

SPECIES RICHNESS AND ENDEMICITY OF THE HERPETOFAUNA OF SOUTH AND SOUTHEAST ASIA

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ABSTRACT. — Southern and Southeast Asia, extending from Pakistan to islands on the Sunda Shelf of the Indo-Malayan Archipelago and the Philippines, are home to a highly diverse herpetofauna. Based on the ecoregional classification presented in Wikramanayake et al. (2002) and a species listing database from 2000, we analyse herpetofaunal distribution, while taking into account the uneven survey efforts in different ecoregions. Larger ecoregions that are adequately sampled show greater species richness, contain more diverse topography and support a mosaic of habitat subtypes. In contrast, some of the smaller ecoregions are restricted to a specific habitat type. A latitudinal gradient in species diversity is evident and the ecoregions of the highest species richness straddle the equator, presumably for their tropical rainforests, aseasonal climate, high precipitation, and complex vegetation. Rainforests of lowlands and low elevation regions are richest in species richness, due to structural complexity and climatic conditions. Examples of vicars are evident in insular-insular or continental-insular comparisons of assemblages, many being the presumed result of Pleistocene sea level lowering. Endemicity is high on islands, waif dispersal selectively biased towards certain large species of reptiles, although amphibians are excluded. Herpetofaunal communities in different rainforest ecoregions share relatively few species: the same genera are usually present, but represented by different species. In many cases, these species are restricted-range or locally endemic species. The herpetofauna of monsoon forests is relatively similar within mainland Southeast Asia, but the herpetofaunal species inhabiting two mountain sites in close proximity can be remarkably different. A majority of regionally endemic species inhabit rainforest ecoregions, and particularly montane areas. A number of regional endemics inhabit monsoon forest or specialised habitats (caves, open rivers or swamps), but tend to occur locally at spots across a wide geographic range. Knowledge of the taxonomy of the region's herpetofauna remains poor, but sufficient to indicate regions of high conservation value, as well as priority areas for survey. Reptiles and amphibians are also known to be of value as indicator species for habitat quality and to for learning the earth's evolutionary and biogeographic processes.

KEY WORDS. — amphibians, reptiles, Asia, biogeography, ecoregions

INTRODUCTION

Though the Earl of Cranbrook has specialised in the fields of mammalogy and zooarchaeology of Southeast Asia, his contributions to herpetology should not be forgotten. We are aware of three papers on the topic (Medway, 1974, 1975; Medway & Marshall, 1975). Two of these dealt with the herpetofauna of the New Hebrides, now Vanuatu, in the South Pacific, collected during the Royal Society/Percy Sladen Expedition in 1971. The third (Medway, 1975) discussed the functional role of the patagium of the Southeast Asian gliding geckos (*Ptychozoon*). An early report covered herpetofauna of the University of Malaya's Ulu Gombak Field Study Centre (Medway, 1966), listing 18 lizard species.

Herpetological material from an early hominid site finds mention in Medway (1958); while reporting the (mostly mammalian) bone remains from the Niah Caves of Sarawak, this paper describes freshwater turtle remains from the greatest depth excavated, and discusses the habits of local turtles and monitor lizards, and how they can be snared by indigenous hunters. In a chapter from a volume dealing with the vertebrate faunas on two sides of Wallace's Line, he also uses herpetological examples (Cranbrook, 1981), concluding, for amphibians, that along the Lesser Sundas "there is progressive deletion of the Sundaic fauna, and a compensatory enrichment with Papuan species, in which the Lombok Straits does not mark a transition any more decisive than that between other pairs of neighbouring