

## SCIENTIFIC NOTE

New Association between *Philornis* Meinert (Diptera: Muscidae) and Falconidae (Aves: Falconiformes)GABRIEL A LEITE<sup>1</sup>, QUÊNIA Y P MATSUI<sup>1</sup>, MÁRCIA S COURI<sup>2</sup>, ALBERTO R MONTEIRO<sup>1</sup><sup>1</sup>Univ. do Vale do Paraíba, Centro de Estudos da Natureza - CEN, Av Shishima Hifumi 2911, Urbanova, São José dos Campos, SP<sup>2</sup>Museu Nacional, Univ. Federal do Rio de Janeiro, Quinta da Boa Vista, 20940-040, Rio de Janeiro, RJ; mcouri@attglobal.net; Research fellow of Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq

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Neotropical Entomology 38(5):686-687 (2009)Nova Associação entre *Philornis* Meinert (Diptera: Muscidae) e Falconidae (Aves: Falconiformes)RESUMO - Este é o primeiro registro de *Philornis falsificus* Dodge & Aitken parasitando uma espécie de Falconidae.PALAVRAS-CHAVE: Parasitismo, *Philornis falsificus*, *Falco sparverius*ABSTRACT - This is the first record of *Philornis falsificus* Dodge & Aitken parasitizing a species of Falconidae.KEY WORDS: Parasitism, *Falco sparverius*, *Philornis falsificus*

The known *Philornis* Meinert larvae have a strict relationship of parasitism with a wide range of bird species. They can be free living on the bird nests, with coprophagous or semi-hematophagous habits, or live intradermically in the nestlings, with hematophagous habits. These three categories of association characterize the three *Philornis* species-groups, respectively, “aitkeni-group”, “falsificus-group” and “angustifrons-group” (Dodge 1963, Skidmore 1985).

The adults can be recognized among the muscids by their relatively robust body; mesonotum usually with four brown vittae; arista with long plumae; palpi slightly enlarged at apex; anepimeron ciliated; margin of posterior spiracle with cilia and mainly by the presence of hairs on the postalar wall; state character found only in other three muscid genera (*Pseudoptilolepis* Snyder, *Chaetagenia* Malloch and *Polietina* Schnabl & Dzierdzicki).

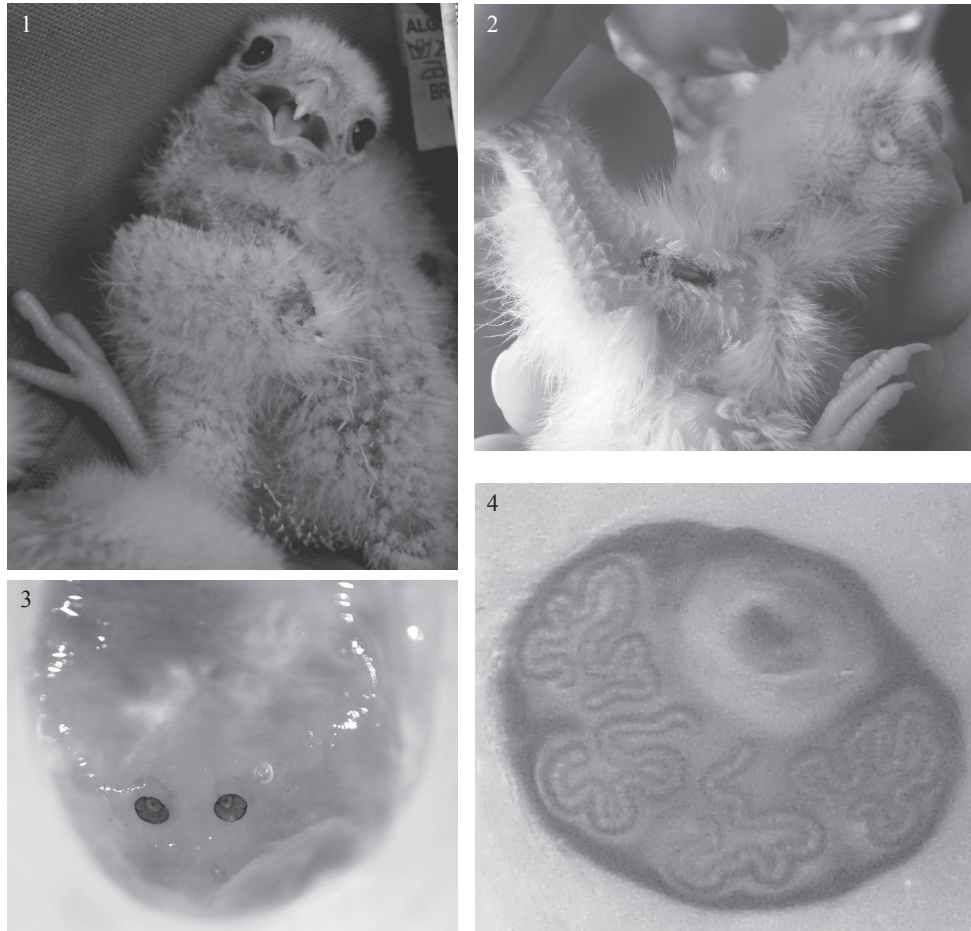
Although very few larvae and puparia are described, some traits help to characterize the species-groups. In the *aitkeni*-group, the anterior spiracle is protruded and the caudal segment of the puparium is rounded, so that the anal spiracles can be clearly seen in lateral view (Dodge 1963, Dodge & Aitken 1968, Skidmore 1985). In the “*falsificus*-group” the caudal segment of the puparium is also rounded, but the spiracles are slightly dorsal in position. In the *angustifrons*-group, where the majority of the species with known larval biology are placed, the posterior area of the puparia is concave, showing different depths and the posterior spiracles are encircled by a rugose area. The position of the posterior spiracles and the shape of the posterior spiracular slits can

also be used for characterization at species level.

During a research on the reproduction of Falconiformes species, carried out by the two first authors in Urbanova (S 23° 12' W 45° 58', Jacareí, SP, 560 m), from September to December 2006, a nest of *Falco sparverius* was found and observed once a week. The nest was inside a cavity of a *Piptadenia gonoacantha* (Mimosaceae), and was about 7 m high. Only the nestlings were observed inside the nest.

On November 11, when the nestlings were 2-3 days old, ectoparasite larvae were observed in two of them, respectively with eight and three larvae (Fig 1). The larvae were free living, feeding in the nestling skin. Some of the larvae were very closely attached to the wing feathers (Fig 2). They were manually removed and transferred to plastic bags containing ethanol. When the larvae were being removed from the nestlings they moaned of pain, but later they seemed alleviated.

On November 18, the nestlings were not infested, but nestlings showed the signs of the removed larvae where the feather did not grow. Two of the nestlings were well developed but the third one was very small. On November 25, only two out of the three nestlings were in the nest, and we presume the smallest one had died as a result of competition with the biggest ones. The two nestlings were again infested by larvae, one with 5 and the other with 7 on the chest, dorsum, wings and neck. The nestlings were now well developed with larger feathers and the parasites were hidden among them. The larvae were removed again. On December 2, only one nestling was infested and this was



Figs 1-4 1) Nestling of *Falco sparverius* infested by *Philornis falsificus*; 2) Detail of *P. falsificus* larva in a nestling of a *F. sparverius*; 3) *P. falsificus* - Posterior spiracles; 4) *P. falsificus* - Posterior spiracular slits.

the largest larva removed. In the following week, no larva was observed, and on December 16 both male nestlings had already abandoned the nest.

The collected larvae measured from 10 mm length x 3 mm diameter to 15 mm x 5 mm and the stomach content was dark red and black.

The larvae collected were identified by Márcia Couri as *Philornis falsificus* Dodge & Aitken. This species has been already recorded as a parasite of the following birds: *Crotophaga ani* (Cuculidae), *Amazona amazonica* (Psittacidae) and *Otus choliba* (Strigidae).

*Philornis falsificus* belongs to “*falsificus* group”. To Skidmore (1985), this group is formed only for *P. falsificus*, but other authors also include *P. downsi* in this group based on the free-living larvae and their semi-hematophagous habits.

The larvae of *P. falsificus* can be easily identified as the posterior spiracles have the scar in a dorsal position (Fig 3), a character-state unique among the muscids (Skidmore 1985). Also, the posterior spiracular slits are very sinuous and in the third instar larva examined (the biggest one), four slits were observed in each spiracle and not three as normally seen (Fig 4).

Until now, the only record of a *Philornis* species

parasitizing a Falconidae was an unidentified species of *Philornis* in *Falco femoralis* (Teixeira 1999).

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