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जहाँ है हरियाली।
वहाँ है खुशहाली॥

Editorial

The ENVIS Centre, established 14 years ago in Botanical Survey of India with subject area on floral diversity, has rendered service in dissemination of information on floral wealth of the country. The centre has been publishing Newsletter annually, highlighting the valued results of extensive explorations conducted by the Survey and principally with reference to the well being of rare species, their rediscoveries in old locations after long gaps and their added recording in newer areas. It has also been publishing threat analysis of recognized RET species in various phytogeographic regions. Such are the reports published in this issue too, the taxa covered are *Lusia macrotis* Rchb.f. (hither to known from Assam, now reported from North Andaman Islands), two varieties of *Arisaema rhizomatum* C.E.C. Fisch., (earlier known from Delei Valley and now rediscovered from Dibang Valley in Arunachal Pradesh) and *Cheirostylis yunnanensis* Rolfe (reported as a new record to West Bengal). Utilization of stem-barks of *Bauhinia vahlii* Wight & Arn. by the 'Birhor' tribe (West Bengal) for rope-making and *Canarium strictum* Roxb. (Burseraceae), *Drynaria quercifolia* (L.) J. Sm. (Polypodiaceae) and *Bulbophyllum sterile* (Lam.) Suresh in various ailments by local *vaidyas* (Tamil Nadu) are also detailed.

I am happy to announce that this Newsletter will be issued twice a year here after as desired by the Ministry. I hope this issue, like previous ones, will be well appreciated.

M. Sanjappa
Director
Botanical Survey of India

Articles

Rediscovery of two varieties of *Arisaema rhizomatum* C.E.C. Fisch. (Araceae) from India after a gap of 7 decades

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In the course of the plant explorations in the Mishmi hills, Dibang Valley district, Arunachal Pradesh since 1996 many species of *Arisaema* were collected. After critical studies, two of them (*Bhaumik & Pathak* 3768A – C- ASSAM) collected from Bruinii at 2250 m altitude on 7.4.2001 and (*Bhaumik & Tham* 104732 - ASSAM) collected from Mayudia Pass at 2635 m altitude on 27.2.2004 were identified as *A. rhizomatum* C.E.C. Fisch. var. *nudum* C.E.C. Fisch. and *A. rhizomatum* C.E.C. Fisch. var. *viride* C.E.C. Fisch., respectively. Scrutiny of relevant literature (Hooker, 1893; Chatterjee, 1954; Hara, 1971 & 1978; Rao & Verma, 1976) shows that they have been rediscovered from India, from the same state, after a gap of 7 decades from the year of the collection from the Delei Valley (Fischer, 1936) i.e. the type locality in Arunachal Pradesh. However, after the massive earthquake in the north-east Assam in 1950 (Gee, 1952), the topography of the entire Delei Valley and its adjoining areas has completely changed.

Earlier, Pradhan (1997) had stated that these two varieties are endemic to the type locality i.e. Delei Valley in Arunachal Pradesh overlooking the publication of Wu & Li (in *Fl. Reipubl. Popul. Sin.* 13(2): 168. 1979) where the said two varieties were recorded from China.

We found that both the varieties grew in solitary patches and more or less in the same habitat in association with *Ophiopogon intermedius* D. Don, *Arisaema* spp., *Chimonobambusa callosa* (Munro) Nakai, *Coptis teeta* Wall., *Rubus* spp., *Yushania pantlingii* (Gamble) R.B. Majumdar etc. Large trees like *Rhododendron grande* Wight, *Taxus wallichiana* Zucc. dominated the area. The soil was loose, sandy and rich in humus. The place experiences annual snowfall.

Detailed descriptions of the two varieties based on our own collections are given here to facilitate their easy identification in the field.

Arisaema rhizomatum C.E.C. Fisch. var. **nudum** C.E.C. Fisch. in Bull. Misc. Inform. Kew 285. 1936.

Type : Arunachal Pradesh, Delei Valley, 11000 ft., 18.9.1928, *F. Kingdon Ward* 8627B (Holotype-K; BSI Kew Negative 9246B - CAL!).

Tuberous herbs, up to 50 cm tall, sometimes prostrate. Stems up to18 cm long, clothed by tubular sheaths and cataphylls; cataphylls 2, pinkish, membranous, rounded at apex. Leaves usually 2, rarely 3; petioles 13.5 –17 cm long; blade usually 5-foliolate, pedate compound, rarely trifoliolate; petiole of middle leaflet 1.2 – 2.3 cm long, lower blade petiolate or sessile; middle blade 7.5 – 17 x 6.3 – 7 cm, elliptic-oblanceolate, acute at apex, narrowed at base, glabrous, entire, primary

nerves 10 – 12 pairs. Peduncle 3 – 5 cm long, terete. Spadix 3 – 4.2 cm long included in spathe; spathe tube 3 – 5 cm long; limb 2.5 – 4 cm long; appendix up to 3 cm long, clavate, terete, truncate at apex. Gynoecium 6 – 6.8 x 4 – 4.8 mm, oblong-obtuse, triangular, truncate at apex; style 0.8 – 1.1 mm long, raised, stigma capitate.

Fruiting : April.

Distribution : India: Arunachal Pradesh; China.

Arisaema rhizomatum C.E.C. Fisch. var. **viride** C.E.C. Fisch. in Bull. Misc. Inform. Kew 285. 1936.

Type : Arunachal Pradesh, Delei Valley, 10000 – 11000 ft., 21.8.1928, *F. Kingdon Ward* 8556 (Holotype - K; BSI Kew Negative 9246C - CAL!).

Tuberous herbs, up to 40 cm tall. Tubers cylindrical, *c.* 6.5 x 1.5 cm, wrinkled with annular markings, root fibrous. Stems up to 10 cm long, clothed by tubular sheaths and cataphyll; cataphyll 1, pinkish, membranous, gradually narrowed into rounded apices. Leaves 2; petioles 11 – 11.2 cm long; blade usually 5-foliolate, pedate compound; petiole of middle leaflet 6 – 15 mm long; middle blade 9.5 – 10 x 5.9 – 6.3 cm, obovate, acute at apex, minutely dentate at margins, primary nerves 8 – 11 pairs. Peduncle up to 2.5 cm long, terete. Spadix 5 cm long, included in spathe; spathe tube 2 cm long, overlapping at margins; limb 5 – 5.6 x 2.3 – 2.5 cm long, pale brown after drying, ovate-lanceolate, with *c.* 3.8 cm long filiform tail, persistent; female part *c.* 1.6 x 0.8 cm; appendix up to 3 cm long, cylindrical-clavate. Gynoecium 2– 2.2 x 2.3 – 2.5 cm, pale green, unilocular, 2-ovulate, glabrous, truncate at apex, white dotted; style *c.* 5 mm long; stigma capitate, surface granular; ovule 1.2 – 1.5 x 1 – 1.2 mm, truncate, glabrous.

Fruiting : February.

Distribution : India: Arunachal Pradesh; China.

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Gee, E.P. 1952. The Assam earthquake of 1950. *J. Bombay Nat. Hist. Soc.* 50(3): 629-635.

Hara, H. 1971. A revision of the Eastern Himalayan species of the genus *Arisaema* (Araceae). *Flora of Eastern Himalaya* 2: 321-354, *t.* 50-56. University of Tokyo Press, Tokyo.

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Rao, A.S. & D.M. Verma. 1976 publ. 1979. Materials towards a monocot flora of Assam - V. *Bull. Bot. Surv. India* 18(1-4): 1-48.

Arisaema rhizomatum C.E.C. Fisch. var. *nudum* C.E.C. Fisch.

Crinum woodrowii Baker (Amaryllidaceae) : A critically endangered, endemic species of Western Ghats rediscovered from Mahabaleshwar after a lapse of 100 years. Photo by Sachin A. Punekar, Agharkar Research Institute, Pune

Luisia macrotis Rchb.f. (Orchidaceae) rediscovered from India after a gap of 13 decades

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In the course of a plant exploration in the North Andamans, one of the authors (P.G.D.) collected a few interesting specimens of orchids. They were carefully studied and one of them (*P.G. Diwakar* 17596 - CAL) collected from Digilipur on 20.5.2005 was found to be of *Luisia macrotis* Rchb.f. Scrutiny of the relevant literature reveals that the species has been rediscovered from India after a gap of 13 decades from the year of its first publication (Reichenbach, 1869). Furthermore, it also constitutes a new record of distribution in the Andaman & Nicobar Islands. The brief morphological description and the photographs of the species along with other relevant data are provided here as follows to facilitate easy identification.

Luisia macrotis Rchb.f. in Gard. Chron. 1110. 1869; Hook.f., Fl. Brit. India 6: 24. 1890; Seidenf. in Dansk Bot. Ark. 27(4): 18, f. 3, 4. 1971 *et* in Opera Bot. 95: 271, pl. 30b, f. 172. 1988.

Monopodial epiphytic herbs; stem stout, cylindrical, internodes 1 – 2 cm long, entirely covered by sheathing, tubular leaf-base; leaves 6.5 – 13 cm long, 0.2 – 0.3 cm in diameter, alternate, facing both side of the stem, erect, stout, terete, articulate at base; raceme short, extra-axillary, up to 1.5 cm long; peduncle much reduced; rachis densely 7 – 10-flowered; flowers *c.* 1 cm across, creamy-white with pink tinge; lip with dark-purple spots and blotches; column dark-purple in front; floral bracts highly reduced, broadly ovate-orbicular, clasping the rachis, persistent; pedicel with ovary 0.8 – 1 cm long; dorsal sepals 0.6 × 0.3 cm, ovate-oblong, hooded, slightly keeled on dorsal side, 3-veined; lateral sepals 0.6 × 0.4 cm, ovate-lanceolate, subacute, dorsally keeled; keels triangular, pointed; petals 0.8 × 0.3 cm, elliptic-lanceolate, obtuse, 5-veined; lip 0.9 cm long, much longer than the dorsal sepal, triangular-ovate in outline; hypochile 0.4 cm long, slightly concave, with 2 auricular side-lobes; epichile is separated from hypochile by a clear dividing line, 0.5 cm long, broadly triangular-ovate to cordate, with 7 – 9 fleshy lamellae from base to apex; lamellae abruptly discontinuous towards apex; column short, erect, without a foot; pollinia 2, porate.

Flowering and fruiting: April – June.

Habitat: Epiphytic on exposed branches of *Careya arborea* Roxb. in tropical primary forests.

Distribution: India: Assam (see note), Andaman & Nicobar Islands; Thailand, Laos and Vietnam.

Note: Reichenbach (1869) in the protologue of *L. macrotis* stated "It comes from Assam, having been introduced by John Day, Esq." The then Assam presently comprises of Assam and six other states in north-east India. The precise location from where the species was actually collected is also unknown, so far.

As *L. macrotis* has never been re-collected from the Indian mainland, it seems that the species is either extremely rare in the aforementioned region or has possibly become extinct from the Indian mainland.

Seidenfaden (1971: 18; 1988: 271) reported this species from Thailand, Laos and Vietnam.

References

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***Luisia macrotis* Rchb.f.; Inset : Close up view of a flower**

A survey report on the occurrence of three medicinal plant species in Kolli hills, Tamil Nadu

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Kolli hills, also known as Kollimalais, form the southern part of Eastern Ghats and cover an area of approximately 490 sq km. The altitude ranges from 1000 - 1450 m. The Kolli hills are traditionally well known for its richness in medicinal plants and are more familiar for 'Sidha vaidhyam' (Sidha medicine). This system of medical practice is being carried out for decades, based on the medical tips given in the ancient literature of Sidhas. However, some people claim to possess the medical tips of ancient Sidhas by inheritance and thereby totally misguide others. This results in the over exploitation of some plant species. Further, some of the areas once thought to provide a good source of natural plant wealth (Matthew, 1981), have considerably shrunken in size because of the cultivation of tapioca, pineapple etc. at present.

Plant exploration survey conducted by the Botanical Survey of India in and around Kolli hills in the year 2006 revealed some interesting facts about the occurrence of the following plant species, which are extensively used by the local 'vaidhyas' (medical practitioners) for their medicinal properties.

Canarium strictum Roxb. (Burseraceae). Local name - '*Karung Kunglium*'.

A man removing the strips of the bark from a tree of *Canarium strictum* Roxb.

The resin obtained from the trees, along with other plant extracts, is used as cataplasm for the swelling of joints. It is also said to cure arthritis and rheumatism.

The local 'vaidhyas' extract the resin in two ways: (i) by making vertical incisions on the bark at a chest height and then fire is lit around the base of the tree. The resin exuded from the incisions is collected after a month; (ii) strips of bark are removed from the stem and boiled to extract the resin. The exact procedure of extraction of resin by this way, however, could not be clearly known. The species is found above 1100 m in the Shola forest and has now become very rare in the Kolli hills.

Drynaria quercifolia (L.) J. Sm. (Polypodiaceae). Local name - '*Attukalkizhangu*'.

The decoction of the fresh or dried rhizomes is used to check haemoptysis, in antipyretic preparation, as an astringent and as an anthelmintic. It is also traditionally used for the treatment of cough, tuberculosis and typhoid fever. Besides these medicinal uses, the rhizomes are consumed after making soup out of it. Recipe for the soup preparation is similar to any other non-vegetarian soup. The rhizomes are sold @ Rs.20/kg and the soup is sold @ Rs. 4/cup.

Rhizomes of *Drynaria quercifolia* (L.) J. Sm. are being sold in a shop

This species is usually seen on exposed tree barks, occasionally on fully or partially exposed rocks on stream-banks at an altitude of *c.*1000 m. Since the trade of rhizomes has already reached the local vegetable markets, there is a growing demand for the rhizomes among the public. Consequently, there is a sharp decline in the wild population of this fern, as it is evident from its sporadic occurrence. Unless otherwise a check is made, no surprise, the species would soon become rare in nature.

Bulbophyllum sterile (Lam.) Suresh (Orchidaceae); (syn. *B. neilgherrense* Wight). Local name - '*Mookittakaya*'.

Rhizomes of *Bulbophyllum sterile* (Lam.) Suresh are being sold in a shop

The plant is said to be very effective in gynaecological problems in human beings. The pseudobulbs, leaves and roots are pulverized and made into a paste before consuming orally. Plants with 3-4 pseudobulbs are sold @ Rs. 50.

Though this species is described as common in southern part of Western Ghats, its distribution in the Eastern Ghats sector, especially in Kolli hills is found to be scanty and is restricted mostly in the crevices of rocks on hill slopes at an altitude of *c.* 1350 m. The over exploitation of the species for medicinal uses and its silent trade over a decade has definitely narrowed down its distribution in the said area.

Reference

Matthew, K.M. 1981. *Materials for a Flora of the Tamilnadu Carnatic*. The Rapinat Herbarium, St. Joseph's College, Tiruchirapalli.

Rope-making from the stem-bark of *Bauhinia vahlii* by the 'Birhors'

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In connection with the project on the Ethnobotanical studies in West Bengal, the ENVIS team from the Botanical Survey of India, Howrah visited certain places in Purulia district.

It was learnt that the Birhor tribal stay at 'Udai Palli' near Nimtol, a place about 7 km from Matha Forest Range Office in permanent houses built by the Government for them.

The plant-barks kept in the open place in front of one of these houses (Fig. 1a) drew our attention.

Tem Sikari, the senior most resident of that house told us that those were the barks extracted from a plant called '*Lamabayar*'. It was found to be of *Bauhinia vahlii* Wight & Arn., a giant liana which covers even the tallest trees in the forests. Tem Sikari also told that they collect the stem-bark from Bagmundi forest for making ropes. The ropes are used by them for tying cattle, lifting bucketful of water from the wells, etc. The stem-barks are collected throughout the year. To extract the bark, at first long pieces of the branches arising from the main stem are cut (Fig. 1b; Inset: Flowers) from several plants instead of collecting them from a single plant so that their normal growth is not hampered. Now, one end of the stem is pounded with the blunt side of the chopper to loosen the bark from the inner hard portion of the stem (Fig. 1c). The bark is then stripped off by hand (Fig 1d). Next, the inner bark is peeled off and the outer bark is thrown away (Fig. 1e). Initially the inner bark is cream in colour but soon turns reddish-brown. After that, they are fully dried under the sun. The dried pieces of the bark are then steeped in water overnight or for a few days till they become suitable for being twisted into ropes. The barks are then pulled apart into thin strips. After that one end of the strip, while still wet, is fastened to the thumb of the foot or to a suitable hook and the other end is fastened to a small wooden instrument called 'Tootaili'. Finally the strip is repeatedly twisted by rotating the Tootaili by hand to make the rope (Fig. 1f; Inset: Tootaili).

Royle (1855) stated that the bark of this species is also said to be boiled, and beaten with mallets, which renders it soft and pliable for being twisted into ropes. This practice is, however, not followed by the Birhors.

The aforementioned figures (b-f) published here are based on the practical demonstration given by Tem Sikari. He also showed us how to make the special domestic device for tying cattle (Fig. 1g) with three pieces of ropes.

It was known that some people from Bagmundi come to the village of the Birhors and collect the dried barks @ Rs 10 / kg. and send it to Adra and Asansol where the bark fibres are used for tying the 'bidi' leaves after rolling them. The Birhors also sell about 4½ ft long ropes in the local market @ Rs 10 / piece and the special domestic device for tying cattle @ Rs 10-20 / pair depending on their size.

The durability of the ropes, if they get repeatedly soaked in water during use is about 5-6 months otherwise 1 year or so.

In Ajodhya hills the local people, especially those of the Santal tribe, use the stem of *B. vahlii* as a rope in a slightly different way. They cut the comparatively thin stems along with their bark length wise into four equal pieces with the help of a sharp chopper and, after coiling, hang them outside on the walls of their thatched huts (Fig.1h) for drying for at least a week. They are then steeped in water for 2-7 days and while still wet, are used for tying bamboo frameworks of their houses and hay stacks. This was informed by our field guides Sri Phani Bhusan Lohar of Bagandi village and Sri Kalicharan Murmu of Majhidihi village. Such kind of coiled barks were seen in two houses in Bagandi and Puniasasan villages in course of our survey work.

Reference

Royle, J.F. 1855. *Fibrous plants of India*, pp. 295-296. Smith, Elder, and Co., London.

Fig.1. *Bauhinia vahlii* Wight & Arn.: a. Plant-barks kept in front a Birhor house for drying; b-f. Rope making from the stem-bark; g. Special domestic device for tying cattle prepared with three pieces of ropes; h. A coil of thin stems, cut length wise into four pieces, hanging outside on the wall of a thatched hut

Cheirostylis yunnanensis Rolfe – A rare orchid recorded from West Bengal for the first time

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The ground orchid *Cheirostylis yunnanensis* Rolfe is rarely found in India.

Rao (1986) first reported the species from India based on a collection (*A.N. Rao*14567) made in Arunachal Pradesh but later in 1988 he considered his collection to be of a new species viz. *C. munnacampensis* A.N. Rao. Lucksom (1997) described a new species *C. pabongnensis* Lucksom from Sikkim (*S.Z. Lucksom* 210 a - CAL) which is now considered as a synonym of *C. yunnanensis*. Rao (2001), however, again reported *C. yunnanensis* from Arunachal Pradesh based on *A.N. Rao* 30862 (Orchid Herbarium, Tipi).

Recently, one of us collected *C. yunnanensis* from North range of Mahananda wildlife sanctuary, Darjeeling district (*T.K. Paul* 43698 - CAL) and it constitutes a new distributional record for West Bengal.

Few plants of the species were found to grow only in two places in a cool humid place on the hill slope of the sanctuary. The flowers were attractive for its milk white colour with two green patches near the base of epichile and with lacerate lobules.

The morphological description of the species along with other relevant data are provided as follows:

Cheirostylis yunnanensis Rolfe in Bull. Misc. Inform. Kew 1896: 201. 1896. *C. pabongnensis* Lucksom in Indian J. Forest. 20(3): 305. 1997.

Terrestrial herb, up to 20 cm tall, rhizomatous; rhizome up to 5 cm long, pseudobulbous, pale green, moniliform. Roots pale yellow, thread like. Stem 0.4 – 2 cm long, pale green, unbranched, glabrous, leafy. Leaves 2 – 5 at the base of stem, wither during flowering, glabrous, petiolate; petiole 2 – 8 mm long, sheathing at base; lamina 0.8 – 4.5 × 0.3 – 1.5 cm, ovate, acute to shortly acuminate at apex, obtuse to truncate at base, 3-veined. Inflorescence racemose, terminal, subdensely 1–10-flowered, pubescent; peduncle 5 – 15 cm long, pale pinkish below, pale green near the rachis, with 2 – 3 sheathing bracts; rachis 0.3 – 1.5 cm long, pale green. Floral bracts 4 – 8× 1.5 – 3 mm, light pinkish, acuminate, pubescent outside, 1-veined. Flowers up to 2.1 cm long, resupinate; sepals pale green with pinkish tinge at apex, pale reddish brown during maturity, connate to form a sepaline tube, pubescent outside, 1-veined; dorsal sepal 5.5 – 9 × 1.8 – 2.4 mm, oblong-lanceolate, obtuse at apex; lateral sepals 6 – 9 × 1.7 – 2.1 mm, broadly lanceolate, subacute to obtuse at apex; petals 5.5 – 8 × 1.8 – 2.1 mm at the widest portion, pale pinkish white, appressed to dorsal sepal, obliquely obovate-oblong to oblong-spathulate, dilated towards apex, obtuse or acute at apex, 1-veined. Labellum 1.1 – 1.4 cm long, white, with 2 green spots near the base of epichile; hypochile 1.5 – 2 × 1 – 1.5 mm, saccate, with 2 – 4 or 7 – 10 toothed calli inside each side; mesochile 3 – 4 × 7 – 12 mm, folded at margins, linear; lateral margins folded adaxially to form lamellae; epichile 6.5 – 7.5 × 8 – 10 mm, semicircular, 2-lobed, flabellate; each lobe 5 – 8 dentate. Column 2 – 2.5 mm long; rostellum 2 – 3 mm long, deeply bifid. Anther cap *c.* 2.5 × 1.5 mm, 2-loculed, ovate, dull yellowish white with reddish tinge. Pollinarium *c.* 4 mm long; pollinia 2, *c.* 1.5 mm long, ovate-oblong, yellow to dull white; caudicles reduced, attached to the tegula; tegula *c.* 2 mm long, semi-transparent with yellowish tinge at pollinial end, linear-oblong, containing the viscidium at distal part; viscidium *c.* 1 × 0.5 mm long, white, oblong. Stigma lobes 2, separate; stylidia 2, longer than the rostellar arms; ovary including pedicel 7 – 10 mm long, 3 – 4 mm thick, greenish to light yellowish brown at maturity, obconical to cylindrical-fusiform, pubescent.

Flowering & Fruiting: March – May.

Distribution: India: Sikkim, West Bengal; China, Myanmar, Thailand and Vietnam.

C. yunnanensis is closely related to *C. chinensis* Rolfe but differs from it in having larger sepals, labellum, petals and sometimes with few obscure dents near the petal apex. The stylidia of the former species is longer than the rostellar arms, whereas nearly as long as in *C. chinensis*. *C. yunnanensis* also differs from another allied species, viz. *C. moniliformis* (Griff.) Seidenf. in having pubescent sepals and ovary, whereas these are glabrous in the latter. The shape and size of the rhizome of *C. yunnanensis* is also different from its allied species.

Conservation: Darjeeling Himalaya is losing its ecological security due to rapid urbanization, industrialization and several other anthropogenic activities. Though the locality of this species is in Mahananda wildlife sanctuary, proper monitoring is essential to save it from destruction. An *ex-situ* cultivation of this species is recommended for its safe-guard.

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Cheirostylis yunnanensis Rolfe; Inset: Flowers. Photographs by Anant Kumar, CNH, BSI

ENVIS Centre

Established	April, 1994
Subject Area	Floral Diversity
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Website	http://www.bsienvis.org • http://www.bsi.gov.in
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 RET species of different phyto-geographical regions of India ii) Dry & 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
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(1). Vol. 13(2) (in press).

Prof. H.Y. Mohan Ram and Prof. S.N. Raina, Expert Committee members, visited BSI Laboratories and examining the progress of herbarium digitization programme

Mr. Mike Wheeler, Senior Paper Conservator, Victoria and Albert Museum, London, examining the archives of botanical paintings in the Type Section, Central National Herbarium and sharing his expertise for restoration and better preservation

*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