

Rare ant species rediscovered in North Carolina trees

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Photo shows a worker ant of the species *Aphaenogaster mariae* Forel. Credit: Matt Bertone

There's a species of ant that is so rare, only a handful of records exist

from across the entire eastern United States. North Carolina State University researcher Michelle Kirchner not only found these ants in the Triangle region of North Carolina, she is the first to document an entire colony for scientists, taxonomists and ant-enthusiasts everywhere.

Aphaenogaster mariae Forel are a rare type of spine-waisted ant. Unlike their cousins that nest mostly in the detritus of forest floors, these [ants](#) live most of their lives high in tree canopies. This arboreal lifecycle is a fairly common practice for ants in [tropical areas](#), but little was known about the presence or prevalence of arboreal ants in the Triangle, until now.

"I was not expecting to find these ants at all, so I was shocked when I found an entire colony," says Michelle Kirchner, lead author of a paper on the work and a Ph.D. student in applied ecology and entomology at NC State. "With the whole colony, we're able to document every life stage of this rare ant species, which is a first for science."

The paper, "Colony structure and redescription of males in the rarely collected arboreal ant, *Aphaenogaster mariae* Forel (Hymenoptera: Formicidae)," is [published](#) in the *Proceedings of the Entomological Society of Washington*. The paper was co-authored by Matthew Bertone of NC State University and Bonnie Blaimer of the Leibniz Institute for Evolution and Biodiversity Science.

Until now, there were no photographs or documented collections of the males of this species. Likewise, it is unknown how many populations exist, where they are, or what habitats they prefer. However, these new, detailed descriptions of all members of the colony provide some clues.

"The queens of these species are pretty small compared to other ant queens," says Kirchner. "This small body type is similar to parasitic ant queens since being small makes them more easily mistaken as a fellow

worker ant by a [colony](#) she is about to infiltrate."

About 250 species of ant have been identified in North Carolina, and Kirchner's rediscovery of this species helps us better understand the unique makeup of North Carolina's biodiversity.

"We don't know how important this species is to the ecology of forests in the Triangle," says Kirchner. "This different surveying effort has changed what we're finding and our perspective on what's possible out there. There are still discoveries to be made, even in the Neuse River game lands."

"This is a great case of a species that's so rarely encountered that it's impossible to draw any conclusions about how rare it actually is or isn't," says Elsa Youngsteadt, a professor of applied ecology at NC State and co-author of the study. "Michelle's observations suggest that these [species](#) are fairly localized, but more work needs to be done."

More information: Michelle Kirchner et al, Colony Structure and Redescription of Males in the Rarely Collected Arboreal Ant, *Aphaenogaster mariae* Forel (Hymenoptera: Formicidae), *Proceedings of the Entomological Society of Washington* (2023). [DOI: 10.4289/0013-8797.125.1.77](#)

Provided by North Carolina State University

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