International Seminar on Plant Systematics: Present Status and Future Prospects

ISPS 2024

BOOK OF ABSTRACTS

Department of Botany
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भारतीय वनस्पति सर्वेक्षण
BOTANICAL SURVEY OF INDIA

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INTERNATIONAL SEMINAR ON PLANT SYSTEMATICS: PRESENT STATUS AND FUTURE PROSPECTS

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Book of Abstracts

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conservation of floral diversity especially the threatened species in the Silent Valley buffer zone.

TO1-06

Resolving the challenges of niche specific conservation and ecorestoration through niche modelling and profiling for threatened trees and habitats

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Assurance of niche specificity, Ecosystem-Based Adaptation (EbA), landscape and habitat integrity are the challenges of conservation and ecorestoration area prioritization of threatened species and habitats. The traditional approaches of *in-situ* and *ex-situ* conservation measures need to be equipped with conceptual and practical frameworks of ecology, the use of technology, and simple and practical procedures and protocols. Here a refined protocol for understanding more accurate prediction of potential geospatial locations based on bioclimatic niche modelling developed for the Western Ghats has been employed along with three-dimensional modelling of niche profiles of the target species, a new method of profiling of compositions to predict niche-specific potential conservation and restoration areas. Limitations of niche modelling are covered through incorporation of more geospatial layers on land use and vegetation in the QGIS platform. The niche profiles of the potential habitats provide details on species composition and its pattern within, while ensuring EbA and landscape integrity. The niche profiling contributed more to the factors of the Eltonian niche, reflecting the factors of species interaction within and providing provisions for integrating information on functional niche interactions such as seed dispersal and germination. This was proved as niche-specific Nature-Based Solution (NbS) for conservation and

ecorestoration planning and implementation to replace the offsetting traditional monoculture plantation practices adopted for tree plantations in the name of carbon trade and eco restoration. The method was experimented with a few species such as *Cryptocarya anamalayana* Gamble, *Prioria pinnata* (Roxb. ex DC.) Breteler and Western Ghats' endemic species *Goniothalamus* (Blume) Hook.f. & Thomson. Here we demonstrate this further through the conservation and ecorestoration planning of *Humboldtia vahliana* Wight, a threatened tree, endemic to the Western Ghats. The potential of the method is also measured against assessments of the threatened status of trees using IUCN criteria.

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