

**The Nest and Prey of *Cerceris lutzi* Scullen
(Hymenoptera: Sphecidae)**

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ABSTRACT: Nest and prey of the beetle predator *Cerceris lutzi* are described from Costa Rica.

A number of species of *Cerceris* occurring in warmer parts of the globe make extremely deep nests which are maintained and expanded by successive generations of wasps (Evans and Hook, 1986; Hook, 1987). Although burrow diameter rarely exceeds 5 mm, burrow length may exceed a meter. These nests are often dug in relatively firm soil, and it is advantageous for emerging wasps to reoccupy the parental nest rather than attempting to break through a hard surface crust (McCorquodale, 1989b). Also, deep nests occupied by more than one female are less subject to parasitism by Mutillidae (McCorquodale, 1989a). That successive generations of wasps have occupied the same nest can be shown by the presence of deteriorating fragments of prey and cocoons in older cells. In some cases several females emerge from their cocoons at about the same time and live together in the parental nest, showing a degree of cooperative behavior; this can be demonstrated only by making prolonged observations at a nest and marking individuals.

Cerceris lutzi is a poorly known Central American species that was described from Panama (Scullen, 1972). I found a small nesting aggregation in a vertical bank of very firm clay-sand bordering a trail, on 11 February 1990, on a mountain slope above Escazú, San José Prov., Costa Rica. Surrounding meadows were being grazed by cattle, and there were patches of brush and partially destroyed cloud forest not far away. Three nests were found, two about 1.5 m up the vertical bank, the third at the bottom of the vertical part, where the bank sloped off to the trail. In the two in the vertical surface, soil from the nests simply fell down the bank, but at the nest at the bottom of the vertical section there was a large, spreading tumulus, measuring 20 by 40 cm. All three nests were being provisioned, the females carrying small beetles in their mandibles in flight and entering the open nest holes at 15-45 minute intervals. Females remained inside the nest 3-10 minutes, then, before leaving, often remained for a minute or two inside the entrance facing out. In the few hours available for observation, I was unable to detect more than a single female per nest.

The two nests in the vertical bank had entrances 35 cm apart, and the two were excavated together, using straws to follow the burrows. Both entered the bank nearly horizontally for 30-40 cm, then plunged downward at an angle of about 60 degrees to the horizontal. One burrow was lost at a depth of about a meter. The other was traced to a depth of 1.3 m, where it seemed to end blindly. The eight cells found, about 8-18 cm apart from one another but near the burrow, contained only fragments of prey and cocoons. These cells varied from 110 to 125 cm from the entrance and were from 5 to 20 cm from the end of the burrow. Undoubtedly there were cells containing fresh prey deeper in the soil, since the female had been provisioning, but I was unable to locate them.

Prey fragments taken from the cells represented a variety of small weevils. Two weevils taken from the female at the third nest were identified as *Airosimus boops* (Champion) and *Conotrachelus* species.

Voucher specimens of *Cerceris lutzi* have been placed in the collections of Colorado State University and the U.S. National Museum.

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