



UNIVERSITY OF THE PHILIPPINES

**THE INFLUENCE OF THE FREQUENCY OF RICE CROPS PER
YEAR ON ANURAN ABUNDANCE AND DIVERSITY IN
CANDABA SWAMP, CENTRAL LUZON, PHILIPPINES**

By

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ABSTRACT

THE INFLUENCE OF THE FREQUENCY OF RICE CROPS PER YEAR ON ANURAN ABUNDANCE AND DIVERSITY IN CANDABA SWAMP, CENTRAL LUZON, PHILIPPINES

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Amphibians are ideal biological indicators of environmental health due to their biphasic life cycle and short generation time. The decline in global amphibian populations in recent years has prompted numerous studies to identify several factors that may cause the decline. Previous research has highlighted the negative impact of agricultural inputs (pesticides and nutrients) on amphibian abundance and diversity. Little is known about the effect of agricultural practices on amphibian diversity in lowland irrigated rice agro-ecosystems in the Philippines. This study is one of the first to document the variation in anuran diversity across a range of rice agricultural landscapes in the Philippines. This study aimed to test the hypothesis that anuran diversity is highest where there is only one rice crop per year, or no rice crops. Anurans were sampled using visual encounter surveys and pitfall traps in three localities in Candaba, Pampanga, representing different rice cropping practices. Water quality varied significantly across sites, while nutrients did not. Species diversity differed significantly and was highest in Barangay Gulap (single rice crop), where there was relatively better water quality, moderate total nitrogen and low dissolved phosphate. Introduced anuran species, particularly the cane toad (*Rhinella marina*),

were found to dominate the sites. This study does not support any of the three *a priori* hypotheses. Instead, it is proposed that anuran abundance and diversity in Candaba may be influenced primarily by pesticides interacting with community attributes, and secondarily by water quality.