

A Mating Aggregation of the Myrmecophilous Scarab *Cremastocheilus crinitus pugetanus* Casey (Coleoptera: Scarabaeidae)

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REFERENCES

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SCIENTIFIC NOTE

A MATING AGGREGATION OF THE MYRMECOPHILOUS SCARAB
CREMASTOCHEILUS CRINITUS PUGETANUS CASEY
(COLEOPTERA: SCARABAEIDAE)¹

Scarab beetles of the genus *Cremastocheilus* (Cetoniinae) are known for their association with ants (Wheeler 1908). On 6, 8, and 11 April 1985, 84 specimens of *Cremastocheilus crinitus pugetanus* Casey (*vide* Hatch 1971) were collected from a dirt and sand road along a south facing slope adjacent to Almota Creek, 35 km SW of Pullman, WA (Whitman, Co., T14N R42E, Sect. 13, Almota Quadrangle, 213 m elevation). Approximately 200 beetles were observed, including five mating pairs, during this early spring aggregation.

On 6 April 1985, one of the first hot, sunny spring days (*ca.* 22°C), *C. crinitus pugetanus* adults were observed walking and flying at midday over a 70 m long portion of a dirt road. Their flight was low to the ground (less than 1 m) and appeared restricted to the open roadway. Several loose aggregations (groups of three to five individuals within 100 cm²) were present in the roadway. Twenty-nine individuals were collected in 15–20 minutes, and an estimated three to four times as many were observed.

Three mating pairs were present on the road. Mate location was facilitated presumably through a pheromone emitted by the female. One male flew in a circular pattern several times around a female before landing close to her and attempting to mate. In another case three males were mounted on a single female.

On 8 April 1985, which was also hot and sunny (*ca.* 22°C), 48 individuals were observed on the road between 1:30 and 2:45 pm (PST). Two mating pairs were observed, and groups of three to five individuals were also present. Activity by the beetles appeared restricted to the roadway (none were observed in adjacent vegetated areas), but had increased to nearly the whole road length (*ca.* 1.6 km).

On 11 April 1985, a cooler (*ca.* 19°C), partly cloudy, breezy day with evidence of rain showers the night before, only four individuals and one mating pair were sighted. However, 21 individuals were found in loose earthen galleries under rocks embedded loosely in the road. Twelve individuals were found under a single 15 × 20 cm rock.

Early spring flights and instances of *Cremastocheilus* occurring along roadways and in sandy areas have been reported previously. Hamilton (1889) reported dispersal flights of *C. canaliculatus* Kirby from ant nests during hot weather from the middle of April onwards. Wheeler (1908) cited a report by Mr. W. T. Davis who observed a "considerable number" of *C. harrisi* Kirby flying along roads in the sandy pine barrens of New Jersey. Cazier and Mortenson (1965) found several specimens of *C. stathamae* Cazier along sandy washes in Arizona. Alpert and Ritcher (1975), after examining data from museum collections, suggested a peak period of flight activity during April–May for *C. armatus* Walker. No such spring flight activity of *C. crinitus pugetanus* has been reported previously.

In summarizing observations on mating behavior for the genus, Cazier and Mortenson (1965) stated "it appears that some species mate within the confines of the ant nests (*castanae* [Knoch] and *C. canaliculatus*) whereas others mate outside (*knochii* [LeConte]) or seek out a special environment for such purposes (*stathamae*, *constricticollis* [Cazier])." Warner (1985) observed mating aggregations of *C. tomentosus* Warner on sand dunes during March in Arizona. Mating location for *C. crinitus pugetanus* has not been reported previously.

Our observations show that *C. crinitus pugetanus* is active outside of host nests in early April, that *C. crinitus pugetanus* can occur in considerable numbers along dirt-sand roadways, and that mating can occur outside of host nests during this time.

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