

***EXALLONYX OBSOLETUS* (HYMENOPTERA:
SERPHIDAE), A LARVAL PARASITE OF THE ROVE
BEETLE *QUEDIUS LAEVIGATUS* (COLEOPTERA:
STAPHYLINIDAE)¹**

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ABSTRACT: *Exallonyx obsoletus* is a solitary internal parasite of larvae of *Quedius laevigatus*; this represents a new host record for *E. obsoletus*. A brief synopsis of the distribution and biology of the parasite (*E. obsoletus*) and the host (*Q. laevigatus*) is provided, and staphylinid host records of world species of *Exallonyx* are reviewed.

This note further documents parasitism of staphylinid larvae by *Exallonyx* in a previously unreported host, *Quedius laevigatus* (Gyllenhal).

While collecting beetles under bark of a felled tuliptree, *Liriodendron tulipifera* L., in a wooded ravine of Hampton Hills Metropolitan Park, nr. Akron, Ohio (Summit Co.), on 25 April 1987, one of us (PWK) obtained approximately 30 staphylinid larvae of which 2 had parasite pupae protruding from the host remains. An additional parasite emerged from a third quiescent larva in the laboratory several days after the larvae were collected. Two male parasites of *Exallonyx obsoletus* Say were reared in the laboratory, while a remaining parasite succumbed in the pupal stage. A staphylinid adult, identified as *Quedius laevigatus*, was also reared from a larva that was identical to those parasitized. Voucher specimens of the parasite and beetle host are in the collections of Cornell University (Ithaca, NY) and Henry K. Townes (Gainesville, FL).

The Host.-*Quedius laevigatus* is a widely distributed species in both the Palearctic and Nearctic regions (Smetana, 1971), occurring under bark of damaged or dead trees, particularly conifers and other softwoods. Smetana (1965, 1971) recorded specimens from *Pinus ponderosa* Laws., *P. murrayana* (Grev. & Balf.) Engelm., *P. strobus* L. and *P. contorta* Dougl.; *Picea glauca* (Moench.) Voss; *Abies lasiocarpa* (Hook.) Nutt.; *Populus trichocarpa* Torr. & Gray; and *Betula* sp. In Europe and North America, it is a known predator of bark beetle larvae (Scolytidae) (Clemens, 1919; De Leon, 1934; Smetana, 1958).

The Parasite.-*Exallonyx obsoletus* occurs in deciduous woods of eastern North America, with adults found from late spring to mid-fall (Townes & Townes, 1981). It has been recorded as parasitizing larvae of

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Staphylinus (Muesebeck, 1979; cited as *Codrus longiceps*) and larvae of *Platydracus violaceus* (Hoebeke, 1978). Townes & Townes (1981) also examined other reared specimens, including a female wasp from an unidentified staphylinid larva taken in the cambium of a dead *Ulmus americanus* in Michigan; and 1 male and 2 females from a larva of *Staphylinus* or *Creophilus* in Virginia. Details of the biology of this species are presumably similar to that described in Townes & Townes (1981:6) and Hoebeke (1978:508-509). Immediately upon emergence of the fully mature parasite larva, usually through intersegmental membranes, pupation occurs. The caudal end of the mature larva or pupa remains embedded in the host carcass, positioned venter-to-venter with the host and the head inclined forward or backward (Fig. 1). *Exallonyx obsoletus* is a solitary internal parasite of larvae of *Quedius laevigatus*. This serphid was previously reported by Hoebeke (1978) as a gregarious internal parasite of larvae of *Platydracus violaceus*, whose larvae are much larger than those of *Q. laevigatus*.

There are several literature references to the parasitism of *Quedius* larvae by serphids, but most of these are attributed to unidentified *Quedius* species. However, *Phaneroserphus calcar* Haliday and *Exallonyx ligatus* (Nees), both common species in Europe, have been recorded by Weidemann (1962) as parasites of the larvae of *Q. simplicifrons* Fairmaire. Larvae of



Fig. 1. Developing pupa of *Exallonyx obsoletus* embedded in carcass of host larva, *Quedius laevigatus*.

Q. vexans Eppelsheim have been cited as hosts of *Exallonyx trifoveata* Kieffer (Smetana, 1957, cited as *E. ligatus*, misdet.; see Townes & Townes, 1981) and *E. brevicornis* Haliday (Weidemann, 1962; Pschorn-Walcher, 1971). The *E. obsoletus*/*Q. laevigatus* association documented herein represents a new parasite/host record.

For the vast majority of the species of *Exallonyx* Kieffer, with more than 160 described species, little or nothing is known about their biology or host relationships (Townes & Townes, 1981). The few published records clearly demonstrate that hosts of *Exallonyx* are beetle larvae, chiefly of the family Staphylinidae. In addition to the *Quedius* species mentioned above other staphylinid hosts include species, det. and indet., in the following subfamilies [the reader is referred to Townes & Townes (1981) and Frank (1982) for literature references to these host records]:

Omaliinae: *Lesteva hansenii* Lohse.

Xantholininae: *Xantholinus* sp. indet.

Staphylininae: *Creophilus maxillosus* (L.), *Ocypus olens* (Muller), *Philonthus politus* (L.), *Philonthus turbidus* Erichson, *Philonthus* sp. indet., *Platydacus violaceus* (Gravenhorst), *Staphylinus* sp. indet.

Tachyporinae: *Tachyporus* sp. indet., indet. Tachyporini.

Aleocharinae: *Aleochara bilineata* Gyllenhal.

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