

Influence of plate tectonics, sea currents and sea level fluctuations on diversity and endemism of Southeast Asian giant reptiles (Squamata: Varanidae)

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Southeast Asian water monitors (*Varanus salvator* complex) are not only among the largest squamate lizards in the world, but are also well known for their ability to cross marine barriers and colonize new terrains. Therefore, they exhibit the largest distribution range of all varanids. It extends from Sri Lanka in the west through continental Southeast Asia, and the Sunda Islands east to the Philippines and Sulawesi. At the eastern margin of their distribution, water monitors show the highest diversity including several locally restricted endemic taxa. On the oceanic archipelagos of the Philippines and the Wallacea region, the influence of strong sea currents and past sea level fluctuations, served as either barriers to dispersal and gene flow; or as the promoter for the successful colonization of distant islands. Additionally, the complex geological setting of insular Southeast Asia has shaped the present-day distribution patterns and systematics of water monitors. We investigated phenetic diversity and endemism of Southeast Asian water monitors from the Philippines, the Lesser Sunda Islands and the Sulawesi region using morphological and molecular evidence (amplified fragment length polymorphism, AFLP).

Within the Philippines and the Lesser Sunda Islands, the distribution of water monitors largely coincides with the recognition of several faunal sub-provinces representing distinct Pleistocene aggregate island complexes (PAICs). Monitors of Sulawesi belong to two different evolutionary lineages, those of the northern Minahassa peninsula and those of the central, south-western and eastern regions. Surrounding islands like Banggai, Kalaotoa and Tanahjampea harbour further endemic taxa due to their separation from mainland Sulawesi by deep ocean trenches. Our results reveal the need of thorough taxonomic assessments in order to manage future conservation efforts for Southeast Asian water monitors which are highly exploited target species of the international reptile leather and pet trade.