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FIELD OBSERVATIONS ON MATING BEHAVIOR AND PREDATION OF *HEMILEUCA ELECTRA* (SATURNIIDAE)

Additional key words: visual cues, predation, silk moth, mate location, pheromones.

Hemileuca electra (Wright), the Electra Buckmoth, is a widespread inhabitant of xeric habitats in the southwestern United States and northwestern Mexico (Tuskes 1984). Larvae emerge from diapausing egg masses in the spring and feed on Flat-top Buckwheat, *Eriogonum fasciculatum* Bentham (Polygonaceae) (Stone & Smith 1990). The species is univoltine, flying in autumn, with peak emergence from September through early November (Tuskes & McElfresh 1995). Most adults emerge the same year they pupate; however, reared individuals from San Diego County, California have emerged four and one half years after pupation (pers. obs., Powell 1987). Adults are diurnal, non-feeding, and brightly colored (Ferguson 1971, Tuskes et al. 1996). Mate location is facilitated by an airborne pheromone from 'calling' females, and once a female has mated, she stops releasing the pheromone (Tuskes et al. 1996). While investigating aspects of patch-size distribution of this species in southern California, I observed previously unreported mating behavior, on which I report here.

Field work was conducted between 1030 and 1530 PST, 6–19 October, 1996, at Naval Air Station Miramar (parcel G) in San Diego County, California. 11 mm long rubber lures infused with a chemical blend that replicates the primary components of *Hemileuca electra* female pheromone (Jocelyn Millar & Steve McElfresh, unpubl. data) were deployed to attract conspecific males. The dull red-brown lures were kept in a cooler until trials began. In order to observe male response only to their physical presence, two non-calling, sedentary females that had mated on an earlier day were placed approximately 12 cm from the lures on a flat surface. Fifteen males were allowed to land unmolested on the flat sur-

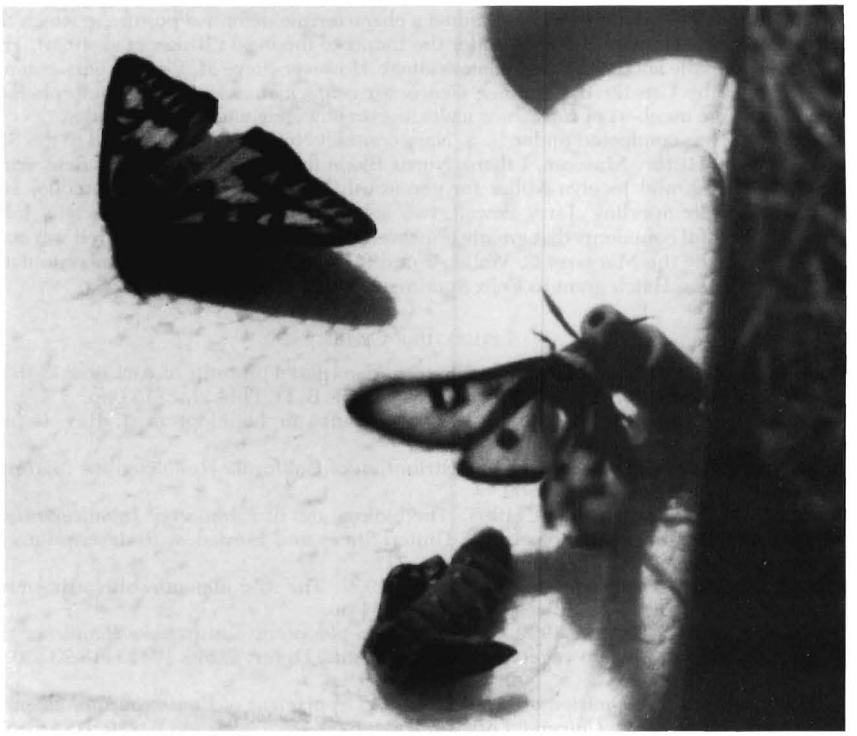

FIG. 1. Male *Hemileuca electra* attempting copulation with a pheromone-releasing rubber lure within 12 cm of two non-calling female *H. electra*.

face where the lure and two non-calling, mated females were resting, and male behavior was recorded. Observations confirm that males are not attracted to the lures if synthetic pheromone has not been added, and females used had attracted males, prior to mating.

Males were attracted within 1–2 min of deploying lures. Fourteen of the 15 males allowed to land did so within 5 cm of the lures, crawled the remaining distance, and attempted copulation with the lure (Fig. 1). These males apparently were not distracted by the presence of non-calling females less than 12 cm away. One male made incidental contact with one of the females as he approached the lure. After crawling around her, he initiated copulation, which the female accepted. I separated the pair approximately 15 seconds later and released the male. He immediately returned, landed near the lure, and attempted copulation with it, ignoring the female. After a few minutes of attempted copulation with the lure, males departed, as did the male that initially contacted the female.

These observations suggest that visual cues do not play a large role in mate location and initiation of copulation in this species. Males are attracted to the source of the pheromone and attempt to mate on contact. Because males ignored females that were 12 cm away, except when incidental contact resulted in female location, color, pattern, or other visual cues in *H. electra* may not play a large role in facilitating mate location.

During the six days of field work, 497 males of H. electra were attracted to lures and captured. Three of these lacked a portion of the abdomen, two of which lacked it entirely. These three males were placed in glassine envelopes where they remained alive for approximately 16 h after capture. It is surprising that these males were able to fly, and lived so long following complete or partial abdominal amputation.

When disturbed, adult *Hemileuca* assume a characteristic defensive posture in which the brightly colored abdomen is curled under the thorax to the head (Tuskes et al. 1996). This posture exposes the abdomen to a predator's attack. However, Steve McElfresh (pers. comm.) has observed the Greater Roadrunner, *Geococcyx californianus* Lesson (Neomorphidae), consuming large numbers of *Hemileuca* males, apparently undaunted by this display.

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NEW DISTRIBUTIONAL AND FOODPLANT RECORDS FOR TWENTY CUBAN MOTHS

Additional key words: distribution, larval sampling, light traps, *Estigmene acrea*.

The most recent treatment of the Cuban insect fauna is that of Bruner et al. (1975), which discussed a number of lepidopteran species of economic interest. The purpose of the present paper is to expand upon this base of knowledge, and provide new distributional and foodplant records for 20 species of Lepidoptera from Cuba. All records discussed in the text and Table 1 derive from field collections made since 1990. Larvae were removed from their wild hosts and reared individually to adults in the laboratory in petri dishes, with fresh pieces of foodplant provided daily. Voucher specimens of adults are deposited in the Entomological Collection of the Centro de Investigaciones de Medio Ambiente (CIMA) in Camagüey, Cuba.

Table 1 summarizes the rearing results for 15 moth species. In addition, foodplant relationships were determined for 4 species for which no previous Cuban data were available. These 4 species are discussed in greater detail below, as is the recent capture of *Estigmene acrea*, apparently a new record for the island of Cuba.