

**INTRIGUING PLUMICOLES FROM THE COMMON YELLOWTHROAT
(AVES: PASSERIFORMES) ON VACA KEY, FLORIDA**

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The organisms that live on the outer surface of birds (ectofauna) can be divided into three broad categories: plumicoles inhabit the surface of feathers, dermicoles inhabit the skin, and syringicoles inhabit the inner calamus of feathers (Proctor 2003). Within the past decade, a number of new records of ectofauna from birds have been reported from Vaca Key, Monroe County (Hribar and Miller 2011; Hribar 2013a, 2013b, 2014, 2019). These mainly have been mites and lice, although a fly and a thrips have been reported. In all cases, specimens have been recovered after a dead bird had been washed in a weak detergent solution and the solution had been passed through filter paper to recover specimens (Hribar and Miller 2011). In May of 2020, two Common Yellowthroats (*Geothlypis trichas*) were found dead outside of a building in the City of Marathon on Vaca Key, Florida (24.729984, -81.039438). Apparent cause of death for both birds was collision with a window. A male was found on 1 May 2020 and a female was found on 3 May 2020 underneath the same window, both apparently having died early in the morning of the day they were found. I handled the specimens and collected ectofauna as previously described (Hribar and Miller 2011).

I recovered two species of mites from the birds. Both birds were hosts for large numbers of the feather mite *Amerodectes hribari* Mironov and Chandler; this mite has also been identified on Common Yellowthroats in Arkansas, Georgia, and Pennsylvania (Mironov and Chandler 2017, Matthews et al. 2018). I collected six nasal mites (Rhinonyssidae) from the female bird. I identified these to the generic level as a species in the genus *Ptilonyssus* and they appeared to be *P. sairae* Castro (Pence 1975, Knee and Proctor 2010). Mites of the genus *Ptilonyssus* are known mostly from passerines, although one species has been reported from Caprimulgiformes (Chuck-will's-widow [*Antrostomus carolinensis*]; George 1961, Pence 1973). *Ptilonyssus morofskyi* Hyland and *P. sairae* have been collected from yellowthroats; both species are geographically widespread and known from a number of hosts (Hyland 1962; Pence 1972, 1973, 1975; Pence and Castro 1976; Knee and Proctor 2010). *Ptilonyssus sairae* has been reported previously from yellowthroats in Florida (Pence and Castro 1976).

I found one barklouse (Insecta: Psocoptera) on the male. The specimen was a nymph and not identifiable further. Psocoptera are well-known as inhabitants of birds' nests and have been recovered from the plumage of birds (Dobrosky 1925, Hicks 1953, Mockford 1967). Gouveia et al. (2012) reported Psocoptera to be the most commonly collected nidicole (nest inhabitant) group in their study of birds' nests in Amazonian Brazil. Some Psocoptera use phoresy on birds and mammals as a dispersal method (New 1987). It is possible that this specimen was phoretic; it is also possible that it crawled onto the dead bird as it lay on the concrete.

I found one fairyfly (Insecta: Hymenoptera: Mymaridae) on the female. Mymaridae are parasitic Hymenoptera; they parasitize eggs of other insects. Some parasitic Hymenoptera are known for phoretic transport by other insects, usually the host species (Clausen 1976). Mymaridae are egg parasites of Psocoptera (Baz 2008), such as the barklouse found on the male. *Alaptus globosicornis* Girault occurs in the Florida Keys (Hribar 2020) and is an egg parasite of psocopterans in the family Liposcelididae (Triapitsyn 2017).

I collected one immature scale insect (Insecta: Coccoidea) from the male. Scale insects are plant parasites and may be of great agricultural importance. The crawler stage of scale insects is often transported phoretically by birds (Greathead 1977).

The recovery of most of the aforementioned arthropods from bird plumage is not remarkable, but collecting a fairyfly from bird plumage is. The recovery of a psocopteran from the feathers of a conspecific male may be coincidental, but it is tempting to think that the fairyfly may have been seeking an oviposition host (i.e., the barklouse). Another possibility is that the fairyfly was using the bird as a phoretic host for transport to a new nest, where there may be psocopterans to parasitize. Doutt and Yoshimoto (1970) collected Mymaridae from birds' nests on South Georgia Island, as did Gouveia et al. (2012) in Brazil. Although Root (1967) reported finding one fairyfly in one gnatcatcher's stomach, their small size (about 0.2 mm in length) would preclude them from being a regular prey item. There may not be any real connection between fairyflies and birds other than they sometimes occur in the same areas (Ladin et al. 2015). Common Yellowthroats are a widespread migratory species and may serve as phoretic hosts for other arthropods. Relationships between plumicoles and nidicoles may prove to be an interesting line of research.

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