

BOOK OF ABSTRACTS

INTERNATIONAL VIRTUAL CONFERENCE

on

BIODIVERSITY AND ECOSYSTEM SERVICES IN A CLIMATE CHANGE PERSPECTIVE

Date: 10-11 December, 2020



ORGANIZED BY
ENVIRONMENTAL MANAGEMENT AND POLICY RESEARCH
INSTITUTE (EMPRI),
FOREST ECOLOGY AND ENVIRONMENT DEPARTMENT



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CLIMATE CHANGE PROGRAMME – SPLICE
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PREFACE

Environmental Management and Policy Research Institute (EMPRI), functioning under the Department of Forest, Ecology and Environment, Karnataka has completed more than fifteen years of service to the state and has achieved many accolades in the field of Environmental management and policy research. As per the MoEF&CC guidelines, Karnataka State Government has designated EMPRI as the State Nodal agency for Climate Change in Karnataka to anchor the State's future Scientific and Technical activities in the area of climate change. The institute has been instrumental in formulating and implementing many policies towards bringing in sustainable and climate resilient growth in Karnataka. State Action Plan on Climate Change (SAPCC) prepared by EMPRI and accepted by MoEF&CC is the guiding document for climate change-related action plans and programmes of the Govt. of Karnataka. During 2016, National Mission on Strategic Knowledge for Climate Change (NMSKCC), Department of Science and Technology (DST), Government of India, under the Strategic Programmes Large Initiatives and Coordinated Action Enabler (SPLICE) project established the **Strategic Knowledge Centre For Climate Change** in EMPRI. With the fund support from DST, EMPRI could successfully conduct two National Seminars on Climate Change during 2017 and 2019. Books titled, “**Climate change: Challenges and Solutions**” and “**Building Climate Change Resilience**” were published based on the contributions in the seminars.

This INTERNATIONAL VIRTUAL CONFERENCE ON **BIODIVERSITY AND ECOSYSTEM SERVICES IN A CLIMATE CHANGE PERSPECTIVE, (IVC – BES, 2020)**. The 2030 agenda for global sustainable development is committed to be achieved in a balanced and integrated manner. It is envisioned that development and the application of technology are climate-sensitive, respect biodiversity and are resilient. One of the major goals is to take urgent action to combat climate change and its impacts on biodiversity and ecosystem services. The Nationally Determined Contributions (NDC) targets adopted as per the COP 21 Paris agreement stipulations give large thrust on reduction of emissions and limiting warming to 1.5 to 2°C above pre-industrial levels and building climate resilience through afforestation, biodiversity conservation and adoption of clean and green technologies prudently monitored and managed so that the ecosystem functions are uninterrupted.

The seminar is programmed with five technical sessions to cover diverse aspects on floral and faunal diversity and the ecosystem services offered by them in the context of climate change. The session themes are Biodiversity and conservation, Valuation of eco-system goods and services, Biodiversity, environmental health and climate change threats, Bio-indicators of climate change and Technological interventions for eco-restoration. This book of abstracts will hopefully highlight the various science based findings on the importance of biodiversity and the goods and services provided by them and the impact of climate change on the proper functioning of the eco-systems to students, academicians, administrators and the public at large.

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Brief presentation on EMPRI, Bengaluru

Dr O.K. Remadevi , Head, Centre for Climate Change, EMPRI 11.10- 11.15 am

Session-1: Biodiversity and Conservation

Sl.no		Oral/Poster	Time slot
Chairman: Dr.K.H.Vinaya Kumar, EMRPI Fellow (Envt.), Retd Director, EMPRI			
Rapporteur: Dr.N.Hema, Research Scientist, EMPRI			
1	Mapping Global Tree Species Diversity in the Anthropocene Dr. Jingjing Liang Assistant Professor of Quantitative Forest Ecology, Dept. of Forestry and Natural Resources, Purdue University	Lead Talk	11.15-11.30
2	Molecular characterization of species of <i>Fejervarya</i>(Amphibia:Anura:<i>Dicroglossidae</i>), known to be a culinary delicacy, used as novelties, curious: A study to focus their conservation. *Bahuguna Archana, **Singh Anjali & ***Majumdar, Soham * High Altitude Regional Center, Zoological Survey of India, Sapruon, Solan, 173212, Himachal Pradesh, India ** DBS PG College (SriDevSuman University), Karanpur Rd, Chironwali, DehraDun,248001, Uttarakhand , India *** Forest Research Institute, Deemed to be University, Kaulagarh Road, DehraDun, 248195, Uttarakhand, India	Oral	11.30-11.40
3	Diversity and conservation of natural enemies in peanut ecosystem Harish G, Nataraja M V, Ananth Kurella and Rupak Jena ICAR-Directorate of Groundnut Research, Junagadh	Oral	11.40-11.50
4	Strategies for Conservation of Mangrove ecosystem in Karnataka ¹Prakash S Netalkar IFS and ²Prashantha Naik ¹ Chief Conservator of Forests Mangalore circle Karnataka.. ² Dept of Biosciences, Mangalore University, Mangalagangothri, Karnataka, India.	Oral	11.50-12.00
5	Cell Suspension Culture in Biodiversity Conservation of Medicinal Plants Remya Mohanraj, Houston Community College, TX, USA	Oral	12.00-12.10

Diversity and conservation of natural enemies in peanut ecosystem

Harish G, Nataraja M V, Ananth Kurella and Rupak Jena
ICAR-Directorate of Groundnut Research, Junagadh, India

Peanut is one of the most important oilseed crops in India. Peanut is used as food ingredient and also for edible oil extraction. More than 100 insects have been reported from peanut mainly belonging to the orders *Viz.*, Lepidoptera (*Helicoverpa armigera* (Hubner), *Spodoptera litura* (Fab), *Aproaerema modicella* (Deventer), *Amsacta albistriga* (Walker), *Spilosoma aobliqua* (Walker), Coleoptera (*Holotrichia consanguinea*, *H. Serrata*, *Mylocerus* sp), Hemiptera (*Aphis craccivora* Koch, *Empoasca kerri* Pruthi, *Empoasca fabae* Harris, *Empoasca litchi* Paoli, *Empoasca facialis* Jacobi), Dermaptera (*Anisolabis stali* (Dohrn)), Isoptera (*Microtermes* sp. *Odontotermes* sp. *Macrotermes* sp) and Thysanoptera (*Scirtothrips dorsalis* Hood., *Thrips palmi* Karny., *Frankliniella schultzei* (Trybom), *Caliothrips indices* (Bagnall)) .Insect-pests of peanut mainly belong to Lepidoptera and Coleopteran orders, causing economic losses and can be managed using egg parasitoids. Thrips acts as a vector for viral diseases *viz.*, Peanut bud necrosis and Peanut stem necrosis - Hemiptera comprising of leafhoppers and aphids also cause significant damage. Isoptera comprising of termites cause damage in peanuts grown in loose sandy soil. To manage these insect pests in an eco-friendly manner we have to conserve natural enemies mainly, Ladybird beetles which predate on soft-bodied insects like leafhoppers and aphids. *Cheilomenus sexmaculata* (Fab.) is the most common ladybird beetle found in peanut -. Growing green gram or black gram as an intercrop with peanut crop not only helps in attracting ladybird beetles but also provide refuge to these insects. Both adults and grubs of ladybird beetle feed on sucking pests hence, we can manage to suck pests effectively. Conservation of natural enemies not only helps in managing insect pests but also helps in rescuing the environment from the ill effects of hazardous pesticides which otherwise are used to manage the insect pests.

Key words: Peanut, Insect-pests, natural enemies, *Cheilomenus sexmaculata* , Conservation