

## A New Tephritid Genus, *Rhagoletoides*, with Notes on its Distribution and Systematic Position (Diptera, Tephritidae)<sup>1</sup>

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A study of New World tephritids being conducted by the writer reveals that *Spilographa latifrons* van der Wulp (1889) belongs to neither of the genera to which it has been assigned nor to any other described genus. A new genus is herewith provided; its justification is detailed in a discussion to be found at the end of this paper. The heretofore unrecorded presence of this species within the continental United States is also set forth.

### Genus *RHAGOLETOIDES*, new genus

*Diagnosis.* Frons yellow, with numerous slender, short, black setae, slightly wider than 2.0 times the width of one eye from above; three pairs lower fronto-orbitals; two pairs upper fronto-orbitals, the posterior pair reclinate, not convergent, both pairs situated on shiny yellow triangular areas similar in size to the large ocellar triangle. Antenna yellow; third segment rounded apically, not acuminate; arista dark, very finely haired, the hairs about the same length as basal diameter of arista. Face in profile slightly receding but not at all concave; with a rather deep antennal fossa on each side of a wide, flattened central carina which widens from antennal base to oral margin. Post-oculars extremely slender and short.

Thorax brownish yellow with a narrow, yellow, sublateral stripe extending from posterior margin of humerus to wing base; mesonotum covered by short, dark hairs and coarse golden pollen except in small dark areas at bases of dorsocentrals and inner ends of suture; posterior supra-alar, inner alar, and acrostical nearly in a line very close to scutellum; dorsocentral

<sup>1</sup> Miss Marian Adachi has made it possible for me to examine the Tephritidae in, and to use the collection records from, the University of Arizona collection. For this privilege I am deeply grateful.



in line with acrostical and anterior supra-alar and in a transverse line not quite halfway between one connecting anterior supra-alars and one connecting acrosticals; two pairs scutellars. Apical halves of mid and hind femora each with an antero-ventral and a postero-ventral row of short, stout, pointed bristles.

Abdominal terga brown with short, black setae; apical third to half of terga I to III with golden pollen similar to that on mesonotum, the basal portions of terga I to III and all of terga IV and V subshining but slightly darker brown than thoracic pleurae.

**Rhagoletoides latifrons** (van der Wulp), n. comb.

*Spilographa latifrons* van der Wulp, 1899, in Godman and Salvin, *Biologia Centrali-Americana*. Insecta. 2: 407; Pl. XI, fig. 26.—Aldrich, 1905, *Smithsn. Misc. Collect.* 46(1444): 604.

*Phorellia latifrons*: Hendel, 1914, *Abh. u. Ber. Mus. Dresden* 14: 28.—Aczél, 1949, *Acta Zool. Lilloana* 7: 250.

? *Spilographa obfuscata* van der Wulp, 1899, in Godman and Salvin, *Biologia Centrali-Americana*. Insecta. 2: 406; Pl. XI, fig. 25.—Aldrich, 1905, *Smithsn. Misc. Collect.* 46(1444): 604.

? *Phorellia obfuscata*: Hendel, 1914, *Abh. u. Ber. Mus. Dresden* 14: 28.—Aczél, 1949, *Acta Zool. Lilloana* 7: 250.

*Description.* As in the diagnosis of the genus, with the following additions: In profile eye suboval; cheek 0.25 times as high as eye, its bristle situated well behind posterior margin of eye; antenna 0.5 times as long as face; face light yellow, contrasting strongly with the much darker yellow frons and antenna, covered with silvery pollen visible only at an angle to surface. Mesonotum in some specimens with ill-defined, paired dark marks halfway between suture and anterior margin of mesonotum. Dark bands covering veins r-m and m separated completely or meeting with various degrees of fusion at posterior wing margin; inner margin of dark spot in apices of cells  $R_3$  and  $R_5$  with various shapes, the extent of the spot never greater than that shown by Benjamin (1934). Legs brown, concolorous with thoracic pleurae, fore and mid trochanters



somewhat brighter yellow. Abdomen in some males with an ill-defined triangular dark brown to black spot proximally in the centers of terga II and III; male with tergum IV about 1.8 times as long as tergum III; female with tergum V about 0.25 times as long as tergum IV; ovipositor sheath covered with short, black setae, very dark brown, about 2.0 times as long as tergum V and 0.5 times as long as tergum IV.

*Material examined and distribution.* United States: 1 ♂, Catalina Mts., Arizona, 14.VIII.1954, G. Bohart, G. Butler (Univ. Arizona, Tucson). Mexico: 3 ♂♂, 1 ♀, San Juan del Rio Oro, Querétaro, 6.VIII.1949, H. G. Hawkes (USNM); 4 ♂♂, 1 ♀, Mt. Orizaba, Arriba de Temalauilla, Veracruz, 17.VIII.49, J. C. Hawkes (USNM). The type locality of *latifrons* as given by Wulp (1899) is "Ciudad in Durango, 8100 feet." It is a high altitude and dry area species having its principal distribution south of the United States border. Because *latifrons* has never been previously collected in the southwestern United States, an area fairly well known as far as the family Tephritidae is concerned, one may safely regard it as being an extremely rare species in this country.

#### DISCUSSION

Van der Wulp's association (1899) of the name *Spilograpta* with *latifrons* is untenable, since that name has been shown to be a synonym of *Rhagoletis* Loew. The name *Phorellia* is applied by Hendel (1914) and Aczél (1949) in the sense of Rondani (1870), placing *latifrons* in the genus *Trypeta* Meigen, also an incorrect association (see Foote, in press). For the reasons explained below, *latifrons* must have a taxon at the zoological level of *Trypeta*, *Rhagoletis*, and others.

The wing pattern of *latifrons* resembles that of three American tephritid species in having (a) two brown oblique bands lying upon and parallel to veins r-m and m, respectively, forming the arms of a V with their posterior ends close together or touching at the posterior wing margin, and (b) a short dark mark between the arms originating at the costa and proceeding posteriorly well into cell R<sub>3</sub>. One of these species, *Rhagoletis*



*basiola* (O.S.), is illustrated by Phillips (1923; Pl. XVIII, figs. 9 and 10) as *Zonosema flavonotata* (Macq.) and *Zonosema setosa* (Doane), respectively; by Stone (1951: 46; fig. 3); and by Balduf (1959; Pl. 1; fig. 3). The other two species are presently assigned to the genus *Zonosemata* Benjamin. One of these, *electa* (Say), is well illustrated by Benjamin (1934: 34; fig. 15). The wing of *vittigera* (Coq.), the other species of *Zonosemata*, is so similar to that of *electa* that Benjamin's illustration can pass for both species for the purposes of this discussion.

In spite of their similarity to *latifrons* in wing pattern and habitus, the aforementioned representatives of *Zonosemata* and *Rhagoletis* have quite different structural characters on a generic level, which sets *Rhagoletoides* quite apart. They lack the antero- and postero-ventral rows of mid and hind femoral spines, the dorsocentrals are situated farther forward, the third antennal segment is acuminate dorso-apically, and the pollinosity of the abdominal tergites, if present, is never golden in color.

The structurally related genera of the typical tribe of the subfamily Trypetinae, to which all three genera so far mentioned belong, are *Trypeta* Meigen, *Euleia* Walker, and *Chaetostoma* Rondani. From *Trypeta*, the new genus described herein may be distinguished by the rounded head shape and extremely wide frons; from *Euleia* by the position of vein r-m, which in *Rhagoletoides* is situated at the midpoint of cell 1st M<sub>2</sub>; from *Chaetostoma* by the lack of strong bristles at the anterior oral margin; and from all three by the characteristic wing pattern.

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## Some Predators of the Clover Mite

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The clover mite, *Bryobia praetiosa* Koch, feeds on a wide range of plants and is a serious pest of fruit trees, some ornamental plants, and a few truck and field crops. In addition, this mite is a common household nuisance problem in many newly developed residential areas. Predators play an important role in reducing clover mite populations to non-destructive levels. From 1954 to 1958, I collected 23 species of predators of the clover mite at Urbana, Illinois. These observations bring to 62 the number of known predators (List 1).

Of these 62 species, 8 are spiders, 15 are mites, 5 each are thrips, anthocorid bugs, and mirid bugs, 15 are coccinellid beetles, and the rest are in other families and orders of terrestrial arthropods. Of the 23 species from Urbana (List 1, denoted by asterisk), 3 are spiders, 8 are mites, 3 are thrips, 4 are coccinellids, and the remainder are in other groups. According to the studies of Lord (1949), Anderson and Morgan (1958), and other papers of a less general nature, mites, thrips, anthocorid bugs, mirid bugs, and coccinellid beetles are considered the most important predators of the clover mite.

Since some, for example many coccinellids, are general predators and others are more specific as to the species on which they feed, it is best to know more than what species prey on what



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