


## Scientific Note

# New records of feather mites (Sarcoptiformes: Proctophyllodidae) on tanagers (Passeriformes: Thraupidae) from Brazil

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**Abstract.** Herein, three feather mite species (Analgoidea: Proctophyllodidae) are reported from tanagers (Passeriformes: Thraupidae) in Brazil: *Proctophyllodes thraupis* Atyeo & Braasch, 1966 on *Thraupis ornata* (Sparrman, 1789), *Thraupis palmarum* (Wied, 1821), and *Stilpnia peruviana* (Desmarest, 1806); *Amerodectes thraupicola* (Černý, 1974) and *Amerodectes bilineatus* (Berla, 1958) on *T. ornata*. *Proctophyllodes thraupis* is herein reported for the first time on the hosts mentioned above. *Amerodectes thraupicola* is reported in synoxenism with *A. bilineatus* on the same bird specimen of *T. ornata*, a new host for both mites. Despite being described from a Cardinalidae (Passeriformes) host, this latter mite species was subsequently recovered only from tanagers, which reinforces the suggestion that non-thraupid hosts might be accidental records.

**Keywords:** Acari, new records, plumicolous mites.

Feather mites (Sarcoptiformes: Astigmata) are permanent, obligate ectosymbionts (Doña et al. 2019) associated with all major groups of birds (Gaud & Atyeo 1996). About 2600 species have been described worldwide (Mironov 2016; Dabert et al. 2021). Gaud & Atyeo (1996) classified the feather mites in three superfamilies of Astigmata (Analgoidea Trouessart & Mégnin, 1884, Freyanoidea Dubinin, 1953, and Pterolichoidea Trouessart & Mégnin, 1884), but other authors have demonstrated that Freyanoidea is a taxon included within the Pterolichoidea (O'Connor 1982; Ehrnsberger et al. 2001; Klimov & O'Connor 2008) and therefore does not deserve a superfamilial status.

Thraupidae Cabanis, 1947 (Passeriformes: Oscines) currently includes 386 species exclusively in the Neotropical region (Gill et al. 2021; Burns et al. 2016) and is one of the most diverse passerine families of Brazil, with 156 species (Pacheco et al. 2021). Feather mites were reported in Brazil from 32 tanager species (Thraupidae), mostly belonging to the families Proctophyllodidae Trouessart & Mégnin, 1884, Trouessartiidae Gaud, 1957, Analgidae Trouessart & Mégnin, 1884, Psoroptoididae Gaud, 1958, and Dermationidae Fain, 1965. From 14 of these birds, 13 mite species have been nominally described or reported in Brazil (Valim et al. 2011; Enout et al. 2012; Hernandes 2014; Hernandes & Valim 2014; Daud et al. 2015; Silva et al. 2015; Hernandes et al. 2016; Hernandes & Flechtmann 2020).

Herein, three new records of feather mites are presented from tanagers (Thraupidae) in Brazil. The feather mites were collected either from birds found dead or captured for banding and released afterward. The mites were removed from the feathers under a dissecting microscope with a fine brush or a teaser. Mite specimens were mounted in glass slides using Hoyer's medium. Vouchers are deposited at the mite collection of the Department of Ecology and Zoology of the Universidade Federal de Santa Catarina (ECZ - UFSC).

**Analgoidea Trouessart & Mégnin, 1884**

**Proctophyllodidae Trouessart & Mégnin, 1884**

**Proctophyllodinae Trouessart & Mégnin, 1884**

***Proctophyllodes thraupis* Atyeo & Braasch, 1966 (Figs. A-C)**

Material examined: 2 males; ex. *Thraupis ornata* (Sparrman, 1789); July 2021; Florianópolis, Santa Catarina State, Brazil; 27°36'S, 48°31'W; F.A. Hernandez col. 3 males and 3 females; ex. *Thraupis palmarum*

(Wied, 1821); December 2009; Pedreira; São Paulo State; Brazil; 22°44'S, 46°54'W; David Vilas-Boas Filho col. 2 males, 1 female, and 4 nymphs; ex. *Stilpnia peruviana* (Desmarest, 1806); January 2012; Lagoa do Parado, Guaratuba, Paraná State, Brazil; 25°49'S, 48°37'W; Bianca L. Reinert col.

Remarks: This species was described from *Thraupis abbas* (Deppe, 1830) (type host) from Mexico and *Chlorophanes spiza* (Linnaeus, 1758) (Thraupidae) from Belize and Mexico (Aty eo & Braasch 1966). Mironov et al. (2017) reported this species on *Tangara icterocephala* (Bonaparte, 1851) from Costa Rica, and Hernandes & Flechtmann (2020) on *Thraupis sayaca* (Linnaeus, 1766) from Brazil. It is reported for the first time on *T. ornata*, *T. palmarum*, and *S. peruviana*.

In the original publication, this species was also reported on hosts of other families, such as *Chlorospingus flavopectus ophthalmicus* (Du Bus de Gisignies, 1847) (Passerellidae), *Euphonia affinis* (Lesson, 1842) (as *Tanagra affinis*) from Mexico, *Euphonia hirundinacea* Bonaparte, 1838 (as *Tanagra lauta*) from Belize, and *Euphonia musica* (Gmelin, 1789) (as *Tanagra musica*) (Fringillidae) from Mexico. These records from non-thraupid hosts are suspected to be accidental contaminations (Mironov et al. 2017).

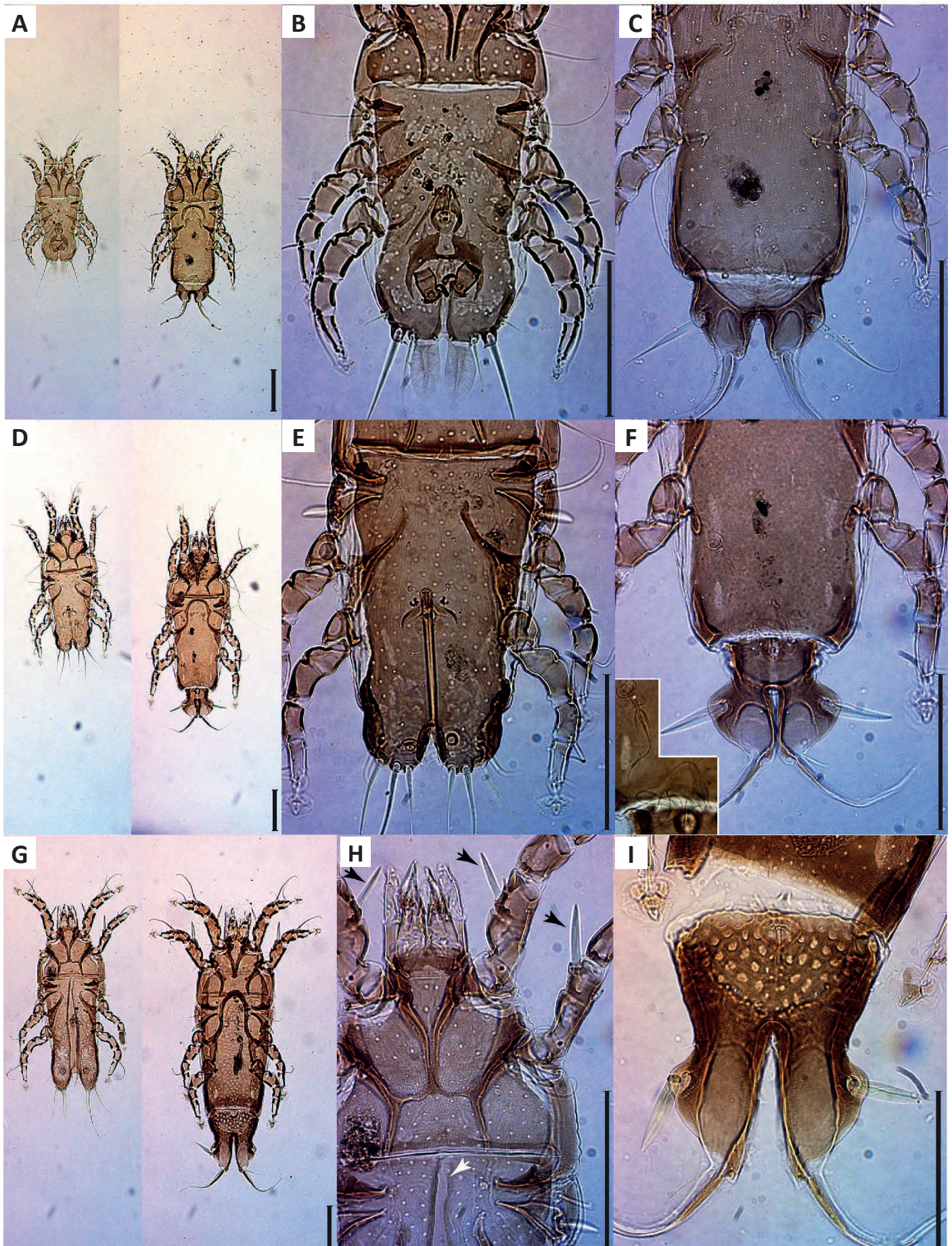
**Pterodectinae Park & Atyeo, 1971**

***Amerodectes thraupicola* (Černý, 1974) (Figs. D-F)**

Material examined: 4 males and 4 females; ex. *T. ornata*; July 2021; Florianópolis, Santa Catarina State, Brazil; 27°36'S, 48°31'W; F.A. Hernandez col.

Remarks: This species was described from *Thraupis episcopus* (Linnaeus, 1766) in Suriname (Černý 1974), and later reported on the same host in Brazil, in addition to *Thraupis cyanopectus* (Vieillot, 1817), *T. palmarum*, and *T. sayaca* (Linnaeus, 1766) from Brazil (Valim & Hernandes 2010). On two hosts - *T. episcopus* and *T. sayaca* - this species was reported in synoxenism (i.e., coinhabiting the same host specimen) with *Amerodectes bilineatus* (Berla, 1959) (Valim & Hernandes 2010). *Thraupis ornata* is a new host for this mite species and is the third host on which *A. thraupicola* is reported in synoxenism with *A. bilineatus*.

The females of *A. thraupicola* are remarkable in having an extremely elongated primary duct of spermatheca (about 600µm long), whereas



**Figure 1.** Feather mites of the family Proctophyllodidae Trouessart & Mégnin, 1884, recorded on tanagers (Thraupidae) in Brazil: *Proctophyllodes thraupis* Atyeo & Braasch, 1966, male (left) and female (right) (A), ventral view of idiosoma of male (B), and female (C); *Amerodectes thraupicola* (Černý, 1974), male (left) and female (right) (D), ventral view of idiosoma of male (E), and female (F; detail of spermatheca with elongated primary duct); *Amerodectes bilineatus* (Berla, 1958), male (left) and female (right) (G), dorsal view of propodosoma of male (H; black arrows = enlarged setae cG on genua I and II; white arrow = dorsal groove on hysteronotal shield of male), and dorsal view of female lobar region (I). Scale bars: = 100µm.

in other species, it is commonly around 100-150µm or less.

### **Amerodectes bilineatus (Berla, 1958) (Figs. G-I)**

Material examined: 4 males and 4 females; ex. *T. ornata*; July 2021; Florianópolis, Santa Catarina State, Brazil; 27°36'S, 48°31'W; F.A. Hernandez col.

Remarks: This species was described from a cardinalid, *Caryothraustes canadensis* (Linnaeus, 1766) (Passeriformes: Cardinalidae), but was subsequently reported only on tanagers (Thraupidae): *T. episcopus*, *T. sayaca* (see Valim & Hernandez 2010), and *T. palmarum* (see Enout et al. 2012). *Thraupis ornata* is a new host for *A. bilineatus*, and the finding of this mite on another tanager reinforces the suspicion that the original host probably resulted from accidental contamination (Valim & Hernandez 2010).

This species is very similar to *Amerodectes storkani* (Černý, 1974) described from *Ramphocelus carbo* (Pallas, 1764) and also reported on *Ramphocelus bresilia* (Linnaeus, 1766) in having remarkably enlarged setae cG on genua I and II (Fig. 1H, black arrows) in both males and females. In males of both these species, there is a dorsal median groove on the hysteronotal shield, which in *A. bilineatus* reaches the anterior margin of this shield (Fig. 1H, white arrow), whereas in *A. storkani* it reaches slightly anterior to that level - approximately at the level of seta c3 (Valim & Hernandez 2010).

Since the publication of the first checklist of feather mites from Brazil (Valim et al. 2011), when 185 nominal feather mite species were accounted for, substantial advances have been made (e.g., Pedroso & Hernandez 2016; Hernandez 2020). About 320 nominal species are currently recorded from Brazil, but that number is still dwarfed by the estimated diversity of 900-5300 species associated with birds in that country (Valim et al. 2011).

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