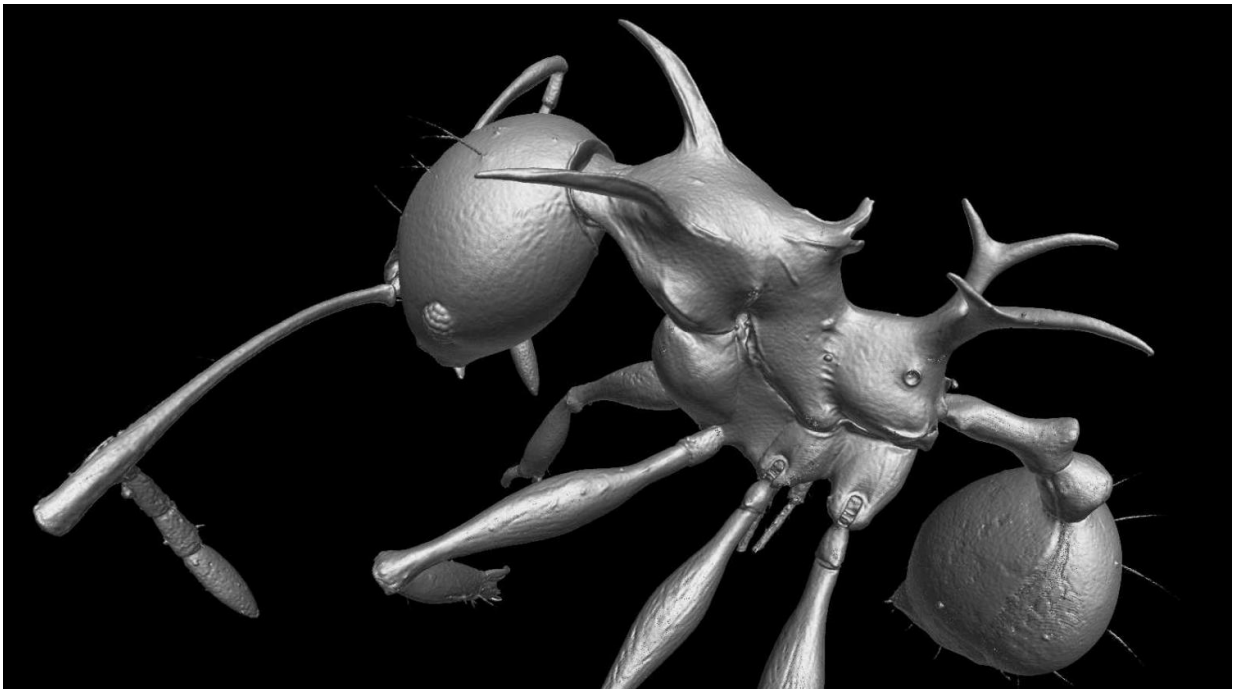


Two new highly adorned spiky ant species discovered in New Guinea

July 27 2016



The Pheidole ant. Credit: Sarnat et al. (2016)

The distinctive dorsal spines found on two new species of highly adorned *Pheidole* ants may help to support the ants' massive heads, according to a study published July 27, 2016 in the open-access journal *PLOS ONE* by Eli Sarnat, Georg Fischer and Evan Economo from the Okinawa Institute of Science & Technology Graduate University, Japan.

The *Pheidole* genus is hyperdiverse, containing over 1000 [species](#) spread throughout the globe. The genus has the common name of 'big headed [ants](#),' as *Pheidole* soldier ants usually have enormous heads and jaws to break up large food items. The authors of the present study incorporated phylogenetic results and a cutting edge 3D imaging technique known as X-ray microtomography (micro-CT) to identify and model ants in the *Pheidole cervicornis* group found in the tropical rainforests of New Guinea.

"This is one of the first studies in ant taxonomy to use micro-CT," said Evan Economo. "While this method is gaining popularity in different scientific fields, it is rare to use it in this way."

Amongst the ants, the authors discovered two new, highly adorned, dragon-like species, *Pheidole viserion* and *Pheidole drogon*, with distinctive large spines protruding from their dorsal plates. Scientists previously assumed that the spiky appearance of certain ant species was a defense mechanism. However, the authors used micro-CT to reveal that in soldier ants of these [new species](#), neck spines contain muscle fibers. Although more research is needed, they suggest that muscles in the spines may help these ants to hold up their massive heads.



Pheidole viserion, a newly discovered ant species from Papua New Guinea, imaged with traditional photographic techniques. Credit: OIST

The species names *Pheidole viserion* and *Pheidole drogon* were inspired by the dragon-like appearance of the ants, which are named after dragons in the fantasy books and television series 'Game of Thrones.'

"Once you open up the rotational 3D PDF and see these ants' extraordinary [spines](#), or "inordinate spinescence" as we phrase it in the study, you can't help but ask why on earth these structures evolved," said Eli Sarnat. "The most obvious answer is defense, but the internal morphology revealed by this new micro-CT scanning technology suggests that the answer might also have something to do with muscle mechanics and powering the huge heads of the soldier ants."

In a related study also published July 27, 2016 in the open-access journal *PLOS ONE* the authors describe two additional new species of ants from the *Pheidole knowlesi* species group found in the Fijian Islands. In contrast to their highly adorned New Guinean relatives, *Pheidole ululevu* and *Pheidole kava* have a much less dramatic appearance, and were named after their large head and a mildly narcotic drink from the Pacific Islands, respectively.

More information: Sarnat EM, Fischer G, Economo EP (2016) Inordinate Spinescence: Taxonomic Revision and Microtomography of the *Pheidole cervicornis* Species Group (Hymenoptera, Formicidae). *PLoS ONE* 11(7): e0156709. [DOI: 10.1371/journal.pone.0156709](https://doi.org/10.1371/journal.pone.0156709)

Provided by Public Library of Science

Citation: Two new highly adorned spiky ant species discovered in New Guinea (2016, July 27) retrieved 17 April 2024 from <https://phys.org/news/2016-07-highly-adorned-spiky-ant-species.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.