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RETHINK ANIMALS, PALEONTOLOGY

# Beetles have been mooching off insect colonies for millions of years

99-million-year-old amber shows two species that pilfered from ancient ants and termites

BY LAUREL HAMERS 4:00PM, APRIL 24, 2017



**BAD HOUSEGUESTS** Some ancient beetles survived by freeload off social insects such as termites. Two new beetle fossils (*Cretotrichopsenius burmiticus*, left and *Mesosymbion compactus*, right) suggest that the behavior, known as social parasitism, has endured for about 100 million years.

FROM LEFT: C. CAI ET AL./CURRENT BIOLOGY 2017; S. YAMAMOTO ET AL./NATURE COMMUNICATIONS 2016

Mooching roommates are an ancient problem. Certain species of beetles evolved to live with and leech off social insects such as ants and termites as long ago as the mid-Cretaceous, two new beetle fossils suggest. The finds date the behavior, called social parasitism, to almost 50 million years earlier than previously thought.

Ants and termites are eusocial — they live in communal groups, sharing labor and collectively raising their young. The freeloader beetles turn that social nature to their advantage. They snack on their hosts' larvae and use their tunnels for protection, while giving nothing in return.

Previous fossils have suggested that this social parasitism has been going on for about 52 million years. But the new finds push that date way back. The specimens, preserved in 99-million-year-old Burmese amber, would have evolved relatively shortly after eusociality is thought to have popped up.

One beetle, *Mesosymbion compactus*, was reported in *Nature Communications* in December 2016. A different group of researchers described the other, *Cretotrichopsenius burmiticus*, in *Current Biology* on April 13. Both species have shielded heads and teardrop-shaped bodies, similar to modern termite-mound trespassers. Those adaptations aren't just for looks. Like a roommate who's found his leftovers filched one too many times, termites frequently turn against their pilfering housemates.

### Citations

C. Cai et al. **Early evolution of specialized termitophily in Cretaceous rove beetles.** *Current Biology*. Published online April 13, 2017. doi:10.1016/j.cub.2017.03.009.

S. Yamamoto et al. **Evidence for social parasitism of early insect societies by Cretaceous rove beetles.** *Nature Communications*. December 8, 2016. doi:10.1038/ncomms13658.

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S. Milius. **Feud over family ties in evolution.** *Science News*. Vol. 178, September 25, 2010, p. 13.

L. Sivitz. **First mammal joins the eusocial club.** *Science News*. Vol. 158, December 2, 2000, p. 356.

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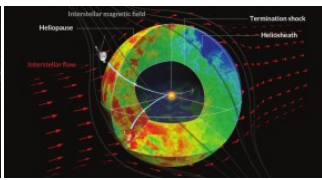
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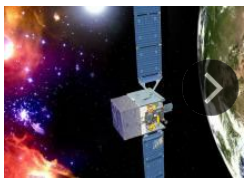
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