

**PREDICTING THE THREAT: BIBLIOMETRIC ANALYSIS AND SPECIES
DISTRIBUTION MODELING OF INVASIVE SAILFIN CATFISHES
(*Pterygoplichthys*) IN SRI LANKA**

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Sri Lanka, an island rich with endemic freshwater biodiversity, faces significant ecological threats from invasive alien species. Among these, sailfin catfishes of the genus *Pterygoplichthys* (notably *P. pardalis*, *P. disjunctivus*, and their hybrids) introduced via the aquarium trade have established feral populations locally. Their taxonomic identity outside South America remains disputed due to insufficient phylogenetic scrutiny. These robust algae grazing species outcompete native fishes, destabilise benthic habitats through burrowing activity, exacerbate bank erosion, disrupt trophic networks, imperil shorebirds by altering nesting sites, modify macrophyte dynamics, and damage fishing equipment and agricultural infrastructure. In Sri Lanka, *Pterygoplichthys* species have colonised multiple aquatic environments spanning the wet, intermediate, and dry climatic zones, including major river systems such as the Mahaweli, Malwathu Oya, and Kelani. However, comprehensive mapping of their distribution remains incomplete. A bibliometric analysis was conducted using Web of Science records, identifying 296 *Pterygoplichthys*-related publications globally, of which 132 explicitly addressed their invasive impacts. Notably, only three studies originated from Sri Lanka, underscoring a significant local research gap. The paucity of regional data accentuates the need for prioritised research and monitoring to inform evidence-based management. Species distribution modeling (SDM) was employed using 19 BIOCLIM bioclimatic variables obtained from the WorldClim v2.1 dataset, together with elevation data and 328 native-range occurrence points from South America to project potentially suitable habitats for *Pterygoplichthys* across Sri Lanka. The species distribution model (AUC = 0.895) predicted a potential range for *Pterygoplichthys* across Sri Lanka, with high suitability concentrated in the Western, Northwestern, and Sabaragamuwa Provinces. These findings highlight the need to begin building a foundation for conservation planning, stakeholder engagement, and the development of proactive biosecurity strategies that are critical for safeguarding Sri Lanka's freshwater ecosystems against the growing impact of invasive sailfin catfish.

Keywords: Bibliometric analysis, Biological invasions, *Pterygoplichthys*, Species distribution models.