

A NEW SPECIES OF *CIRROSPILUS* WESTWOOD  
(HYMENOPTERA: EULOPHIDAE) FROM SOUTHEASTERN ARIZONA

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**Abstract.**—*Cirrospilus infuscatus*, n. sp. (Hymenoptera: Eulophidae), is described from southeastern Arizona. This species was reared from *Tischeria bifurcata* Braun (Lepidoptera: Tischeriidae) on *Ceanothus fendleri* A. Gray (Rhamnaceae).

**Key Words:** Hymenoptera, Eulophidae, *Cirrospilus*, taxonomy, Chalcidoidea

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Species of the cosmopolitan genus *Cirrospilus* Westwood parasitize cryptically-feeding insects, most often leaf-rollers, leaf-miners and galling insects in the orders Lepidoptera, Diptera, Hymenoptera and Coleoptera (Schauff et al. 1997, Bouček 1988). Species of *Cirrospilus* are predominantly larval ectoparasitoids, but also have been documented both as hyperparasitoids on primary ichneumonoid parasitoids and as primary parasitoids on several life stages of the primary host (Bouček and Askew 1968). Over 300 nominal species of *Cirrospilus* occur worldwide, primarily in the Holarctic (Noyes 1998).

Species of *Cirrospilus* possess a two-segmented funicle, complete notauli that extend to the transscutal articulation (TSS) (Fig. 2), and the postmarginal vein is shorter than or equal in length to the stigmal vein (Schauff et al. 1997). However, the location of the axilla can vary within *Cirrospilus* from being almost entirely posteriad to slightly anteriad of the TSS (LaSalle, personal communication). Further, as a member of Cirrospilini (Gauthier et al. 2000), *Cirrospilus* are characterized by a transverse sulcus on the face (Fig. 3)

and the posterior separation of the propleura. A closely related genus, *Zagrammosoma* Ashmead, has been separated from *Cirrospilus* on the basis of characters that intergrade between the two genera (Gordh 1978, LaSalle 1989, Gates 2000). For example, the placement of the axilla relative to the TSS cited by Yefremova (1996) appears useful in differentiating the two genera in some instances, but by no means all. For a discussion of generic character intergradation, see Gates (2000) and a summary in Table 1.

Acronyms used are: USNM = National Museum of Natural History, Smithsonian Institution, Washington, DC; DLWC = David Wagner collection, University of Connecticut, Storrs, CT.

*Cirrospilus infuscatus*  
Gates and Schauff, new species  
(Figs. 1–5)

Type material.—Holotype, ♀. “AZ: Cochise Co., Huachuca Mtns., Hunter Cyn 5100', 14-IV-1986 Wagner; DLW Lot: 86D70, em. 26-IV/10-V1986, Host: *Tischeria bifurcata*” (USNM). Paratypes, 3 ♀ 1 ♂, same data as holotype (1 ♀ 1 ♂ point-



Table 1. Character distribution in *Cirrospilus* and *Zagrammosoma*.

Character	<i>Cirrospilus</i>	<i>Zagrammosoma</i>
Vertex vaulted	Rarely	Typical
Propodeum with strong median carina	Often	Rarely
Notaulus orientation	Extends straight to TSS	Curves to intercept axilla
Axilla shape	Triangular	Elongate
Axilla placement	Mostly posterior to TSS	Mostly anterior to TSS

mounted, 1 ♀ slide/SEM stub mounted (USNM); 1 ♀ card mounted (DLWC).

**Etymology.**—This species is named for its infusate wing pattern.

**Diagnosis.**—This species has the following unique features within *Cirrospilus*: petiolate gaster in both sexes with the petiole 1.4–1.7× as long as broad; an infusate fore wing; strong, wide submedian lines on the scutellum; and the brachypterous male with the apex of the fore wing not extending beyond the basal ¼ of the gaster.

**Description.**—Female: Length 1.6–1.7 mm. Head and body deep golden, gaster dark brown laterally and with transverse bands dorsally, antenna dark brown. Legs golden, tarsi paler except apical tarsomeres brown. Wings hyaline except forewing infusate in medial half (Fig. 5), venation brown.

**Head:** Finely reticulate with even coverage of fine brown setae. Roughly quadrate in frontal view, 1.0–1.1× as high as broad (Fig. 3). Malar space 0.4–0.5× eye height. Eye glabrous (minute setae apparent at high magnification) (Fig. 3). Scrobal depression shallow, unmarginated. Scape 4.6–5.5× as long as broad, two anelli transverse and short; pedicel 2.3–2.8× as long as broad; F1 1.3–1.6× as long as broad; F2 1.0–1.8× as long as broad; clava 2.0–2.4× as long as broad, 3-segmented, tapering apically (Fig. 4).

**Mesosoma:** Transversely reticulate anteriorly, becoming reticulate medially to glabrate posteriorly (Fig. 2). Midlobe of mesoscutum 1.1–1.2× as long as broad. Scutellum 1.0–1.1× as long as broad, with distinct submedial grooves most closely approaching each other anteriorly (Fig. 2);

convex in lateral view. Mesopleuron glabrous to faintly reticulate. Propodeum glabrous with fine median carina; callus with row of at least 8 setae. Fore wing 2.5–3.1× as long as broad, setose in apical half (Fig. 5); marginal vein 8.0–10.0× as long as postmarginal vein; stigmal vein 3.3–3.5× as long as postmarginal vein.

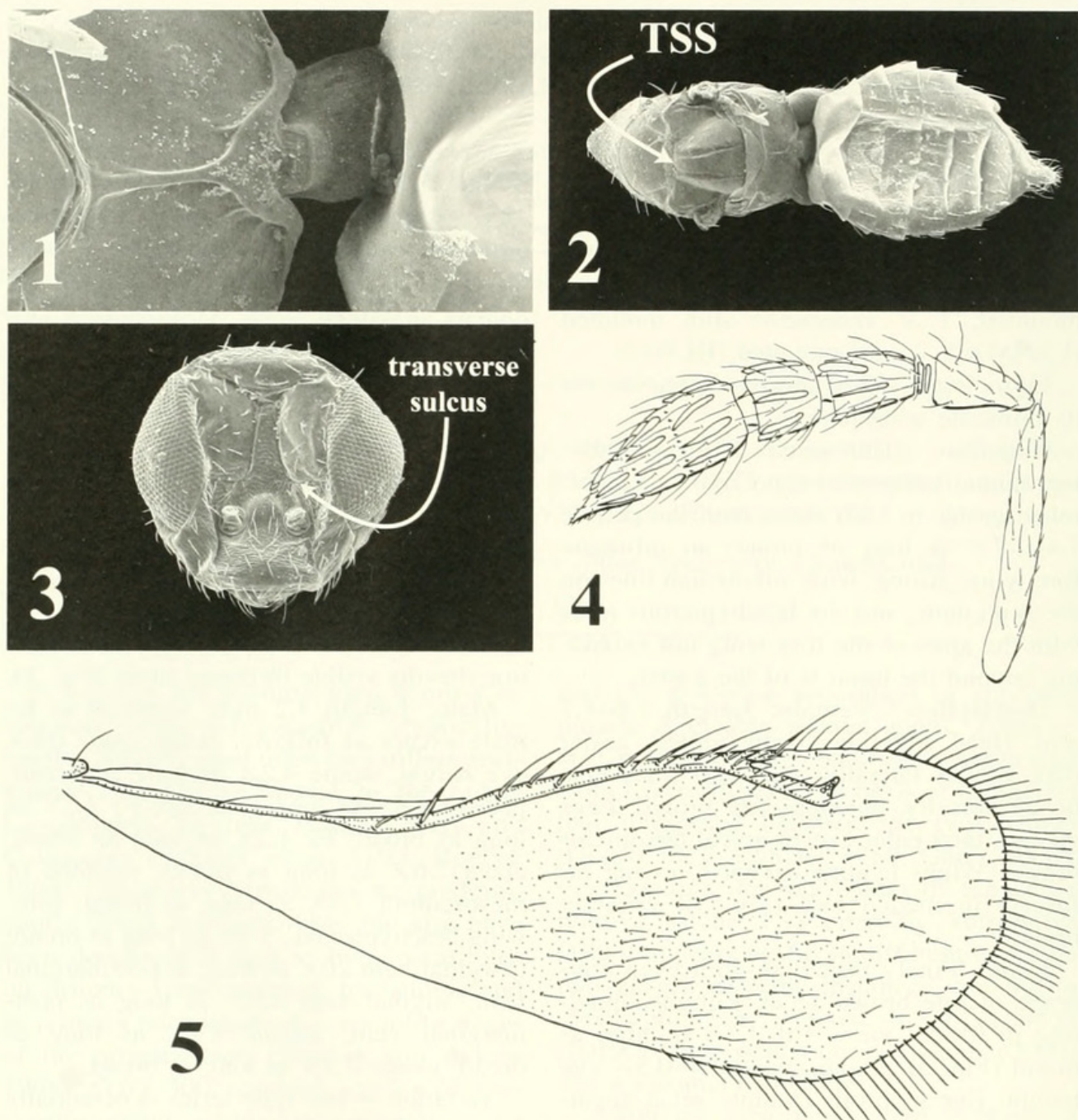
**Metasoma:** Petiole 1.4–1.7× as long as broad, finely rugulose (Fig. 1). Gaster 1.1–1.2× as long as mesosoma. Tips of ovipositor sheaths visible in dorsal view (Fig. 2).

**Male:** Length 1.2 mm. Identical to female except as follows: malar space 0.6× eye height; scape 4.2× as long as broad; pedicel 1.8× as long as broad; F1 2.3× as long as broad; F2 1.2× as long as broad; clava 2.6× as long as broad; midlobe of mesoscutum 1.3× as long as broad; forewing brachypterous, 3.8× as long as broad; marginal vein 20× as long as postmarginal vein; stigmal vein 6.0× as long as postmarginal vein; petiole 1.4× as long as broad; gaster 0.9× as long as broad.

**Variation.**—The type series is essentially invariant.

**Biology.**—These specimens were reared from *Tischeria bifurcata* Braun (Lepidoptera: Tischeriidae) mining the leaves of *Ceanothus fendleri* A. Gray (Rhamnaceae) in the Huachuca Mountains of southeastern Arizona. A small proportion of total leaf mines collected were formed by a species of *Recurvaria* (Lepidoptera: Gelechiidae), but it is unlikely that these parasitoids emerged from those mines (Wagner, personal communication). Like other species of *Cirrospilus* (Gates 2000), *C. infuscatus* may be a gregarious parasitoid, as all specimens emerged on the same day. Unfortu-





Figs. 1-5. *Cirrospilus infuscatus*, female. 1, Dorsal petiole. 2, Dorsal mesosoma and gaster; TSS = transscutal articulation. 3, Frontal head. 4, Antenna. 5, Fore wing.

nately, it is unknown if all specimens emerged from a single host insect. *Tischeria bifurcata* forms an irregular track on a single leaf with the mesophyll not completely consumed between epidermal layers. The frass is forced out of the lower epidermis and the pupa is also thrust through the lower epidermis (Wagner, field notes).

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