

**HERPETOFAUNAL DIVERSITY IN SELECTED
HABITAT TYPES IN NORTHERN PART OF THE
GIRITALE NATURE RESERVE**

By

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**Thesis submitted to the University of Sri Jayewardenepura
for the award of the Degree of Master of Philosophy in
Zoology in April 2009.**

DECLARATION

“The work described in this thesis was carried out by me under the supervision of Dr. (Mrs.) W .A. D. Mahaulpatha, Senior lecturer, Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Nugegoda and Dr. (Mrs.) T. V. Sundarabarathy, Head of the Department, Department of Biology, Faculty of Applied Sciences, Rajarata university of Sri Lanka, Mihintale and a report on this has not been submitted in whole or in part to any university or any other institution for another Degree/Diploma”

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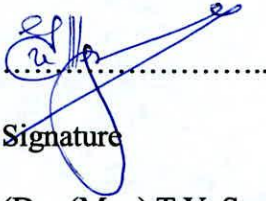
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ABSTRACT

One of the biggest drawbacks in conserving our valuable herpetofauna is the lack of knowledge, since only a fraction of the amphibian and reptile species present in different areas of the country is hitherto known to science. Hence, it is essential to gather information on the diversity of herpetofauna in different areas of the country, as a first step towards conservation.

The present study was conducted at Giritale Nature Reserve from May 2006 to April 2008 with the objectives of identifying and assessing the amphibians and reptiles inhabiting the Giritale Nature Reserve, compare the species diversity between different types of habitats, species richness, and density of amphibians and reptiles in different types of habitats within the nature reserve.

Amphibians and reptiles were sampled monthly from May 2006 to April 2008 using quadrates, Visual Encounter Studies (VES), pitfall traps and opportunistic data collection method.

Four categories of habitats were identified as grasslands, home gardens, forests and paddy fields. A total of 431 individuals of amphibians representing the order Anura in five families (Bufonidae, Dicroglossidae, Microhylidae, Ranidae and Rhacophoridae)

were recorded. These included ten species of amphibians. A total of 489 individuals of reptiles representing the orders Squamata, chelonia in ten families (Colubridae, Elapidae, Uropeltidae, Viperidae, Agamidae, Geckonidae, Scinidae, Varanidae, Testudinidae, Pythonidae) were recorded. These included 31 species of reptiles. *Fejervarya limnocharis* was the most common amphibian species recorded and *Calotes versicolor* and *Sitana ponticeriana* had the highest relative abundance value for reptiles. Total number of amphibians observed was significantly different in the four habitat types ($t = 14.28$, $df=3$, $p<0.01$). The greatest percentage of 29% ($n = 127$) of amphibian individuals and highest diversity index was recorded in the paddy fields. However, the greatest percentage of reptile individuals was observed in the home gardens (59.9%)

Total number of amphibians was significantly correlated with the ambient temperature in forests (Spearman's rank correlation $Z = - 0.51$, $P < 0.05$) and home gardens (Spearman's rank correlation $Z = - 0.52$, $P < 0.05$), but not correlated with the rainfall. Humidity also was a determinant factor for amphibians (Spearman's rank correlation $Z = - 0.47$, $P < 0.001$).

Reptile population was significantly correlated with the ambient temperature in the four different habitats but not significantly correlated with the rainfall (Spearman's rank correlation $z = - 0.18$, $p > 0.05$) or humidity (Spearman's rank correlation $z = 0.31$, $p > 0.05$).

According to the results obtained it is obvious that the Giritala Nature Reserve is a rich habitat for amphibians and reptiles in the dry zone, Sri Lanka, hence warrants protection.