



## **Recolonization of anuran amphibians in the Knuckles Mountain Forest Range in Sri Lanka: A success story**

Senarathge R. Weerawardhena\*<sup>1, 2</sup> and Anthony P. Russell<sup>1</sup>

<sup>1</sup>*Department of Biological Sciences, University of Calgary, 2500, University Drive NW, Calgary, T2N 1N4, Alberta, Canada.*

<sup>2</sup>*Department of Zoology, University of Kelaniya, Kelaniya, 11600, Sri Lanka.*

The vast majority of the virgin forest in the Central Region in Sri Lanka, including that in the Knuckles Mountain Forest Range (KMFR), has been cleared for agricultural purposes. As a result of these uncontrolled anthropogenic agricultural practices, the sub-montane forest in the KMFR is now highly fragmented and drastically reduced in area. To investigate whether the secondary forests facilitate the conservation of amphibians and to study patterns of recolonization of anurans following forest habitat alteration, we undertook field research in the KMFR. Using 10 sites for each of the virgin forest, on-going tea plantations, and three successional stages following abandonment of tea plantations, we investigated how the secondary forests have influenced patterns of recolonization of anurans following forest habitat alteration. Our investigations, conducted from April 2008 to April 2009 and incorporating two monsoon and two inter-monsoon seasons, resulted in us encountering 237 post-metamorphic anurans representing 21 species arrayed among the families Bufonidae, Microhylidae, Nyctibatrachidae, Ranidae and Rhacophoridae. The lowest species richness (three species) was encountered at sites currently in production, for all seasons. Six and eight anuran species were recorded from the middle and late successional stages (secondary forest habitats) respectively. The species richness of anurans was highest (eleven) in the sub-montane virgin forest for all seasons. Our secondary successional studies revealed a high incidence of recolonization of abandoned agricultural lands by anurans, and accordingly our results indicate that the secondary forest might play a substantial role in the conservation of biodiversity in tropical areas, and in particular in the KMFR. Furthermore, the positive relationship between anuran species richness and the successional stages of this study reveals that this mountain range has to be managed carefully. Prevention of further destruction and close regulation of human impact on the undisturbed virgin forest in the area are called for. In light of evidence of recolonization patterns of anurans in abandoned tea plantations and the recovery patterns of the vegetation, our study emphasizes the importance of conserving these diminishing and invaluable habitats, and hopefully will prompt further research on the wildlife of this area.

**Keywords:** Abandoned agricultural fields, Anurans, Recolonization

\*zoosrw@kln.ac.lk, arussell@ucalgary.ca