

CHAPTER I

INTRODUCTION

The genus *Amphidromus* Albers, 1850 is a group of tree snails, which have undergone extensive radiation, distributed over the entire region of Southeast Asia. Within the genus, more than 300 taxa have been proposed. At present, however, only around 85 taxa are recognized as distinctive species. Many species of *Amphidromus* exhibit a great extent of variation within and between populations in shell shape, color pattern and coiling direction. Because of their intraspecific variation, the taxonomy of *Amphidromus* has remained difficult and complicated.

Ten species of two subgenera are known from many places of Thailand including islands in the gulf of Thailand and the Andaman Sea. The two subgenera are spread over the country, but no species occupies the entire country. Most of them occur only in limited areas and extensively differ in morphology between small areas. To understand evolutionary processes resulting in the present pattern of their diversity and distributions, firstly we ought to establish reliable taxonomy and phylogeny. The current classification has mainly been based on the works of Fulton (1896), Pilsbry (1900) and Laidlaw and Solem (1961). However, their classical approach of conchology resulted in inaccurate or subjective designation of species and provided virtually no information on the phylogeny of those diverse tree snails. Variation within species and possible convergence of shell traits could likely have caused the confused taxonomy of *Amphidromus*.

To solve these historical problems of conchological classification, it is necessary to establish the phylogenetic systematics by morphology and molecular approaches. For this purpose, I propose to determine interspecific differences of the genital system, considering possible variation within species, and to conduct cladistic analyses of shell and genital morphology and base-sequence analyses of mtDNA in order to establish the phylogeny. This study mainly involves Thai species and the results will provide initial details of phylogenetic systematics and biogeography of amphidromid tree snails in Southeast Asia.

Objective

To revise taxonomy of Thai *Amphidromus* species and to reconstruct their phylogeny by means of cladistic analyses of shell, genital morphology and mitochondrial 16S ribosomal DNA sequences.

Anticipated benefit

The results from this study will provide and improve taxonomic system and initial phylogeny of Southeast Asian endemic amphidromids tree snails.



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