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NOTES

HOST IDENTIFIED FOR *RHYNCHOPHION FLAMMIPENNIS*
(HYMENOPTERA: ICHNEUMONIDAE)

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Described by Fox (1893:126) as “. . . one of the most beautiful species yet discovered in this genus (*Thyreodon*) . . .,” *T. flammipennis* (= *Rhynchophion flammipennis*, Enderlin, 1912—Ashmead—Hymenoptera: Ichneumonidae), is a large (23–29 mm) parasitoid that appears to mimic *Pepsis* sp., tarantula hawks, and other predatory spider wasps common throughout the southwestern United States. This species is characterized by a black body and bright fulvo-ferruginous wings, “the tips margined with fulviginous, the hind pair with the anal area black,” (Fox, 1893:126). Previously, it has been collected as an adult in southeastern Arizona, Mexico, Nicaragua, and Ecuador but little is known about its host associations or biology (Krombein et al., 1979).

In the past two years, we have reared two specimens of *R. flammipennis* from two larvae of *Manduca sexta* L. (Lepidoptera: Sphingidae) collected in southeastern Arizona. The first specimen was reared from a fifth instar larva collected on jimsonweed (*Datura wrightii*), 19 August 1995, near the entrance to the Coronado National Monument, (Chiricahua Mountains, Cochise Co., Arizona). It over-wintered as a pupa within its own cocoon and emerged as an adult female on 9 May 1996.

The second specimen was reared from a fifth instar larva of *M. sexta* collected from an unidentified *Physalis* at Garden Canyon (Huachuca Mountains, Cochise Co., Arizona, 26 July 1996, and then held in the lab and fed on freshly excised leaves of *D. wrightii*. The parasitized larva was of normal size but noticeably paler and more flaccid than a non-parasitized larva. Rather than progressing to the prepupal stage, it stopped eating and over the next 2 days became increasingly more flaccid and faty in appearance until the parasitoid egressed,

ca. 2–3 days later. Upon emergence, the parasitoid formed a large green cocoon (ca. 29 mm in length, 48 mm in diameter), ovoid with a raised mesolateral ridge, that turned a uniformly dark brown color within 2 days. This cocoon was held in a plastic cup at ambient temperature until emergence of the adult parasitoid, a female (28 mm long), on 13 May 1997.

Specimens of a more broadly distributed and closely related species, *Thyreodon mori*, have been reared from two sphingid larvae, *Lapara coniferarum* (J. E. Smith) and *Paonis excaecatus* (J. E. Smith—Hooker, 1912). Given the comparable size and morphology of *R. flammipennis* and *T. mori*, hosts of *R. flammipennis* have been assumed to include sphingid larvae (Hooker, 1912). Although we reared only two specimens of *R. flammipennis* from ca. 250 sphingid larvae collected in southeastern Arizona over a 2 year period, the relative abundance of this parasitoid and its full host range cannot be assessed adequately because of drought conditions that existed prior to and during the collection period. Most likely, southeastern Arizona is the northernmost range of this parasitoid. The two specimens of *R. flammipennis* reared from *M. sexta* were deposited in the general collection at the Department of Entomology, University of Arizona, Tucson.

Resumen—*Rhynchophion flammipennis* (Ashmead—Hymenoptera: Ichneumonidae) es un parasitoide grande que parece imitar a especies *Pepsis*, tarantula-hawks, y otras avispa araña predatoras. A pesar de que esta especie ha sido colectada en el suroeste de Arizona, México, Nicaragua, y el Ecuador, se sabe poco acerca de sus asociaciones con sus anfitriones o de su biología. Reportamos que, en el sureste

de Arizona, *R. flammipennis* es un parasitoide solitario que infesta a la larva-pupa de *Manduca sexta* L. en la planta *Datura wrightii*.

Thanks to C. Nufio for collecting sphingid larvae and to C. Olson for help in identifying the parasitoid. This work is part of a larger project funded by a research fellowship to KK (National Institutes of Health Training Grant No. 5T32 AI0475 awarded to the Center for Insect Science, University of Arizona).

LITERATURE CITED

- ENDERLEIN, G. 1912. II. Ophioninae. Die gattung *Thyreodon* und ihre verwandtem. Zoologischer Anzeiger 39:624–632.
- FOX, W. J. 1893. Second report on some Hymenoptera from lower California, Mexico. Proceedings of the California Academy of Sciences 4:92–129.
- HOOKE, C. W. 1912. The ichneumon flies of America belonging to the tribe Ophionini. Transactions of the American Entomological Society 38: 1–176.
- KROMBEIN, K. V., P. D. HURD, JR., D. R. SMITH, AND B. D. BURKS. 1979. Catalog of Hymenoptera in America north of Mexico. Smithsonian Institution, Washington, D.C.

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ABERT SQUIRREL (*SCIURUS ABERTI*) AS A SOIL EXCAVATOR

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Abert squirrels (*Sciurus aberti*) are obligate herbivores on the inner bark of pine shoots, seeds of ovulate cones, staminate cones, and terminal buds of ponderosa pine (*Pinus ponderosa*; Keith, 1965; Allred and Gaud, 1994). In addition, these squirrels forage on the ground for mycorrhizal fruiting bodies growing in association with roots of ponderosa pine (Stephenson, 1975; States et al., 1988). Squirrels also cache individual, unopened ovulate cones by burying them in a scatter-hoard fashion; most cones are eventually recovered and the seeds eaten (Bailey, 1932; States et al., 1988; Allred et al., 1994).

Abert squirrels may serve as indicators of forest-health: the higher the quality of ponderosa pine habitat, the larger the squirrel population size, resulting in increased ground foraging (States et al., 1988). Foraging on the fungi (mycophagy) and recovery of buried cones requires squirrels to excavate shallow pits or digs (Bailey, 1932; States et al., 1988; Allred et al., 1994). These digs penetrate the needle-litter layer into the underlying soil. Squirrels also have been observed digging through >15 cm of snow to remove fungi and cached cones (S. Allred and W. Gaud, pers. obser.). Squirrel digs are quite numerous in the forest and can vary seasonally with the squirrel's diet (Keith,

1965; Stephenson, 1975; States et al., 1988; Allred et al., 1994).

In an ongoing project concerning the foraging ecology of Abert squirrels, we estimated the quantity of forest soil that was being excavated by squirrels in their ground foraging activities. The 5.6-ha study site was located within a 259-ha ponderosa pine forest located at Lowell Observatory in Flagstaff, Arizona. This site contained 8,688 ponderosa pines (1,551 stems/ha), ranging in age from saplings to mature trees, with a mean basal area of 37 m²/ha. This stand had not been harvested or burned for over 50 years (Allred and Gaud, 1993).

The study site was divided into a grid containing 90 plots of 625 m² each. Over 6 years (December 1986–December 1992) we recorded all digs in biweekly squirrel-herbivory censuses of the study site (Allred et al., 1994). The squirrel population on the study site for each year was estimated to be one squirrel/ha (Allred and Gaud, 1993). To be consistent with previous work, a cone year (CY) was defined as beginning on 1 June of one year and ending 31 May of the subsequent year (Allred and Gaud, 1993).

The quantity of soil excavated by squirrels in ground foraging activities was estimated by