Role of Anurans in the croplands of Jaffna area

*[1]Kowshika, J. N. and *[1]Sivaruban, A.*
[1]Department of Zoology, University of Jaffna, Jaffna, Sri Lanka
abyerami@gmail.com

Anura is one of the Orders of Class Amphibia in which frogs and toads are included. Thirteen species of anurans already have been reported in Jaffna area. However there are no records of dietary information of anurans in the Jaffna Peninsula; therefore this study was conducted to investigate the diets of anurans with the specific objective of documentation of stomach contents of anurans in order to compile a profile of data on the dietary information with respect to anuran species. Samplings were done in home gardens, vegetable gardens and paddy fields located in Nallur DS division of the Jaffna district. Frogs and toads were collected once a week manually in late evening from 1800 to 2000 hrs and early morning from 0530 to 0730 hrs. Each habitat was visited 12 times from July to December 2015. After every collection, measurements were taken, stomach flushing was applied and then the animal was released back to the same site. The species were identified based on the photographs and morphological feature by using keys and guides. The data were entered in Microsoft Excel for further analysis. During the study period, a total of 104 adult frog and toad were collected and they belong to 4 families and 12 species; among these 9 (75%) were encountered during the dry period and all 12 species were encountered in the rainy days. Out of 104 collected anurans only 76 individuals were eligible for stomach content analysis. The analysis revealed a total of 26 different preys grouped in nine major categories namely insecta, annelida, arachnida, mollusca, diplopoda, chilopoda, other invertebrates, vertebrates and plant parts. On average insects were proportionately dominating (67.8%) over other prey items. The insect preys composed of 8 orders namely Diptera, Hemiptera, Orthoptera, Blattoidea and Lepidoptera, Hymenoptera, Isoptera and Coleoptera. It can be concluded that anurans can be considered as a natural enemy in suppressing the insect population in the croplands of Jaffna area. However it was noted that these anurans habitats are usually affected by dangerous chemicals which are applied to control pests.

Keywords: Anurans, Croplands, Natural enemies, Insects.

Jaffna (Tamil: யாழ்ப்பாணம், romanized: Yāḻppāṇam, Sinhala: යාපනය, romanized: Yāpanaya) is the capital city of the Northern Province of Sri Lanka. It is the administrative headquarters of the Jaffna District located on a peninsula of the same name. With a population of 88,138 in 2012, Jaffna is Sri Lanka's 12th most populous city. Jaffna is approximately six miles (9.7 kilometres) from Kandarodai which served as an emporium in the Jaffna peninsula from classical antiquity. Jaffna's suburb Nallur... We found that anuran species richness was signicantly lower in breeding ponds in urban landscapes compared to forested and agricultural landscapes, which exhibited no signicant difference in species richness. The abundances of individual anuran species were also consistently lower in urban. S. A. Gagné † L. Fahrig Geomatics and Landscape Ecology Research Laboratory, Ottawa-Carleton Institute of Biology, Carleton University, 1125 Colonel By Drive, Ottawa, Ontario, CanadaK1S 5B6. Atauri JA, de Lucio JV (2001) The role of landscape structure in species richness distribution of birds, amphibians, reptiles and lepidopterans in Mediterra-nean landscapes. Landsc Ecol 16:147–159. Benton TG, Vickery JA, Wilson JD (2003) Farmland biodiversity: is habitat heterogeneity the key? Compared to cultivated cropland sites, we anticipat-ed that anuran occupancy and species richness would be greater at both WRP and forested sites. King SL, Twedt DJ, Wilson RR (2006) The role of the Wetland Reserve Program in conservation efforts in the Mississippi River Alluvial Valley. Wildl Soc Bull 34:914–920. Knutson MG, Richardson WB, Reineke DM, Gray BR, Parmelee JR, Weick SE (2004) Agricultural ponds support amphibian popula-tions. (Figure 2). The anuran assemblage in the study area has a high degree of endemism. Twelve (70.6%) of the 17 species are endemic to the Philippines and of these endemics, eight (67%) species are confined only to Luzon biogeographic region. Five species are included in the global list of near threatened fauna (Table 2, IUCN 2010), most of which inhabit riparian forests. This again shows the dependence of anurans on water. Species diversity (H´) values slightly vary among the fragments except Evercrest which had the lowest value of only 0.84. Similarity of Anuran Communities in Different Fragments: Data indicate that a certain degree of affinity exists among the anuran fauna of these fragments in that they share an endemic species, P. mimulus. . P. mimulus. As most anurans in Hungary use forested areas as terrestrial habitats, the destruction of trees can lead to deterioration and narrowing of popular habitats. 3.3. Consequences of forest damage to. anurans. Figure 3. Changes in the forested area of Hungary from historic times to the present day (Solymos et al. 2001). In the course of history the rate of forested area decreased for different reasons. From the middle of the last century there is an increase.