

## SHORT COMMUNICATION

### ***Metoecus paradoxus* (Linnaeus, 1760) (Coleoptera: Ripiphoridae), a new species for the fauna of Israel**

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The Ripiphoridae (wedge-shaped beetles) contain approximately 450 species worldwide. Like the Meloidae, many wedge-shaped beetles are hypermetamorphic parasitoids. The majority of them attack wasps and bees whilst others attack cockroaches and beetles (Ptinidae and Cerambycidae) (Batelka *et al.* 2018).

The first record of a ripiphorid species from Israel was published by Sahlberg (1912), who reported that *Ptilophorus dufourii* (Latreille, 1817) was collected at Dayr Aban (a village East of Bet Shemesh, Judean Hills) by Unio Saalas. Pic (1927) mentioned *Pterydrias debilis* Reitter, 1895, and Bodenheimer (1937) records two species for Israel, *Macrosiagon bimaculata* (Fabricius, 1787) and *Macrosiagon ferruginea* (Fabricius, 1781). Argaman and Mendel (1988) reported two Ripiphoridae species as new for Israel, *Ripidius vaulozeri* Chobaut, 1893 and *Evaniocera dufouri* Latreille, 1817, but the latter had been already published by Sahlberg (1912). Chikatunov *et al.* (2006) added *Macrosiagon praeusta* (Gebler, 1829) and *Ripiphorus subdipterus* Bosc, 1792 to the list of Israeli wedge-shaped beetles.

*Metoecus paradoxus* (Linnaeus, 1760), commonly referred to as ‘the wasp nest beetle’, is hereby recorded in Israel for the first time. *Metoecus paradoxus* has a wide distributional range, which includes Azerbaijan, Austria, Belgium, Bosnia and Herzegovina, Czech Republic, Denmark, Finland, France, Great Britain, Germany, Hungary, Ireland, Italy, Latvia, The Netherlands, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland (Batelka 2008) and Russia (Sáez Bolaño *et al.* 2008). In the Eastern Mediterranean it is known so far from Turkey and Syria (Batelka 2008).

On the 23<sup>rd</sup> of June 2018 a large nest of *Vespula germanica* (Fabricius, 1793) was removed by the second author from the vicinity of Merom Golan (a kibbutz at the Golan Heights in the northern part of Israel; 33°08'N 35°46'E). The ruined nest was then exposed to pesticides. Near the nest a female of *M. paradoxus* was observed. Soon afterward a search inside the ruined nest yielded dead and still alive adults and pupae of *M. paradoxus*.

In total, 33 specimens of *M. paradoxus* were found: nine pupae and seven newly hatched adults (five females and two males) were found inside closed cells, and 16 adults (14 females and three males) were found freely in the nest. A male



**Figs 1, 2:** Male (1) and female (2) of *M. paradoxus*.



**Figs 3, 4:** *M. paradoxus* in Israel: (3) ovipositing female, (4) pupae.

and three females were found alive. The living females were observed and photographed while laying eggs on different parts of the nest. A pair of adults is currently deposited at the collection of the first author, housed at the Steinhardt Museum of Natural History, Tel Aviv University.

*Metoecus paradoxus* is a known pest inside of *V. germanica* nests (Van Oystaeyen *et al.* 2015). The female beetle lays eggs in crevices of decaying wood, which is collected by *V. vulgaris* workers to build their nest (Van Oystaeyen *et al.* 2015). The newly hatched larvae cling to wondering wasps in order to get into their nest. The beetle larva feeds on the wasp larva inside its cell and pupates there. The level of parasitism is low (Van Oystaeyen *et al.* 2015). *Metoecus paradoxus* prefers nests of *Vespula vulgaris* (Linnaeus, 1758), known as the 'Common wasp', when those are available. This is due to the fact that the beetles appear to be chemically adapted to *V. vulgaris* through sharing more hydrocarbon compounds than they do with *V. germanica* (Van Oystaeyen *et al.* 2015). This results in a lesser aggression level from *V. vulgaris* adults towards hatching adults of *M. paradoxus* compared to *V. germanica*.

*Vespula vulgaris* is presently unknown in Israel, so it is reasonable to assume that *V. germanica* acts as the main host for *M. paradoxus* in the country.

Thus far, there are eight species of the Ripiphoridae known to occur in Israel. However this number is not definite since the country's fauna of these beetles is yet to be thoroughly studied. In addition to this, some of the old records need confirmation since specimens, which the records have been based upon, are unavailable for re-examination. The current list of the Ripiphoridae species occurring in Israel includes the following species:

Subfamily Ptilophorinae

*Ptilophorus dufourii* (Latreille, 1817)

Subfamily Ripidiinae

*Pterydrias debilis* Reitter, 1895

*Ripidius vaulogeri* Chobaut, 1893

Subfamily Ripiphorinae

*Macrosiagon bimaculata* (Fabricius, 1787)

*Macrosiagon ferruginea* (Fabricius, 1781)

*Macrosiagon praeusta* (Gebler, 1829)

*Metoecus paradoxus* (Linnaeus, 1760)

*Ripiphorus subdipterus* Bosc, 1792

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