophila* namely *A. spinulosa* (Wall. ex Hook.) R.M. Tryon is known to occur in a few restricted localities in the state of Uttarakhand. *A. spinulosa* was reported for the first time in Uttarakhand by Naithani (1979) from the Chamoli district in the Garhwal Himalaya. Later, Singh *et al.* (1986) collected this species from another locality in the Chamoli district. Rawat & Aswal (1984) reported this species from the Kumaon Himalaya followed by Pandey & Kandpal (1986); Pangtey *et al.* (1989) and Punetha & Kholia (1989) from the same region. Further, during a recent botanical exploration to the Kumaon Himalaya in Uttarakhand, a small population of the tree fern comprising of few individuals was observed by the authors along the road side on way to Thal from Didihat in Pithoragarh district, which is hitherto an unreported locality.

All the aforementioned reports indicate that this species is not common and occurs in very small populations in N.W. Himalaya and here too, their existence is severely threatened due to various biotic and abiotic factors. Since it grows along the small streams which are frequented by cattle and human beings, the plants are mowed down during grazing or lopped, and even



*Alsophila spinulosa* (Wall. ex Hook.) R.M. Tryon



chopped off by the locals quite often, as was observed during our recent botanical exploration. It was also observed that at Nagnath Pokhari in Chamoli district, a population of nearly 40 individuals of *A. spinulosa* was washed away due to land slide in the rainy season in the year 2007 (Pandey in Rastriya Sahara, Saturday, 29.10.2007). Construction of roads, lopping of the foliage crown for fodder and thatching, over-collection of leaves and the plants for horticultural purposes etc. are also some of the major causes for its depletion from this region. In order to save this magnificent plant from becoming extinct from N.W. Himalaya, sincere efforts are required to be made for its conservation and multiplication. During the conservation of RET species of plants in the botanical garden of Northern Circle, Botanical Survey of India at Dehradun, several attempts were made to grow this species in fern house, but could not be met with success. It has been observed that the species is highly habitat specific. The species can be multiplied through tissue culture in the laboratory and the plants so raised can be reintroduced in its natural habitat. In addition, the very few known localities in N.W. Himalaya where the tree fern is found should be protected and declaring the area having the largest number of their population as a "Tree Fern Sanctuary" will be the most effective action that could be taken for conservation.

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## Schizostachyum arunachalensis, the bamboo species with longest internode and biggest leaf

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Naithani (in *Indian Forester* 118(3): 230-231. 1992) first described *Schizostachyum arunachalensis* H.B. Naithani from Arunachal Pradesh. The species is quite fascinating because it has the longest internode and the biggest leaf amongst the bamboos. It grows in the tropical evergreen forests of East Siang, West Siang and Upper Subansiri districts of Arunachal Pradesh on the wet slopes at elevations ranging from 200 – 700 m.

*S. arunachalensis* is known as 'Tuchur' to the Adis and Hill Miris, as 'Tauk' to the Gallongs, as 'To' to the Apatanis and as 'Tabung' to the Nishis.

It is a semiscandent bamboo. Culms up to 15 m tall, at first erect and then pendulous. The nodes are swollen with 1 cm broad ring of thick, brown deciduous hairs. The internodes are dark green, turning yellow on maturity, smooth, upper ones longer than lower ones, up to 139 cm long, 6 – 7 cm in diameter, 10 – 12 cm in circumference; wall 5 – 10 mm thick. Leaves oblong-lanceolate, up to 48 x 18 cm, glabrous; base oblique; apices acuminate, terminating into a twisted point; sheath glabrous or pubescent, ending in a smooth callus and prominent long setaceous reticulate auricles.

The peelings of the long internodes are used for making rope to tie the leaves of 'Toko pat' (*Livistona jenkinsiana* Griff.)

while covering the top of the huts by them and also for weaving baskets.

The wide leaves can also be used for making plates.



*Schizostachyum arunachalensis* H.B. Naithani: An internode; Inset: A leaf

# Ethnobotanical information from Jalpaiguri and Purulia districts, West Bengal

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In the course of the ethnobotanical surveys at Nimati in Jalpaiguri district and Matha & Ajodhya hills in Purulia district, West Bengal, the ENVIS team from the Botanical Survey of India, Howrah collected some ethnobotanical information. A few selected uses of the plants, as told by the field informants Sri Biren Rabha of Nimati, Sri Mangal Singh Babu of Matha, Sri Kali Charan Murmu of Majhidihi, Ajodhya hills, have been documented here as follows.

*Bauhinia malabarica* Roxb.  
(Leguminosae: Caesalpinioideae)

Local name: *Chankya-kurail*, 'Chankya' refers to the sour taste of the leaves.



*Bauhinia malabarica* Roxb. – Fruit

In Matha the barks are used to cure amoebiasis. At first the barks are collected from the tree trunk. They are then pounded and the juice is squeezed out. The juice is strained and diluted with water. 2 – 3 teaspoonfuls of the same are given to patients suffering from amoebiasis once daily for 3 – 5 days.

This species is reported here from Mathaburu for the first time. The authors

came across only one tree in fruiting condition. As the trees are dioecious there must be a male tree growing nearby but it could not be traced out because in the summer season the trees usually become leafless. The specimen (*Gantait et al. s.n.*), collected on 3.4.2008, has been deposited at CAL.

*Bauhinia variegata* L.  
(Leguminosae: Caesalpinioideae)

Local name: *Jhinjhir*



*Bauhinia variegata* L. – Flowers

In the Ajodhya hills, the mature seeds which have not become dry are boiled and eaten by the Santals by adding a little salt to it.

*Butea superba* Roxb.  
(Leguminosae: Papilionoideae)

Local name: *Lat palash*



*Butea superba* Roxb.  
Inset: Flowers (right); fruits (left)

In Matha and Ajodhya hills, the bark of the stem is used to stop profuse bleeding resulting from a cut by an axe or a chopper. The slightly crushed fresh bark is immediately placed over the wound and tied with a cloth until the bleeding is stopped. It is said to be very effective in checking bleeding immediately.

*Desmodium gangeticum* (L.) DC.  
(Leguminosae: Papilionoideae)

Local name: *Ursha gach*



*Desmodium gangeticum* (L.) DC. – Inflorescence

In Ajodhya hills, the plants along with their roots are kept in those places in the house where bedbugs are infested. They act as bedbug repellents.

*Firmiana colorata* (Roxb.) R. Br.  
(Sterculiaceae)

Local name: *Sisi*





*Firmiana colorata* (Roxb.) R. Br. Inset: Inflorescence

In Ajodhya hills, the cordage fibres are extracted from the bark of the stems. To extract the fibres small trees are selected whose tree-trunk diameter is about six inches. The bark of the stem is then extracted with the help of a sharp chopper and retted in the pond water for 10 – 15 days. The barks are then beaten repeatedly and violently over the surface of the water till the fibres are completely separated and become milk white. The ropes prepared from the fibres are durable for 10 – 15 years and are used to make a charpoy, which is a bed having a light wooden framework strung with ropes. To extract the fibres sometimes the tree-trunks are cut into pieces of about two feet in length and they are retted. After retting is over the bark is separated from the stem and then the aforementioned processes are carried out in the same way. The plant, however, dies in either process of fibre extraction.

*Vitex negundo* L. (Verbenaceae)

Local name: Nag-zar



*Vitex negundo* L. – Portion of a plant in flowering condition

In Nimati, the Rabhas use the leaves of this plant to cure earache. The leaves are at first dried in the sun and then they are powdered. After that the powdered leaves are sprinkled on the glowing charcoal kept in a censer, locally known as 'Dhunuchi'. The smoke which emits from it is blown inside the ears to cure pain due to infection in the external auditory canal (drawing by D.K. Sah, Artist, BSI).





## *Ficus geniculata* Kurz (Moraceae) –

A new source of leaf vegetable  
from the Andaman Islands

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**K**urz (in *J. Asiat. Soc. Bengal* 42: 105. 1873) first described *Ficus geniculata* Kurz from Burma. In India the species is known to occur in Orissa, Jharkhand, Bihar, Sikkim, Assam, Arunachal Pradesh, Meghalaya and the Andaman Islands.

Corner (1965) first reported this species from the Andaman Islands where it grows in the tropical evergreen and mixed deciduous forests.

*F. geniculata* is known as 'Phutkal' or 'Jait putkal' to the Santhal and Munda tribes of the Andaman Islands.

It is a semideciduous tree, growing up to 6 m. Young shoots with silky white pubescence, glabrous with age, milky latex present. Leaves oblong or ovate-oblong, broadly elliptic or ovate, 4.5 – 17 × 3 – 11 cm, subcoriaceous, broadly cuneate to rounded at base, shortly acuminate or mucronate at apex; margin entire, subundulate; basal nerves 3; lateral veins 5 – 12 on both side of midvein, nearly parallel; stipules broadly ovate, c. 1 cm long, pubescent; petioles 6 – 10 cm long, channeled, glabrous. Inflorescence axillary, sessile or shortly peduncled, on short woody branchlets or on leafless older

branchlets in clusters of 2 – 4. Figs red, 5 – 7 mm in diameter, depressed globose, warted when ripe. Male, gall and female flowers present within a same fig.

During a field survey in May 2008 in the Little Andaman located between South Andaman Islands and Car Nicobar, the first author noticed that the young leaves of *F. geniculata* are extensively consumed by the local tribes as a vegetable. The young leaves are plucked, chopped into pieces and cooked with spices and normally taken with rice as part of their daily diet. It is very popular in Hut Bay, Little Andaman especially in the "Ranchi Basti" and is consumed exclusively by the tribes migrated from the mainland viz., Bhumij, Kol, Munda and Santhal. It was learnt that the leaves are also consumed by the Jarwas in the Middle Andamans in case of scarcity of food. Kanjilal *et al.* (1940: 248) and Kunkel (1984: 157) recorded that the acid leaf-scales i.e. the

stipules of this species are cooked and eaten but the consumption of the leaves as a vegetable has not been published any where so far. Further, we would like to mention here that the leaves of *Artocarpus heterophyllus* Lam., *A. altilis* (Parkinson) Fosberg, *A. lacucha* Roxb. ex Buch.-Ham. and *F. virens* Aiton are also consumed as vegetable in the Andaman Islands.

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A person plucking the young leaves of *Ficus geniculata* Kurz for using them as vegetable

## A *Capsicum* species comes wild in Mahananda wildlife sanctuary, Darjeeling district, West Bengal and its local uses

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The genus *Capsicum* L., a native to tropical America comprises of 10 species and was first cultivated in the tropical America in the pre-Columbian times. Now it is cultivated worldwide. Some of the members of *Capsicum* are used as spices, vegetables and medicines. Its red colour is partly due to high vitamin A content.

In India 3 species along with their 3 varieties are cultivated of which *Capsicum annum* L. is under extensive cultivation. *C. frutescens* L., commonly known as Red pepper or Bird chili is also cultivated, though not extensively and often found as an escape.

During floristic studies in the Mahananda wildlife sanctuary, West Bengal, several populations of *C. frutescens* have been found to grow in the wild state. The species might be an escape from cultivation by the locals residing nearby the periphery of the sanctuary. The plant is a perennial shrub up to 2 m high. Stems and branches angular, hardy and zigzag. Leaves broadly ovate to ovate-elliptic with acuminate apex, pubescent. Flowers 2 – 3 (– 6) at a node, erect. Calyx cup-shaped. Corolla pale yellowish green or cream. Fruits 10 – 20 × 3 – 5 mm usually narrowly cylindrical and turning red when mature.

Generally *C. frutescens* has several cultivars such as: African birdseye or African devil, Malagueta pepper, Siling labuyo, Tabasco pepper (used to make Tabasco sauce), Naga jolokia pepper and Demon red. The species contains 0.2 % to 1 % capsaicin, a pungent principle (8-Methyl-N-vanillyl-6-trans-nonenamide) that can produce a strong burning sensation in the mouth to the unaccustomed eater.

On query it was learnt that the local tribal people use the leaves and fruits in different ways. The leaves are made into paste and mixed with semi-rotten fish before cooking to remove the stinking odour. A few ripe fruits along with double amount of red soil (*Geri mati*) is crushed and used as poultice on painful corns on the lower surface of foot at night to cure. Generally it is recommended for twice a week for 2 – 3 weeks. Furthermore, the tribal people add the ripe fruits in the local drinks to enhance 'strength' or 'bite' of the drink.



A twig of *Capsicum frutescens* L. with flower and fruits; Inset: Ripe fruits

### Selected Readings

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Activities of the Centre The centre has enormous data on many areas and wants to create database and publish the following information

- i) Assessment of Rare, Endangered and Threatened species of different phyto-geographical regions of India
- ii) Dry and wet coastal ecosystem in India : Vegetation pattern, floristic component, their values in Assessment of Floristic Diversity of Angiosperms with regard to different ecozones in India
- iii) Database on indigenous medicinal plants of India and common medicinal plants of West Bengal in regional language
- iv) User service will continue

Future plan Thrust area of the ENVIS Centre, BSI is the task of disseminating information on Floral Diversity from different eco-regions of India. Entry of data and scanning of photographs and illustrations of the plants included in the Red Data Book of Indian Plants will be continued. Economic and medicinal plants included in red list categories will be given special emphasis. Assessment of plants included in the CITES list will be continued. Preparation of Allergic Pollen Atlas of India with Scanning Electron photomicrographs will also be continued. Incorporation of new data in Database of Phyto-geographical distribution of Rare, Endangered and Threatened species will also be continued. An offline database on plants of Ethnobotanical importance from West Bengal has been developed and data incorporation is continued. An initiative has been taken to make the ethnobotanical database online.

List of publications brought out so far

**Books :**

1. Mangroves, Associates and Salt Marshes of the Godavari and Krishna Delta, Andhra Pradesh – India
  2. Diversity of Coastal Plant Communities in India. (Priced publication) Rs.804.00 \*
  3. Red List of Threatened Vascular Plant Species in India
  4. Bibliography and abstract of papers on Flora of West Bengal
- Newsletters :** Up to Vol.13(2). Vol. 14(1) (in press).



Dr. Henrik A. Pedersen, Associate Professor, Natural History Museum of Denmark, University of Copenhagen delivered a lecture on 'Species delimitation in Asian *Brachycorythis* (Orchidaceae) resolved by multivariate' at Central National Herbarium.

Mr. B.S. Parsheera, Special Secretary, Ministry of Environment & Forests, New Delhi releasing the ENVIS Newsletter Volume 13(1): 2008 at Central National Herbarium. Director, Botanical Survey of India Dr. M. Sanjappa receiving the copy.



\*DD is to be drawn in favour of ACCOUNTS OFFICER, P.A.O. (BSI/ZSI) and to be sent to the above address of ENVIS Centre