

Love Island: Flamboyant males get the girls on Madagascar

April 2 2019



Achrioptera manga, one of two new Madagascan species discovered by Drs Glaw, Bradler and colleagues. Manga means 'blue' in the Madagasy language. Credit: Dr. Frank Glaw

Biodiversity hotspot Madagascar is one of the world's biggest islands,

and home to some of its biggest insects. Now German scientists have discovered two new species of giant stick insect, living only in the dry forests of Madagascar's northernmost tip.

One giant female measures a whopping 24cm—but it is the smaller [males](#) that are most striking. At [sexual maturity](#) these daredevils abandon their stick-like camouflage for dazzling blue or many-colored shining armor.

Writing in *Frontiers in Ecology and Evolution*, the researchers describe their rare and exciting findings, and wonder at the reproductive success of the least stick-like stick insects on the planet.

When two become four

"Nearly all of the 3000+ known [species](#) of stick insects try to be inconspicuous and just look like twigs," says senior author Dr. Sven Bradler of the University of Göttingen, Germany. "There are a very few, very large exceptions—and we have just discovered a couple more of them."

The authors re-examined specimens they'd previously identified as odd-looking examples of two existing giant stick insect species, whose [adult males](#) remarkably are bright blue or multicolored.

"These were similar in size—15 to 24cm—but generally less spiny and a bit differently colored than typical examples of their kind," explains Bradler. "Now genetic tests confirm that the quirky individuals are in fact two new species, distinct from the original two but part of the same group." explains Bradler.

Bradler's reclassification places members of this group of species as close evolutionary relatives to other Madagascan stick insects, rather

than cousins from overseas as previously thought. This is a potentially major finding, as it challenges the prevailing view that sticks insects colonized Madagascar multiple times.

He who dares, wins

The discovery also prompted the researchers to wonder: what reproductive advantage do these males gain from their bright colors, that is worth exposing themselves to predators?



Achrioptera maroloko, one of two new Madagascan species discovered by Drs Graw, Bradler and colleagues. Maroloko means 'colorful' in the Malagasy language. Credit: Dr. Frank Graw

The first author Dr. Frank Glaw of the Bavarian State Collection of Zoology in Munich, and colleagues bred the new giant stick insect species in captivity to observe their behavior.

"Males of one species started mating attempts only when they achieved their bright blue color."

This might suggest that the males use their bright coloring to attract a mate. However, it is hard to believe the males could find a mate before being eaten—unless their bright coloring acts as a deterrent to predators.

"Males searching for a mate have to move about more, so pretending to be a stick becomes tricky. Better perhaps to plump for the opposite: a brightly colored warning."

Bright colors—suggestive of toxicity—keep safe vivid members of other typically camouflaged species, like vividly colored Madagascan frogs.

"In support of this, all stick insects have neck glands that repellant substances, and these are typically well-developed in brightly colored species. Alternatively, like the Madagascan frogs some giant stick insects may have developed the ability to accumulate toxins from their food."

But testing these hypotheses will be tough, admits Glaw.

Bradler adds "More than one factor may have played a role in the evolution of this remarkably conspicuous coloration. So even with more data on mate selection, habits, predators, natural food plants, toxins produced by defense glands and possible accumulation of toxins among giant stick insects, finding evidence for these ideas may prove difficult."

Colorful stick insects have a bright future

Whatever its function, the splendid coloring of the male giant stick insects could make them a strong flagship species to promote the unique biodiversity of Madagascar, and the need for its protection.

"Already the once-uncertain future of these two new species seems secured, with their forest habitat in northern Madagascar a hotspot for conservation priorities," says Glaw. "It is vital to maintain awareness and motivation to keep logging at bay. This precious area also harbors the highest density of critically endangered reptiles in Madagascar and is home of one of the most threatened primate species in the world, the lemur *Lepilemur septentrionalis*."

More information: Frank Glaw et al, When Giant Stick Insects Play With Colors: Molecular Phylogeny of the Achriopterini and Description of Two New Splendid Species (Phasmatodea: Achrioptera) From Madagascar, *Frontiers in Ecology and Evolution* (2019). [DOI: 10.3389/fevo.2019.00105](https://doi.org/10.3389/fevo.2019.00105)

Provided by Frontiers

Citation: Love Island: Flamboyant males get the girls on Madagascar (2019, April 2) retrieved 26 April 2024 from <https://phys.org/news/2019-04-island-flamboyant-males-girls-madagascar.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.