

Experimental Determination of Microhabitat Preferences of *Pseudophilautus hallidayi* (Ranidae: Rhacophoridae)

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Pseudophilautus hallidayi is a mid-elevation frog species endemic to Sri Lanka found in Peradeniya, Namunukula and lower elevation areas of Knuckles mountain range. It lives in crevices of emergent boulders in shaded streams. IUCN (2006) has categorised this frog as a vulnerable species and at present the species faces a risk of extinction due to habitat degradation. Hence, immediate steps should be taken to conserve this frog species, especially in a backdrop where nearly 19 species in this genus have become extinct due to habitat destruction. So far in Sri Lanka, focus has been on systematics of amphibians, and no studies have been done to determine preferred conditions and microhabitat selection of amphibians that are vital information for effective conservation.

This study was conducted from June 2010 to June 2011, during which attempts were made to determine the preferred physical conditions (temperature, relative humidity, light and Ultra Violet radiation) of *P. hallidayi* under laboratory conditions using an apparatus that was custom made for this study and further improvised for different experiments. Data collected from the present study were tested for statistical significance. Further, experimental findings were compared with data gathered from their natural microhabitats in Hantana region, to understand the biological significance of the experimental results.

Within temperature, humidity and UV+light gradients, frogs were significantly more active than in the light only gradient ($p < 0.05$). Activity was pronounced for gravid females in UV+light gradient; female frogs tend to show a high preference for UV radiation by spending significantly more time remaining stationary under high UV+light intensity ($p < 0.05$). Under the light only gradient, they significantly altered the way they responded ($p < 0.05$); instead of well-distributed activity throughout the day within the UV+light gradient, a significantly high activity was observed only at the beginning of each day ($p < 0.05$). The highest preference for high light intensity was recorded from gravid females. Female frogs exhibited strong positive correlation with light intensity preference and body size, whereas male frogs showed a strong negative relationship.

The information gathered in this study is useful for conservation planning, both in enhancing (restoring) natural habitats and in captive breeding. In captive breeding, knowledge of the exact conditions needed for breeding to occur must be known. In restoration ecology, preferred environmental conditions must be known to aid population recovery.

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