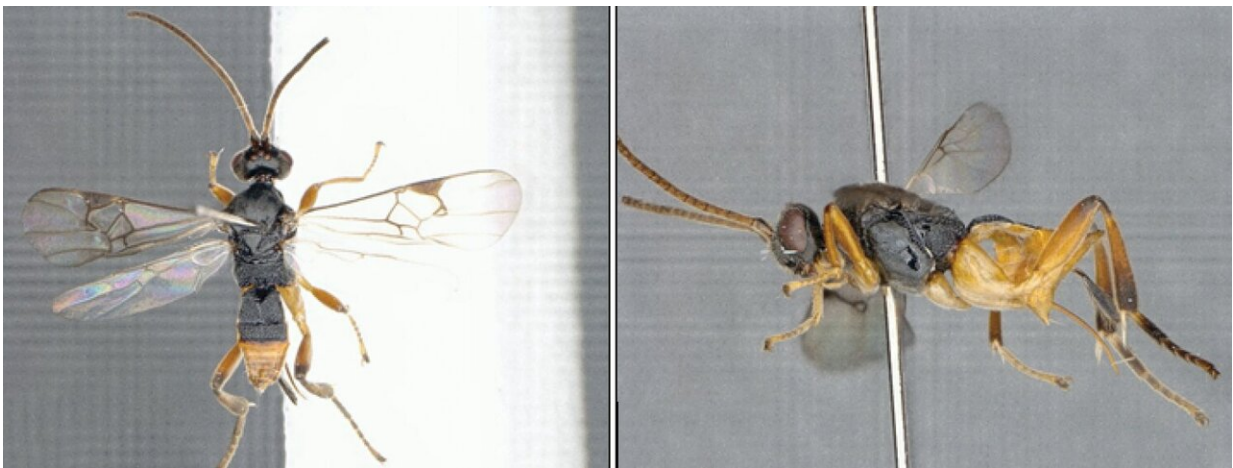


Death from below: the first video of a parasitic wasp attacking caterpillar underwater

November 4 2020



The newly described microgastrine parasitoid wasp *Microgaster godzilla* (female holotype). Credit: Jose Fernandez-Triana

A very few species of parasitoid wasps can be considered aquatic. Less than 0.1% of the species we know today have been found to enter the water, while searching for potential hosts or living as endoparasitoids inside of aquatic hosts during their larval stage.

Within the subfamily Microgastrinae (family Braconidae), only two species have previously been recorded to be aquatic, based on their parasitism of aquatic caterpillars of moths. However, none has been

known to actually dive in the water.

Recently, during their research work in Japan, Dr. Jose Fernandez-Triana of the Canadian National Collection of Insects and his team found and recorded on camera the first microgastrine parasitoid wasp that dives underwater for several seconds, in order to attack and pull out caterpillar hosts, so that it can lay its eggs inside them before releasing them back in the water.

Interestingly, the wasp, which was described as a new to science species in the open-access, peer-reviewed scientific *Journal of Hymenoptera Research*, was given the awe-striking name *Microgaster godzilla*, because its emergence out of the water reminded the scientists of the Japanese iconic fictional monster Godzilla.

In the video, the female wasp can be seen walking over floating plants as it searches for hosts, specifically larvae of the moth species *Elophila turbata*, which constructs a portable case from fragments of aquatic plants and lives inside it near the water surface. Once the wasp finds one of those cases, it first probes it repeatedly with its antennae, while moving around. Eventually, it forces the larvae to come out of the case and parasitizes it by quickly inserting its ovipositor. In some cases, the wasp has to submerge completely underwater for several seconds, in order to find and pull the caterpillar out of its case. To do this, the species has evolved enlarged and strongly curved tarsal claws, which are thought to be used to grip the substrate as it enters the water and looks for hosts.

As for the curious choice of name for the [new species](#), Dr. Jose Fernandez-Triana explains:

"The reasons why we decided to use the name of Godzilla for the wasp species are interesting. First, being a Japanese species, it respectfully

honours Godzilla, a fictional monster (kaiju) that became an icon after the 1954 Japanese film of the same name and many remakes afterwards. It has become one of the most recognizable symbols of Japanese popular culture worldwide. Second, the wasp's parasitization behaviour bears some loose resemblance to the kaiju character, in the sense that the wasp suddenly emerges from the water to parasitize the host, similar to how Godzilla suddenly emerges from the water in the movies. Third, Godzilla has sometimes been associated, albeit in different ways, with Mothra, another kaiju that is typically portrayed as a larva (caterpillar) or an adult moth. As you can see, we had biological, behavioural and cultural reasons to justify our choice of a name. Of course, that and having a bit of fun, because that is also an important part of life and science!"

Beyond unusual behaviours and funny names, Dr. Fernandez-Triana wants to emphasize the importance of multidisciplinary work and collaboration. The team that published this paper got to know each other at an international meeting devoted to [biological control](#) (The 5th International Entomophagous Insects Conference in Kyoto, Japan, 2017).

"I was very impressed by several presentations by Japanese grad students, which included video recordings of parasitoid wasp biology. As a taxonomist, I am always impressed with the quality of research done by colleagues in other fields. In this case, we saw an opportunity to combine our efforts to study the wasp in detail and, when we found that it was a new species, we described it together, including adding the filmed behaviour to the original description. Usually, taxonomic descriptions of parasitoid [wasps](#) are based on dead specimens, with very few details—often none—on its biology. Thanks to my biocontrol colleagues, we could add more information to what is known about the new [species](#) being described. Hopefully we can continue this collaboration and combined approach for future studies".

More information: Jose Fernandez-Triana et al, *Microgaster godzilla* (Hymenoptera, Braconidae, Microgastrinae), an unusual new species from Japan which dives underwater to parasitize its caterpillar host (Lepidoptera, Crambidae, Acentropinae), *Journal of Hymenoptera Research* (2020). [DOI: 10.3897/jhr.79.56162](https://doi.org/10.3897/jhr.79.56162)

Provided by Pensoft Publishers

Citation: Death from below: the first video of a parasitic wasp attacking caterpillar underwater (2020, November 4) retrieved 24 April 2024 from <https://phys.org/news/2020-11-death-video-parasitic-wasp-caterpillar.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.