

lecture with special reference to the nesting site of the Olive Ridley turtles in Rushikulya Estuary, Ganjam district, Odisha. Ch. Satyanarayana (ZSI, Kolkata) discussed the issue of 'Restoration of corals in Gulf of Kachchh'. He mentioned about the pioneering work of ZSI in this field. The session concluded with a lecture by S. S. Mishra (ZSI, Kolkata) on 'Faunal diversity of Chilika Lake'. He

provided base-line data on the diversity and distribution pattern of faunal communities in Chilika Lake.

The participants raised several questions on conservation practices and exploration of faunal communities in the marine ecosystems of India. They also took an active part during the brainstorming for developing new ideas to bridge the gap in our knowledge on

marine faunal communities of the Indian seas.

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**Swetapadma Dash**, Zoological Survey of India, Estuarine Biology Regional Centre, Gopalpur-on-Sea, Ganjam 761 002, India.  
e-mail: oasisnainital@yahoo.co.in

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## MEETING REPORT

### Pteridological researches in India\*

The symposium on 'Pteridological research in India' was inaugurated by Brig. (retired) B. D. Mishra, the Governor of Arunachal Pradesh. Mishra highlighted the urgent need to explore innovative ways of conservation of nature's bounty for the welfare of the present and future generations, and called upon researchers to come up with effective and sustainable models of development to mitigate continuous pressure on plants and natural habitats. He also released the book of abstracts of the symposium and *Flora of Kurung Kumey District of Arunachal Pradesh* by S. S. Dash and P. Singh (Botanical Survey of India (BSI)). He expressed hope that BSI will continue quality research in the field of floristic studies. The other speakers during the session were T. N. Thongdok (Speaker of the Arunachal Pradesh State Legislative Assembly), P. M. Padhye (BSI, Kolkata), P. K. Rajgopal and S. P. Khullar (Indian Fern Society). Vineet Rawat welcomed the dignitaries and delegates, while Krishna Chowlu presented the vote of thanks.

In his presidential address, Rajgopal emphasized on the unique pteridophytic flora of the Western Ghats, an UNESCO World Heritage Site with high endemism

and rich diversity; he also urged for its *in situ* and *ex situ* conservation. In his keynote address on 'Fern taxonomy in genomic age', Khullar discussed briefly about various trends and challenges on pteridophyte taxonomy, classification and nomenclature starting from pre-Linnaean period to the modern age. B. D. Sharma, A. K. Srivastava and S. C. Srivastava presented lectures on Mesozoic pteridophytic flora of Rajmahal Hills, Late Paleozoic pteridophytic assemblage of India, and vanished pteridophytes respectively. These speakers were requested to document this scattered information on Indian fossil fern in the form of an illustrated fossil flora of Indian pteridophytes for the future generations.

H. K. Goswami (Bionature, Bhopal) urged for the establishment of 'Fernatums' (ferneries) in various regional centres of BSI for conservation, recreation, demonstration and supply of authenticate material for applied research. He and many other delegates from outside BSI were not aware of the various ferneries and experimental gardens at different centres of BSI where ferns are already in cultivation. There are about 140 species of ferns in cultivation at BSI Gangtok (c.f. Kholia 2017 in *Indian Botanic Gardens: Role in Conservation*, BSI). BSI Dehradun also has a good fernery with many species of ferns. Further, several cultivated or naturally growing ferns can be found in BSI gardens at Barapani in the Shillong campus; Dhanikhari Garden at Port Blair, BSI Itanagar and Acharya J. C. Bose Indian Botanic Garden in Howrah. Many rare tree ferns of India are cultivated by BSI scientists at Sikkim, Shillong, Barapani, Itanagar, Dhanikhari

and Yercaud gardens. Other prominent lead lectures were delivered by A. S. Ahluwalia (Biology and possible role of *Azolla* in mitigation of climate change), N. Punetha (Ecology of scrambling fern family Gleicheniaceae), Ashwani Kumar (Understanding plant development with *in vitro* studies) and H. S. Kirn (*Adiantum*).

B. S. Kholia (BSI, Dehradun) spoke about our historical and natural heritage of botanical research in general and pteridophytes in particular in North East India and Eastern Himalaya. He also focused on the diversity and current status of pteridophyte taxonomy of NE India and Eastern Himalaya. V. Irudiyaraj (St Xavier's College, Palayamkottai) gave a presentation on climate change in relation to ferns and lycophytes and cytology; R. Somvanshi (Indian Veterinary Research Institute, Izatnagar, Bareilly), on bracken and bovine cancer; A. Benjamin on interesting ferns of NE India; K. S. Rajput on pteridophytes of Gujarat. There were several presentations, posters and lectures on pteridophyte diversity, taxonomy, nomenclature, ethnobotany, cytology, molecular biology, ecology, floristics, micropropagation, regional floras and taxonomic studies on several fern families (Adiantaceae, Lycopodiaceae, Thelypteridaceae, Pteridaceae, Dryopteridaceae) and genera like *Cheilanthes*, *Ophioglossum*, *Lepisorus*, *Marsilea*, *Athyrium*, *Isoetes*, *Tectaria*, *Pyrrosia*, *Pteris* and *Polystichum*, etc. The valedictory session was chaired by P. Habung (Additional Secretary, Arunachal Pradesh Legislative Assembly).

Overall, the symposium served as a perfect platform, where expert pteridolo-

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\*A report on two-day National symposium on 'Pteridological researches in India: Perspective of modern approaches in relation to Environment and climate change' organized by Botanical Survey of India (BSI), Ministry of Environment, Forests and Climate Change, Government of India in collaboration with Indian Fern Society (IFS), Chandigarh on 22 and 23 February 2018 at Arunachal Pradesh, Regional Centre at Itanagar.

gists and young researchers interacted with each other, to share their ideas. The pteridologists were also concerned about the degradation in the quality of Indian pteridological research, though there are more facilities as well as accessibility to herbaria and libraries at present. It was noticed that most of pteridological research in India is focused on floristics, ethnobotany, taxonomy, etc. and are mere repetition of previous works, on the other hand, many branches in depth of research like cytology, anatomy, palaeobotany, monographic studies, etc. are relegated. Similarly, in spite of being as a

part and parcel of the ecosystems, pteridophytes are still neglected by ecologists of the country, though in recent past ecological studies on ferns have increased globally with surprising findings and their response to the recent climate change issues. There were also some issues on correct identification of taxa. Hence researchers were requested to identify their samples properly with the help of experts before starting their research, and maintain and submit their specimens in recognized herbaria after publishing their findings. Researchers were also encouraged to adopt recent

molecular and cytogenetic techniques, remote sensing tools, various software, etc. for quality work. The various ideas developed during this gathering of pteridologists will be definitely useful for young researchers of Indian Pteridology.

**B. S. Kholia\***, Sachin Sharma and **Brijesh Kumar**, Botanical Survey of India NRC Dehradun 248 195, India; **Vineet Rawat**, Botanical Survey of India, APRC Itanagar 791 111, India.

\*e-mail: bskholia\_bsi@yahoo.co.in

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