

# Small insects attack and kill amphibians much bigger than themselves

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This image shows the predation of amphibians by an adult *Epomis* beetle. Credit: Gil Wizen and Predation of amphibians by adult *Epomis*

New findings of researchers from Tel-Aviv University show that predator-prey interactions between ground beetles of the genus *Epomis* and amphibians are much more complex than expected. The study was published in the open access journal *Zoo Keys*.

"Amphibians are typical insect predators and their diet may include adult beetles, ground beetles in particular. The recently filmed successful attacks of the beetles on toads and frogs brought new insights on the amphibian-insect interactions, and documented the uncommon phenomenon of invertebrates preying on vertebrate animals," said the senior author Gil Wizen.

Previous research has shown that *Epomis* [larvae](#) feed exclusively on amphibians and that this [food source](#) is essential for completion of their life cycle, while the diet of the adult beetles consists of terrestrial invertebrates as well as dead vertebrates. Wizen and Gasith's current study shows that adult *Epomis* beetles can prey upon live amphibians, in addition to their regular diet.

According to the study, the genus *Epomis* is represented in Israel by two species: *E. dejeani* and *E. circumscriptus*. In the central coastal plain these species have similar distribution but do not occur in the same sites. The researchers recorded *Epomis* sharing shelter with amphibians during the day, but preying on them during the night. In the laboratory, predation behaviour of the adult beetles on five amphibian species was observed: the Green Toad (*Bufo viridis*), the Savignyi's Frog (*Hyla savignyi*), the Levant Green Frog (*Rana bedriagae*), the Banded Newt (*Triturus vittatus*), and the Fire Salamander (*Salamandra salamandra infraimmaculata*). These observations showed that the diet of the two *Epomis* species overlaps only partially, with only one of the [species](#) (*E. dejeani*) preying on the Banded Newt.

The results of this study serve as additional evidence that *Epomis* beetles, both larvae and adults, are specialized predators of amphibians. Moreover, these [beetles](#) prey upon several [amphibian species](#).

Provided by Pensoft Publishers

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