

Geckos on Australasia side of Wallace Line found to be growing to twice the size of those in Asia

October 8 2014, by Bob Yirka



A dwarf yellow-headed gecko. *Lygodactylus luteopicturatus*. Pictured in Dar es Salaam, Tanzania. App 7cm long. Credit: Wikipedia.

A team made up of several researchers from Australia and one from the U.S. has found that bent toed geckos living on the Australasia side of The Wallace Line are evolving to grow up to twice the size of those in Asia. In their paper published in the journal *Biology Letters*, the team

notes that geckos living on the island of New Guinea have grown particularly large.

Back in 1859 British naturalist Alfred Russel Wallace noted what appeared to be an imaginary line drawn in the [southern ocean](#) between the ecozones of Asia and Australasia (Australia and other islands in the area)—he had found that flightless fauna on either side of the line didn't mix—species were distinct from one another except in a very few cases (the line does not appear to exist for flora, as seeds can be carried on the wind). One of those cases has turned out to be many species of Geckos—a type of lizard. In this new effort, the research team has found another impact of what has become known as the Wallace Line—bent toed [geckos](#) on the Australasia side are growing bigger than their Asian cousins, particularly on the island of New Guinea.

The researchers looked at 87 species of the bent toed variety of the lizard out of 180 believed to live in the area, from both sides of the Line—using ancestral state analysis revealed that geckos living on New Guinea were evolving to grow to be approximately twice as long as their Asian counterparts—roughly 35cm.

Though the cause for the apparent rise of gigantism in the [lizards](#) can't be proved as yet, the researchers strongly believe it's because the lizard has no predators on the island and because there is a nearly limitless supply of easy to obtain food. On New Guinea there are no mammals, and the largest carnivore is the marsupial Bronze Quoll, which grows to just 36cm. The researchers suggest that more research into the lineage of the lizard needs to be done to better understand their ecological shift—to find out if other causes might be at play as well.

More information: Crossing the line: increasing body size in a trans-Wallacean lizard radiation (*Cyrtodactylus*, *Gekkota*) *Biology Letters*, Published 8 October 2014. [DOI: 10.1098/rsbl.2014.0479](https://doi.org/10.1098/rsbl.2014.0479)

Abstract

The region between the Asian and Australian continental plates (Wallacea) demarcates the transition between two differentiated regional biotas. Despite this striking pattern, some terrestrial lineages have successfully traversed the marine barriers of Wallacea and subsequently diversified in newly colonized regions. The hypothesis that these dispersals between biogeographic realms are correlated with detectable shifts in evolutionary trajectory has however rarely been tested. Here, we analyse the evolution of body size in a widespread and exceptionally diverse group of gekkotan lizards (*Cyrtodactylus*), and show that a clade that has dispersed eastwards and radiated in the Australopapuan region appears to have significantly expanded its body size 'envelope' and repeatedly evolved gigantism. This pattern suggests that the biotic composition of the proto-Papuan Archipelago provided a permissive environment in which new colonists were released from evolutionary constraints operating to the west of Wallacea.

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