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Notice for the PhD Viva Voce Examination

Ms Amie Chakma, Registration Number: 2170190, PhD Scholar at the Department of Life Sciences, School of Sciences, CHRIST (Deemed to be University) will defend her PhD thesis at the public viva-voce examination on Friday, 15 May 2026 at 02.00 pm in Room No. 044, Ground Floor, R&D Block, CHRIST (Deemed to be University), Bengaluru - 560029, Karnataka, India.

Title of the Thesis	**:**	**Spatial Distribution and Habitat Suitability of Invasive-Native Species in Peninsular River Basin: Implication to Native Fish Conservation**
Discipline	**:**	**Zoology**
External Examiner - I	**:**	**Dr Muralidharan G** Associate Professor Department of Microbiology Bharathidasan University Tiruchirappalli – 620024 Tamil Nadu
External Examiner - II	**:**	**Dr Siddharthan Surveswaran** Associate Professor Department of Plant Sciences School of Life Sciences University of Hyderabad Hyderabad - 500046 Telangana
Supervisor	**:**	**Dr Manikantan P** Associate Professor Department of Life Sciences School of Sciences CHRIST (Deemed to be University) Bengaluru - 560029 Karnataka

The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva–voce examination.

Registrar (Academics)

Place: Bengaluru
Date: 11 May 2026

ABSTRACT

The peninsular rivers of India are rich in biodiversity, hosting various freshwater fish endemic species which are threatened from habitat loss and climate change. This current research aims to assess the habitat suitability of invasive-native under various environmental factors and highlight the implications for conservation strategies. Understanding water quality impacts and MaxEnt modelling, we evaluated the influence of spatial and environmental factors on native-invasive assemblages to determine invasion and environmental factors contributed to major alterations in native distribution pattern and predicting potential habitat suitability of invasive-native under climatic scenarios SSP1-2.6, SSP2-4.5, and SSP5-8.5 for the years 2050 and 2070. The species occurrence was documented in the Arkavathy River watershed, situated in a peninsular region was chosen for the study due to damming sites and angling reserve locations such as the Cauvery Wildlife Sanctuary. A total of 50 sampling points were chosen along the streams, covering the stretch from confluence to origin, with elevation ranging from 891 to 396 m above sea level. Redundancy analysis showed 82.24% explained variance, therefore, this model can help in future prediction of the effects of invasive alien species on native species assemblages. The MaxEnt model demonstrated high predictive accuracy, identifying 123.06 km2 out of 4135 km2 of highly suitable native species habitat, with future projections indicating a significant decline in suitable habitats by the year 2050 and 2070. Key environmental variables influencing habitat suitability included maximum temperature of warmest month, temperature seasonality, and isothermality. This study indicates that water quality monitoring is a good indicator of understanding shifts in the invasive-native distributional patterns. These findings underscore the urgent need for targeted conservation strategies to mitigate the impacts of climate change and anthropogenic pressures on endemic species, providing critical insights for the initial stages of developing policies for environmental restoration and fishery management.

Keywords: Climate change, Endemic fish, Hydrological stressors, Species distribution modelling, Habitat suitability

PUBLICATIONS:

1. **A. Chakma** and P. Manikantan, “Hydrological and water quality drivers of exotic fish assemblages in a semi-arid Indian reservoir: a multivariate ecological assessment,” International Journal of Environmental Sciences, vol. 11, no. 6, pp. 3060–3070, 2025.
2. **A. Chakma** and P. Manikantan, “Status, challenges and threats to the sustainable management of exotic fish biodiversity in Karnataka—A systematic review,” Ecology, Economy and Society – The INSEE Journal, vol. 7, no. 1, 2024.
3. **A. Chakma** and P. Manikantan, “Influence of climate change on medicinal plants of Northeast India—A review,” Plant Science Today, 2023.
4. A. Chaudhary, M. Pappuswamy, A. Chakma, and J. K., “Tuning the output of the higher plants circadian clock,” Plant Science Today, Sep. 2023.
5. A. Chaudhary, M. Pappuswamy, A. Meyyazhagan, and A. Chakma, “A minireview on medicinal benefits of Melaleuca viminalis and Tabebuia rosea,” Uttar Pradesh Journal of Zoology, vol. 44, no. 12, pp. 74–80, 2023, doi: 10.56557/UPJOZ/2023/v44i123538.