Pyrgotidae (Insecta: Diptera) as insect pests in agriculture.

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The Pyrgotidae family has a worldwide distribution, comprising around 370 species in 55 genera. In South America, 52 species are known, divided into 11 genera. Brazil has the highest diversity of Pyrgotidae in the Neotropical Region, with 35 species recorded to date, one of the largest in the world**.** Pyrgotidae is a common family of flies in the order Diptera, suborder Cyclorrhapha, and superfamily Tephritoidea [1-2].

The family has representatives of medium to large size, and the body length, without the antenna, varies between 4.0 and 30.0 mm. The body color, in most species, is brown, which can vary between yellow, reddish-brown, brown, or black. The wings have black spots, the eyes are also black. The head, thorax, and part of the abdomen are reddish or orange. The abdomen also has black areas on the dorsal part. The paws are black with small yellowish and very hairy areas, especially the rear ones, which are larger and more striking [1-4].

Tephritoidea is a monophyletic superfamily that can be divided into two also monophyletic groups: the Piophilidae Family Group (Circumphallidae, Eurygnathomyiidae, Lonchaeidae, Pallopteridae and Piophilidae) and the Tephritidae Family Group (Ctenostylidae, Platystomatidae, Pyrgotidae, Richardiidae, Tephritidae and Ulidiidae). Tephritoidea are frugivores, especially fruit flies, and have been extensively studied in the Amazon region, with a high number of records for this region. Several works have been carried out in home orchards and agroforestry plantations, but information on wild fruits is scarce (Figure 1) (1-4).

Figure 1. *Pyrgota undata* Wiedemann, 1830. Source: Sources: https://www.prairiehaven.com/?page_id=51359.

The larvae of the Pyrgotidae family are abdominal endoparasitoids of the order Coleoptera belonging to the family Scarabaeidae, and having as species *Pelidnota sordida* Germar, 1824 (Coleoptera, Scarabaeidae), Phyllophaga spp. and *Carrerapyrgota bernardii* Mello, Lamas & Rafael, 2010. This was the first record of the host species *C. bernardii* for Brazil (Figure 2) [6-8].

Figure 2. *Maenomenus ensifer* Bezzi 1929. Source: and Photo 10149089, Photo 10149089, (c) Ian McMillan, some rights reserved (CC BY-NC), uploaded by Ian McMillan.

Females chase beetles in flight, laying an egg on the beetle's back, under the elytra, where the beetle cannot reach it. The egg hatches and the fly larva enter the beetle's body cavity, feeding on and eventually killing the host before turning into a

pupa. In the United States, some species of *Pyrgota* Wiedemann, 1830, and *Sphecomyiella* Hendel in Lindner, 1933, may be quite common in areas where their hosts are found. This fly is mainly nocturnal and is often attracted to artificial environments [9-10].

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Adapsilia coarctata (Waga 1842).

Adapsilia coarctata is a species of dipteran in the family Pyrgotidae, the only representative of its family in Europe where it is considered very rare. Due to its stealthy and nocturnal behavior, its etiology is poorly understood. *Adapsilia coarctata* is a species whose behavior still needs to be studied. It is thermophilic and hydrophilic and a nocturnal, stealthy species that can sometimes be attracted to light. Adults are not visible on flowers generally attractive to dipterans and do not appear to be floricultural. This species appears from June to November, with the hatching periods being May/June and September. therefore, it appears to be bivoltine (Figure 3) [9-12].

Figure 3. *Adapsilia coarctata* (Waga 1842). Source: Wigry National Park 22/08/2019 Photo. Lech Krzysztofiak and https://insektarium.net/diptera-2/pyrgotidae/adapsilia-coarctata/.

The larvae of the Pyrgotidae family are known as endoparasitoids, particularly of the adults of the Melolonthidae and Rutelidae families, with the female attacking and oviposing on hosts at night. *Adapsilia coarctata* is an amphipalactic species rare in Europe, but common to moderately abundant in the Far East. In Russia, it is found from the Amur Oblast south to Primorye Krai, as well as in South Korea, China, and Mongolia [9-12].

In Europe, this rare species was recorded in very few specimens in the 19th century in Poland, Hungary, and Ukraine, as well as in the Swiss, Austrian, and Italian Alps. In the 20th century, it was only recorded three times in the Northeast of the Alps, in the North of the Caucasus, and European countries with a strong tradition in Dipterology, such as Germany, the Czech Republic, and Slovakia, never recorded it [9-12].

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