DISTRIBUTION AND BIOLOGY OF FLIGHTLESS CARRION BEETLE \textit{Necrophilus pettitii} IN EASTERN NORTH AMERICA (COLEOPTERA; SILPHIDAE)\textsuperscript{1}

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ABSTRACT: Data are given on the life cycle, seasonality, habitats, and distribution of \textit{Necrophilus pettitii} Horn, and a lectotype is designated.

The preparation of reviews of North American silphid carrion beetles (Miller and Peck, 1979; Peck 1982, Peck and Miller, 1982) has shown the need for the presentation of data on poorly known species. One of these is \textit{Necrophilus pettitii} Horn, 1880, a flightless species and the only eastern North American representative of the tribe Agyrtini. The few scattered literature records show a wide but incompletely known distribution and poorly known biology. The following is offered to help correct this.

The species may be characterized as follows: size about one cm in length; body broadly oval and flattened; color shining brown or reddish brown; pronotum broad, marginally flattened and punctured; elytra non-truncate, covering abdomen, with nine deeply punctate striae; abdomen with five visible sternites; tarsal formula 5-5-5; antennae eleven segmented, club gradually clavate, last five segments covered with microsetae.

Detailed studies by A.F. Newton (in manuscript) show that the tribe, combined with Lyrosomini, should be elevated to family status, based on adult and larval characters. Data on larval characteristics will be given by Newton.

A type specimen has never been published, and the following is designated in the interest of stability of nomenclature.

\textit{Necrophilus pettitii} Horn (1880: 243). LECTOTYPE (here designated), a female with white label "Can" and white label "646" and red ANSP label "lectotype 3006" and white label "N. Petitt Horn" and my designation label. Also one female paralectotype with white label "Ky" and green label "paratype 3006"). Both in Horn collection, MCZ, Harvard Univ. The localities published with the description were Canada and Kentucky. The larger series of 3 (two additional paralectotypes in LeConte collection, MCZ) were from Grimsby, Ontario, Canada, which is here designated the type locality (see Horn, 1868: 125, and Pettit, 1869).

Life cycle characteristics have been determined by Dr. J.A. Payne, who has generously provided the following data: Five adults (2 pairs in

\textsuperscript{1}Received April 7, 1981

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copulo), were collected from deermouse (*Peromyscus leucopus*) feces at Perry, Georgia, on 7 December 1969. The adults were kept in a cool basement in a large screen-covered container. They were offered decaying squirrel meat and mouse feces, but no evidence of feeding was observed. Approximately 20 small larvae were noticed on 14 December, giving a maximum of 7 days for the eggs to be laid, mature, and hatch. Larvae fed primarily on the mouse feces, but also on the squirrel meat. Some larvae were preserved. New adults appeared on 1 February, 1970, indicating a maximum egg to adult development time of 8 weeks, at temperatures from 13° to 19°C. The original adults lived about 6 weeks in culture.

The records show that the species is collected in forested habitats, most frequently in the higher elevations of the southern Appalachians in the summer months. At lower elevations the records more frequently show activity in the cooler spring and fall months. The species is most often taken on decomposing material, usually on or in dung and carrion baits or pit traps. It is probably nocturnal, hiding in deep litter or in the soil (judging from the lack of records from general hand collecting, and from the number of records in cave entrances where the soil fauna can often be sampled with comparative ease).

The general distribution is from New York, Ontario, and Michigan, southwards to Alabama, Georgia, and northern Florida.

The following distribution records are based on material in the author's collections or in museums, abbreviated with standard usage following Arnett and Samuelson (1969). The data of Davis (1980) are not repeated here.

**Canada. Ontario.** Grimsby (type locality) Sept. and Oct., on decaying fungi on logs. J. Pettit (Horn and LeConte collections, MCZ) (Horn, 1868, 1880; Pettit, 1869).


**Indiana.** Posey County. Grand Chain, 10.IV.1901, W.S. Blatchley, 2 on ill-smelling decaying fungi beneath log (PURC: Blatchley, 1910).


Ohio. Ashtabula County. Jefferson, no data. 3 (FMNH, ICCM). Hamilton County, Cincinnati. 20.X.1903, 1 (USNM); 25.X.1903, 1 (SEMC); 1.X.1926, 3 (USNM); 4.X.1920, 4 (CMNH): no data, 5 (CAS, USNM).


Map of part of eastern North American showing known localities (solid, black dots) for *Necrophilus pettitii*. The localities listed by Davis (1980) are included. (Small, open circles indicate locations of major cities.) Dark line indicates maximum extent of the Wisconsinan glacial ice sheet. The species has made modest northward range movements since deglaciation.
ACKNOWLEDGEMENTS

I am thankful for the cooperation of the curators of the various collections holding the material examined, and to individual collectors. J.A. Payne and A.F. Newton were especially helpful. A.F. Newton and R.S. Anderson reviewed the manuscript. My field work has been supported by operating grants from the Canadian Natural Sciences and Engineering Research Council.

LITERATURE CITED


