

**TROCHILIPHAGUS AUSTINI SP. N. (MALLOPHAGA,
TROCHILOECETIDAE) FROM AMAZILIA CANDIDA (AVES,
TROCHILIDAE) OF BELIZE, WITH BIOLOGICAL NOTES**

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ABSTRACT

Trochiliphagus austini sp. n. (Mallophaga, Trochiloecetidae) is described from *Amazilia candida* (Bourcier & Mulsant, 1846) (Aves, Trochilidae) from Belize. While *Trochiloecetes* species feed on blood and stay on the neck, *Trochiliphagus* species have empty digestive tracts, maybe imbibing fluids and wander agilely on the body.

KEYWORDS. Mallophaga, *Trochiliphagus austini*, *Amazilia candida*, Trochilidae, Belize.

INTRODUCTION

Although lice to the genus *Trochiliphagus* Carriker, 1960 (Mallophaga, Trochiloecetidae) are large and conspicuous on hummingbirds (Aves, Trochilidae) few specimens have been collected because they escape detection unless one is looking specifically for them.

Members of this genus are like those of the genus *Ricinus* DeGeer, 1778 (Ricinidae), except that mouth parts are modified as a stylet for piercing (CLAY, 1949; CARRIKER, 1960). However, *Trochiliphagus* differs from *Trochiloecetes* Paine & Mann, 1913, another genus of lice also found on hummingbirds, in the shape of the head and body.

While checking lice in the collection of the Florida State Collection of Arthropods, Division of Plant Industry (FSCA, DPI), in Gainesville, Florida, USA, I found a slide with one female of a new *Trochiliphagus* species, here described.

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Trochiliphagus austini sp. n.

(Fig. 1)

Host. *Amazilia candida* (Bourcier & Mulsant, 1846).

Holotype. Female from Cayo District, British Honduras (presently Belize), 14. IV. 1928, collected by Oliver L. Austin Jr.; mounted in Canada balsam on an unnumbered slide, which remains in the FSCA.

Derivatio nominis. *Trochiliphagus austini* sp. n. is named in honor of the late Dr. Oliver L. Austin Jr. for his extensive contributions to the field of ornithology.

Diagnosis. The genus *Trochiliphagus* contains 11 species and *T. austini* sp. n. differs from them in the following characteristics: a medium-sized species (3.01 mm long), falling into section B of CARRIKER's (1960) classification of total body length (not less than 3.00 or more than 3.40 mm). Sides of prothorax rounded. Sternal plate bell-shaped with lateral basal tips ending in sharp angles. Frons slightly convex.

Description. Chaetotaxy, as used here, follows NELSON's (1972) system for species in the genus *Ricinus*. I assume that all Ricinoidea are similar in their general morphology and therefore transpose Nelson's system to the Trochiliphagidae. On this basis, I describe *T. austini* sp. n. as follows. Head prognathous and subconical, somewhat depressed at the sides of the temples. Frons truncate with parallel lateral margins. Temples triangular. Only the antennal nodi present; maxillary palpi straight. Setae d1, d2, and d3 present on head. The gular plate thin and bell-shaped with 4 X 5 setae on lateral extensions. Terminal abdominal segment of the female as in fig. 1. Pleural nodi not heavily pigmented, being gold colored. Labium with 11 pairs of setae plus a very long pair.

Measurements in millimeters. Total length 3.01; greatest width 0.94; head length 0.62 (measured along the midline of the head from the tip of the frons to the dorsoposterior margin of the occiput); head width 0.56; head index 111.41 (the ratio of head width to head length times 100); prothoracic length 0.36; prothoracic width 0.51 and distance between prosternals 0.051.

Remarks on the bird host. The genus *Amazilia* comprises 30 species (MEYER-DE-SCHAUENSEE, 1970; AMERICAN ORNITHOLOGISTS UNION, 1983). CARRIKER (1960) described *Trochiliphagus jimenezi* Carriker, 1903 from *Amazilia t. tzacatl* (de la Llave, 1833) from Juan Vinas, Costa Rica, and *Trochiloecetes simplex* Carriker, 1960 from *Amazilia amazilia caeruleigularis* Carriker, 1933; he mentions other species of *Trochiloecetes* from *A. fimbriata nigricauda* (Elliot, 1878), *A. lactea bartletti* (Gould, 1866), and *A. tobaci caurensis* (Berlepsch & Hartert, 1902).

Amazilia candida, the White-bellied Emerald, was first described as *Trochilus candidus* in 1846 from Cobán, Guatemala. It is resident from San Luis Potosí and northern Veracruz south along the Gulf-Caribbean slope of Middle America to Honduras and both slopes of Nicaragua; it probably is only a vagrant in Costa Rica (south to Osa Peninsula) (AMERICAN ORNITHOLOGISTS UNION, 1983). The species inhabits the humid forest edge, open woodland, brushy areas and plantations of tropical and subtropical lowlands.

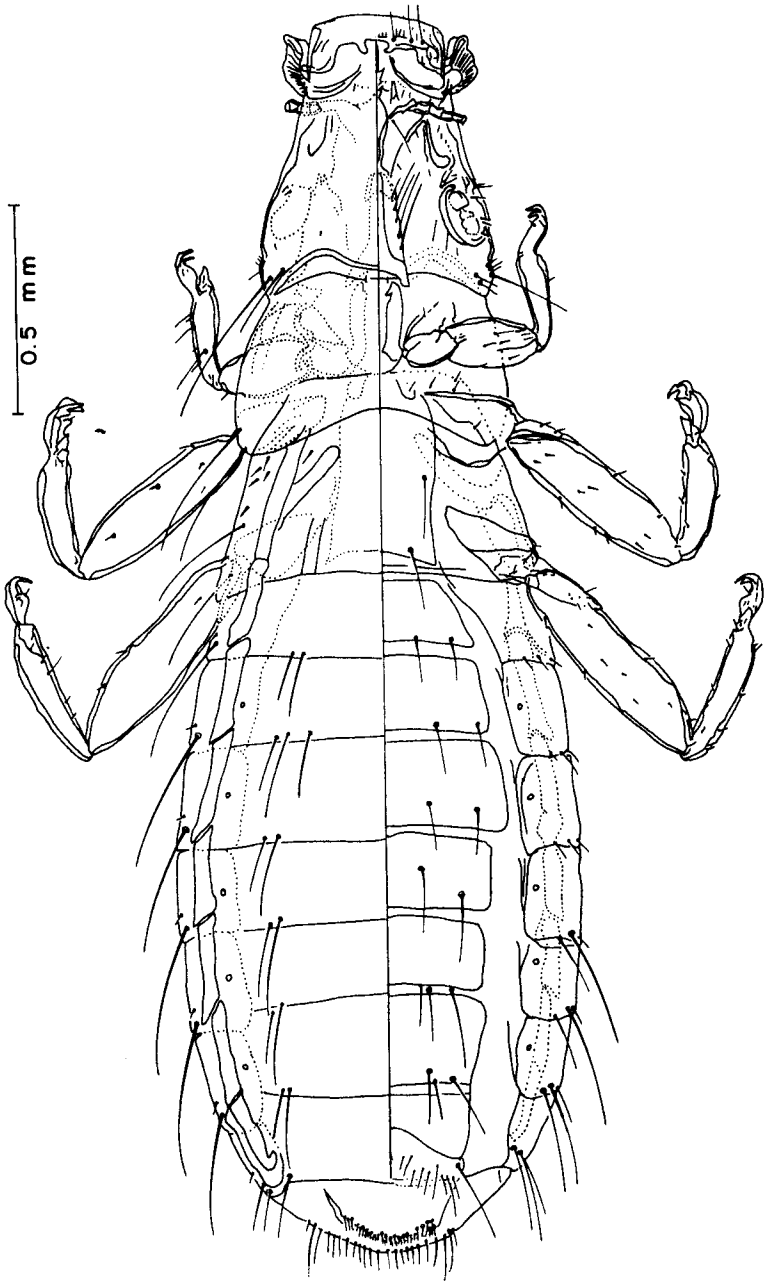


Fig. 1. *Trochiliphagus austini* sp. n., holotype female, left side, dorsal view; right side, ventral view.

Biology of *Trochiliphagus* and *Trochiloecetes*. It is possible to distinguish *Trochiloecetes* from *Trochiliphagus* by behavior and use of different niches on the hummingbird host. *Trochiloecetes naevius* described by ONIKI & EMERSON (1982), for instance, is found mainly next to eggs on the back of the neck of the host (*Ramphodon naevius* Dumont, 1818). When infestation is high, eggs and adults also occur on the side and front of the neck. *Trochiliphagus* on the same or other hosts appear to occur in small numbers, as noted by Carriker (1960, personal observation), and to wander through the host plumage. They can move quickly among body feathers, so that spotting and catching them by the browsing-the-feathers method is difficult. The body is ventrally concave, and corrugations on the sternites make fast movement easier. They never flee to rectrices or remiges when birds are handled or when one is trying to pick them up with forceps.

Numbers of *Trochiliphagus* on hosts are very small when compared to numbers of *Trochiloecetes*. In *Ramphodon naevius*, where adult and young *Trochiloecetes naevius* stay next to eggs or in the surrounding feathers of the neck, those feathers tend to be weakened, perhaps by the weight, and fall easily when the bird is handled. Many hummingbirds that had eggs and lice had lost some neck feathers, whereas others without lice and eggs had strong feathers that did not come out easily.

The genera *Trochiliphagus* and *Trochiloecetes*, as pointed out by CARRIKER (1960), are similar to *Ricinus* in general shape and structure of the head, thorax and abdomen, but mouth parts are of the piercing-sucking type. The mandibles form a minute stylet with a cone-shaped, rounded tip. CLAY (1949) reported differences in mouthparts of *Trochiloecetes* and *Ricinus*. To substantiate Clay's suspicion that *Trochiloecetes* feed on blood, most of the specimens I collected were engorged with blood, which made clearing with KOH difficult in preparing slides, while some of the tergites were swollen and turned ventrally. I often had to cut open the ventral side of the louse to remove clots of blood cells instead of dissolving out the stomach contents as in other lice. Feeding habits of *Trochiloecetes* and *Trochiliphagus* must differ, because I never found the blood clots in the latter. On the contrary, the transparent digestive tract always seemed empty. NELSON (1972) thought that lice collected from museum specimens had empty digestive tracts because they had time to digest food before they died. Specimens of *Trochiliphagus* I collected were immediately placed in alcohol 70%, with no time to digest food, their mouth parts suggest that they may be fluid feeders, perhaps on plasma or lymph as well as blood.

Systematic Position. When erecting his genus *Trochiliphagus*, CARRIKER (1960) simultaneously named the family Trochiliphagidae, including also the genus *Trochiloecetes*. As EICHLER (1962) has shown, the name Trochiliphagidae is invalid on nomenclatural grounds and therefore was replaced by Trochiloecetidae. It forms, together with the Ricinidae, the superfamily Ricinoidea.

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REFERENCES CITED

- AMERICAN ORNITHOLOGISTS UNION. 1983. **Check list of North American Birds**. 6th ed. Lawrence, Allen Press. 877p.
- CARRIKER JR., M. A. 1960. Studies in Neotropical Mallophaga, XVII: a new family (Trochiliphagidae) and a new genus of the lice of hummingbirds. **Proc. U. S. Nat. Mus.**, Washington, **112** (3438): 307-342.
- CLAY, T. 1949. Piercing mouth-parts in the biting lice (Mallophaga). **Nature**, London, (4171): 617.
- EICHLER, W. 1962. Die Problemstellung des Phylogenetischen Parallelismus zwischen Parasit und Wirt nach ihrem gegenwertigen Stand unter besonderer Berücksichtigung der Mallophagen. **Wiadom. Parazytol.**, Wroclaw, **8**: 285-296.
- MEYER-DE-SCHAUENSEE, R. 1970. **A guide to the birds of South America**. Wynnewood, Livingston Publ. 470p.
- NELSON, B. C. 1972. A revision of the New World species of *Ricinus* (Mallophaga) occurring on Passeriformes (Aves). **Univ. California Publ. Entomol.**, Berkeley, **68**: 1-130.
- ONIKI, Y. & EMERSON, K. C. 1982. A new species of *Trochiloecetes* (Mallophaga: Ricinidae) from the Saw-billed Hermit, *Ramphodon naevius* (Dumont) (Apodiformes: Trochilidae). **Revta bras. Biol.**, Rio de Janeiro, **42** (1): 85-87.