

Crypt-keeper wasp found to parasitize multiple species of gall wasp

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The crypt-keeper wasp, Euderus set. Credit: Scott P. Egan, Kelly L. Weinersmith, Sean Liu, Ryan D. Ridenbaugh, Y. Miles Zhang, Andrew A. Forbes - This file is licensed under the Creative Commons Attribution-Share Alike 4.0 International license.



A team of researchers from the University of Iowa and Rice University has found that crypt-keeper wasps parasitize multiple species of gall wasp. In their paper published in the journal *Biology Letters*, the group describes how they studied oak tree galls and wasps and what they found.

The crypt-keeper wasp, (*Euderus set*) is a <u>parasitic wasp</u>—it lays its <u>eggs</u> in oak tree galls occupied by gall wasps, and when the eggs hatch, the <u>larvae</u> eat the <u>gall wasp</u> inside. In this new effort, the researchers have found that the crypt-keeper larvae are able to parasitize multiple <u>species</u> of gall wasp—something that has not been seen before.

The galls of oak trees are abnormal growths, similar to tumors. The galls created by the wasps provide shelter for the gall larvae once they hatch. After they grow to become adults, they simply eat their way out of the gall. But sometimes, the process goes awry, due to intervention by a crypt-keeper wasp. Instead of making a home for its young, the crypt-keeper deposits its eggs in a gall. When the eggs hatch, the larvae climb inside the gall wasp occupant and take up residence inside its body. They do not stop the gall wasp from maturing, however; they wait for it to grow to adulthood, and when the gall wasp starts to chew its way out of the gall, the crypt-keeper somehow stops its progress, leaving the gall larvae head to plug the hole. Then the crypt-keeper wasp lives off the body of the gall wasp until it is mature—at that point, it eats its way through the head of the gall wasp (because it is softer than the gall material) and makes its way out into the world. In this new effort, the researchers found that there is more to the story.

After collecting and studying over 23,000 galls from 10 kinds of oak trees, the researchers found that the crypt-keeper <u>wasps</u> were not limited to parasitizing just one species of gall wasp—they parasitize seven of the 100 species the researchers studied. The researchers report that this was the first known instance of parasitism of multiple species by a single



parasite.

More information: Anna K. G. Ward et al. A keeper of many crypts: a behaviour-manipulating parasite attacks a taxonomically diverse array of oak gall wasp species, *Biology Letters* (2019). <u>DOI:</u> <u>10.1098/rsbl.2019.0428</u>

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