

The castaway: New monitor lizard fills top-order predator role on remote Pacific island

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Profile of the female holotype of the new *Varanus semotus*. Credit: Valter Weijola

Separated by several hundred kilometres from its next of kin, a new species of blue-tailed monitor lizard unique to the remote Mussau Island has been described. Unknown to science until recently and formally termed the "isolated", it is the only large-sized land-living predator and scavenger native to the island.

Dubbed a "biogeographical oddity" by its discoverers, led by Valter Weijola, a graduate student from the University of Turku, Finland, the lizard species is also the first new monitor lizard to be described from the country of Papua New Guinea in over twenty years. The finding was published in the open-access journal *ZooKeys*.

Monitors play an important ecological role in many island ecosystems in the southwest Pacific. Predatory mammals have never colonized the region due to the isolation of these [islands](#). Instead, these large, active and intelligent lizards fill the role of top-predators and scavengers. The Pacific monitor lineage to which the [new species](#) belongs have been so successful at oversea dispersal that a number of different species now occupy almost every island from the Moluccas in Indonesia to the eastern Solomon Islands and even Micronesia.

The new endemic species was observed and studied during fieldwork by Weijola and local assistants in the relatively dry coastal vegetation of Mussau, but it is likely that it also persist in the remnants of intact forest in the interior of the island.



An adult *Varanus semotus* in its habitat at the outskirts of the village of Nai.
Credit: Valter Weijola

The formally described female lizard, or holotype, measures 1 m with the tail being one and a half times the length of the dominantly black-coloured body covered with yellow and orange markings. The tail of the adults shows varying degrees of turquoise to bluish pigmentation. Another distinctive feature for the species is the pale yellow tongue, which is a trait shared only by three other species of Pacific monitors. The new species is known to eat crabs, other reptiles and their eggs, and small birds.

"Usually monitors like these will eat just about anything they can catch and kill, as well as carcass and turtle eggs when available," explains Weijola. "While young, Pacific monitor lizards are highly secretive and subsist mainly on insects and other small animals."

The new species, which can grow to well over a meter in length, was named *Varanus semotus*, a Latin reference to the remoteness and isolation of the relatively small and partly volcanic island where the lizard was found. Close examination revealed the reptile to be distinct from its relatives from New Guinea and New Britain. Genetic studies, conducted by co-authors Stephen Donnellan, South-Australian Museum, and Christer Lindqvist, Åbo Akademi University, showed that the species has been isolated for a long time, estimatedly 1-2 million years, or even longer.



The new monitor lizard species *Varanus semotus* in its habitat. Credit: Valter Weijola

"Isolation is the keyword here," says Weijola. "It is what has driven speciation and made the South-Pacific region one of the World's biodiversity hotspots." For anything to arrive on Mussau (from New Guinea or New Britain) it would need to cross 250-350 kilometers of open sea, and this doesn't happen frequently. So, once the ancestor arrived, perhaps in the form of a gravid female, the population must have been completely isolated."

"These islands are full of unique creatures often restricted in distribution to just one island or island group," explains the researcher. "Yet, we know relatively little about them. Even large [species](#) of reptiles and mammals are regularly being discovered, not to mention amphibians and invertebrates. This is what makes it such a biologically valuable and fascinating region."

More information: Valter Weijola et al. A new blue-tailed Monitor lizard (Reptilia, Squamata, Varanus) of the *Varanus indicus* group from Mussau Island, Papua New Guinea, *ZooKeys* (2016). [DOI: 10.3897/zookeys.568.6872](https://doi.org/10.3897/zookeys.568.6872)

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