Conference Abstract

Metabarcoding to establish freshwater indicators of environmental degradation in the Indo-Burmese biodiversity hotspot

Alfried P Vogler[‡], Md. Mizanur Rahman[§], Alfred Burian[|], Thomas J Creedy[¶]

‡ Imperial College London, London, United Kingdom
§ University of Dhaka, Dhaka, Bangladesh
| Lurio University, Nampula, Mozambique
¶ Natural History Museum, London, United Kingdom

Corresponding author: Alfried P Vogler (a.vogler@imperial.ac.uk)

Abstract

Biodiversity hotspots of the world are increasingly exposed to anthropogenic pressures and resulting ecosystem breakdowns. However, biotic surveys for ecological status assessment are rarely conducted in poorly characterised, yet highly diverse ecosystems in the tropics and subtropics. Here, we addressed the challenge of developing a monitoring system for the highland streams of the Indo-Burmese biodiversity hotspot in Bangladesh, using a meta-barcoding approach to investigate the impacts of growing anthropogenic pressures on poorly studied invertebrate communities. Species richness and beta diversity in the region were correlated with anthropogenic stressors that varied greatly between sampling sites. A partial-network approach allowed us to identify potential indicator species for either a good or poor ecological status. Overall, our results document high species richness and pronounced responses to disturbance in these unexplored, but threatened habitats. In combination with classical taxonomy approaches, metabarcoding can therefore serve as a valuable tool to rapidly generate lacking baseline information facilitating the conservation of vulnerable ecosystems.

Presenting author

Alfried Vogler

Presented at

1st DNAQUA International Conference (March 9-11, 2021)