National Workshop on Ecological Niche Modeling in biodiversity Management**

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Realization of the economic value of biodiversity, particularly in areas of medicine and pharmaceuticals, has increased the need and urgency to gain access to information about biodiversity. But, one serious issue that slows down the progress of biodiversity research in the developing and underdeveloped countries is the lack of good quality identification guides and species classification keys. Researchers from these countries are, therefore forced to use either very old or incomplete references and/or guides and keys prepared for other regions. Of late as part of biodiversity information Infrastructure, attempts are being made to develop computer-aided taxonomic keys for species identification. These Computer Science and, Information Technology based taxonomic information systems could be used for both, online and offline applications.

In India, biodiversity data management is mainly done with the help of small and scattered species databases. These databases are often not integratable because of different frameworks and most of them do not follow

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any information exchange formats or standards. In developed countries, digitization and management of biodiversity information are done on a priority basis. These countries also consider data management as important as collection of new data through field and laboratory research and put these in studying new applications such as predicting species distribution, integration of species data with genomic and biotechnological datasets creation of decision support systems, for sustainable use of biodiversity

etc.

In the recent times, newer applications of biodiversity data are being explored. Capacities and reach of biodiversity data will certainly improve when integrated and used for advanced tasks. Simplicity of basic biodiversity data often makes one think of biodiversity information infrastructure to be of limited use. But, impact of these data can be increased many-folds, if applications such as Geographical Information Systems (GIS) and Satellite remote sensing, are also integrated in to them. Other than providing basic information about biodiversity, it is also expected that biodiversity informatics should provide a base for area specific decision support system.

Ecological forecasting is a new concept for managing and conserving biodiversity. This is aimed mainly to predict distribution of species, extension of home range, spread of invasive species etc. Prediction relies largely on factors such as climate, nutrition, competition and anthropogenic stress related to a species or a community. Outputs from such predictive models can further be used to assess the impact of developmental activities. Ecological indicator or key stone species are mostly chosen for ecological forecasting. Decision support systems could also be used for identifying areas of abundance of ecologically sensitive species and demarcating biodiversity hot spots and sanctuaries.

In ecological forecasting, the organism's niche in its habitat is mapped, with relation to environmental parameters. This results in locating areas where similar climatic and ecological conditions occur which are critically required for successful sustenance of a species. In this way, areas where the species tends to occur can be located. Thus, these areas can be provided with ample protection which would immensely help in conserving a threatened species or a particular habitat. Threat to indigenous species from invasive or introduced species has been increasing. Ecological niche modeling can be used effectively for predicting spread of invasive species.

This tool can also be used to predict the areas which a particular species has invaded and which it is likely to invade.

Applications of informatics in biodiversity conservation will keep evolving, owing mainly to generation of newer types of biodiversity information and the growing need for organizing and managing this information. Use of informatics may also prove as a motivating factor for new generation conservationists and taxonomists to take up the task of managing biodiversity data and information. It is hoped that in the near future, biodiversity informaticians will be able to predict the effects of climatic change and anthropogenic activities on habitats and species more accurately and thus help the decision making bodies to implement action plans for their conservation. As the World Wide Web (WWW), reaches all parts of the developing world, it is important to increase the content of biodiversity information on World Wide Web. This will create interest and awareness among people from different societies, cultures and background and become a prime medium of social awareness for the effective conservation of biodiversity. Further it would also create more job opportunity for educated youths in the areas of information technology, computer science, biological and ecological sciences, as its scope

encompasses different disciplines. It would also provide ample opportunities for the youth of coastal and rural areas to earn a descent living by getting involved in biodiversity management and conservation programmes.

I am sure that the 3 day National Workshop on Ecological Niche Modeling in Biodiversity Management, organized by the Biodiversity Informatics Group of National Institute of Oceanography, will address most of the concerns raised in biodiversity management and conservation strategies. I am told, that the workshop includes a great deal of hands on sessions, to train the participants in developing ecological niche models besides lectures on various related topics and I am happy that will be handled by eminent scientist in biodiversity informatics, ecological niche modeling, geographical information systems, remote sensing and allied disciplines.

I request the participants to involve totally in the effort for managing and conserving our great wealth of biodiversity and make use of the training provided in the workshop for this purpose. I thank the organizers for inviting me to inaugurate the workshop and involving me in this endeavor.

It is my proud privelage and pleasure to inaugurate the National Workshop on Ecological Niche Modeling in Biodiversity Management.

I wish the National Workshop on grand success.