

For at least one species, ant nurseries are cleaner than human ones

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Azteca ants in the wild. Credit: Lauren Nichols

Azteca ants are better at limiting pathogenic microbes in their nurseries than humans, according to a new study. The research also found that the microbial make-up—or microbiome—of ant colonies varies from chamber to chamber, much like the microbiome differences we see from room to room in human homes.

The [microbiome](#) of each human dwelling is unique to its inhabitants, and the microbiome of each room is unique to the purpose of the room. For example, not only is the microbiome of your bathroom (hopefully) different from the microbiome of your kitchen, but the microbiome of your kitchen is distinct from the microbiome of your neighbor's kitchen.

These microbiomes can have positive and [negative effects](#) on our health, and humans actively influence the microbial community of our dwellings with a range of techniques, from using anti-bacterial cleaning products to taking probiotics.

We now know that [ants](#) also have unique microbiomes, both from [colony](#) to colony and even between chambers within a single colony. A team of researchers, including Rob Dunn, a professor in NC State's Department of Applied Ecology, examined Azteca [ant colonies](#) in Trumpet trees (*Cecropia peltata*). Azteca ants utilize the naturally segmented stalks of Trumpet trees as separate rooms to rear young (brood chambers), store food (carton chambers), and take breaks (worker chambers). Like us, ants actively influence the microbial communities of a room by doing things that favor good microbes and suppress the bad (think of this as good housekeeping).

In fact, Azteca ants are much better than us at suppressing potentially harmful microbes in their brood chambers, which are the equivalent to our daycare centers. This may be due to the structural changes ants make to brood chambers and their intense cleaning rituals.

"Ants have been living in homes for more than a hundred million years," Dunn says. "During that time, they've figured out a thing or two about making a nice apartment. This work, led by Jane Lucas, gives us a glimpse into the housekeeping of one tropical ant species. And that housekeeping appears, at least given the evidence to date, to be more microbially sophisticated than anything we do in our human homes."

The manuscript, "Azteca ants maintain unique microbiomes across functionally distinct nest chambers," was published in *Proceedings of the Royal Society B* on August 7.

More information: Jane M. Lucas et al. Azteca ants maintain unique microbiomes across functionally distinct nest chambers, *Proceedings of the Royal Society B: Biological Sciences* (2019). [DOI: 10.1098/rspb.2019.1026](https://doi.org/10.1098/rspb.2019.1026)

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