

THE PROSPALTELLA OF FLORIDA ¹
(Hymenoptera:Aphelinidae)

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INTRODUCTION: Prospaltella Ashmead is a worldwide genus of about 50 species of parasitic wasps which attack coccids and whiteflies (Nikolskaya, 1952). With the increased use of Prospaltella as biological control agents in Florida (e.g., in campaigns against the citrus blackfly and citrus whitefly), it has become necessary to establish methods of identifying previously recorded as well as introduced species. The most recent key to Nearctic species is by Howard (1908), but his paper includes only 3 of the 7 species now known to occur in Florida. It is fairly certain that some of the Prospaltella now thought to be native to Florida are adventive, having been introduced accidentally with their hosts. This is especially true for cosmopolitan species associated with citrus. Since little active collecting has been done for parasitic wasps in Florida it is safe to say that the number of species of Prospaltella will increase as more effort is made to survey the naturally occurring parasitoids before new release programs are undertaken. The purpose of this circular is to provide a means of identifying Florida Prospaltella as they are known at this time. Unfortunately this genus is composed of very small wasps (1 mm or less) which are neither well studied nor easily identified. When this genus is better known biologically and taxonomically, it may well be found to have complexes of morphologically indistinguishable "species" much as in the related genus Aphytis (for a brief resume of such work see Rosen and DeBach, 1976). Until such time we will be able to recognize morphologically distinct taxa (morphospecies) only with difficulty and some uncertainty.

BIOLOGY: All known female Prospaltella have been reared as parasites of scale insects (principally Diaspididae) and whiteflies (for an extensive bibliography of Nearctic hosts see Peck, 1963:275-283). Some species of Prospaltella have males which develop on lepidopterous eggs while the female develops on a scale host, and some species have males which develop as hyperparasitoids of females of their own species (for a review of this topic see Flanders, 1967).

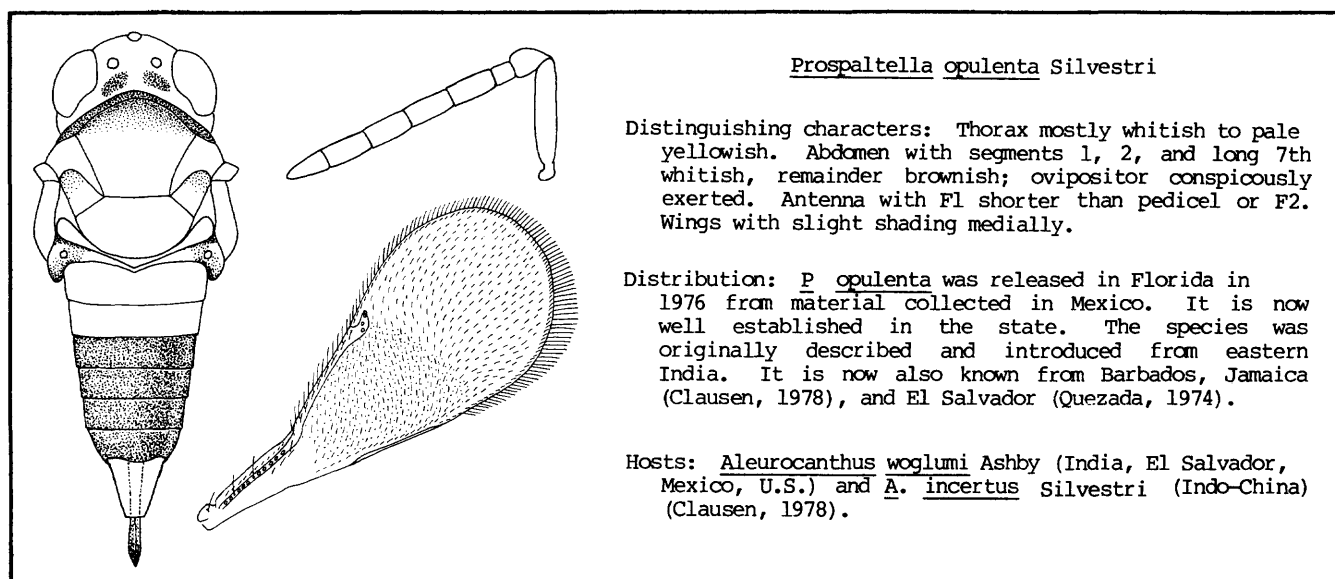
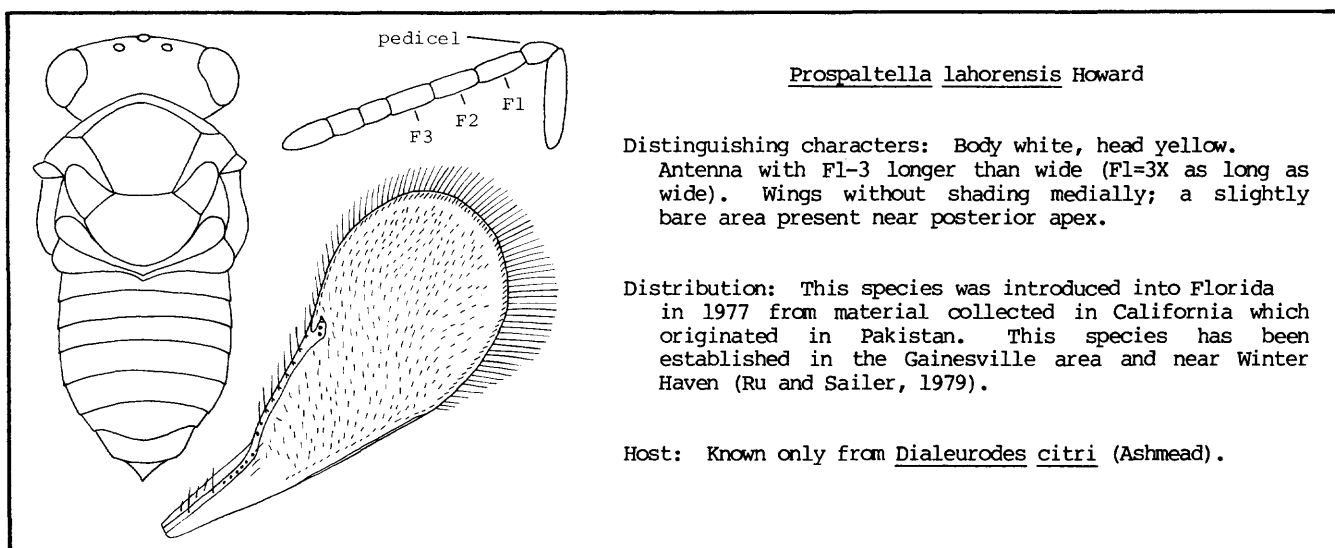
IDENTIFICATION: I have based my determinations upon examination of syntype specimens of the following species: aurantii, berlesei, citrella, and lahorensis. Identification of fasciata is based upon a specimen determined by Malenotti from the same locality and host as his original description. Since we do not have the type of brasiliensis, I have accepted the identifications of specimens in the U.S. National Museum by B. D. Burks and A. B. Gahan. Identification of opulenta has been based on the original description and specimens reared from citrus blackfly as well as specimens identified by Burks and Gahan. Few morphological characters have been found which separate species of Prospaltella from each other, or from other genera for that matter. In fact, Prospaltella will probably be found to be synonymous with such closely related genera as Encarsia Forster or Trichaporus Forster. Because this circular is not the place to solve complex taxonomic questions, I have avoided a detailed discussion of the problem. Generic characters used to separate Prospaltella from other genera include: 8 segmented antennae in female, wing surface generally evenly ciliate (i.e., without a diagonal bare stripe

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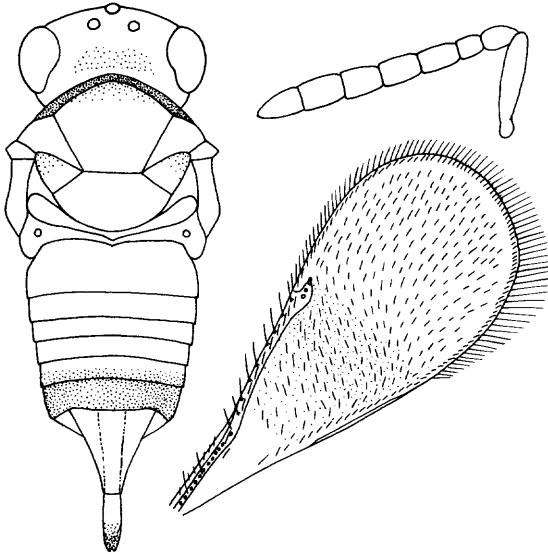
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across middle or a conspicuous bare stripe around stigma or perimeter), marginal cilia of wings generally not more than about one-half width of wing from anterior to posterior margins at stigmal vein (exceptions do occur), and the pronotum formed of one piece which is concave medially on posterior margin. After examining the species known from Florida, I believe a tentative field identification based on color and pattern may be possible, however a closer examination in the laboratory will ultimately be necessary. The wings and antennae are critical characters, and excellent optical equipment is required to see them. I have tried to make it possible to identify Florida Prospaltella with a good dissecting microscope of 25 to 50 power. Identification is based on females only, since they are more commonly encountered in the field and have formed the basis of previous work. To identify specimens, first run down the leftmost column comparing abdominal pattern, shape, and ovipositor. Then look at antennal characters, and finally wing characters. Under "Distinguishing characters" I have noted some comparative characters which might otherwise be overlooked.

I would like to thank Linda Heath Lawrence for preparing the illustrations.



Prospaltella brasiliensis (Hempel)

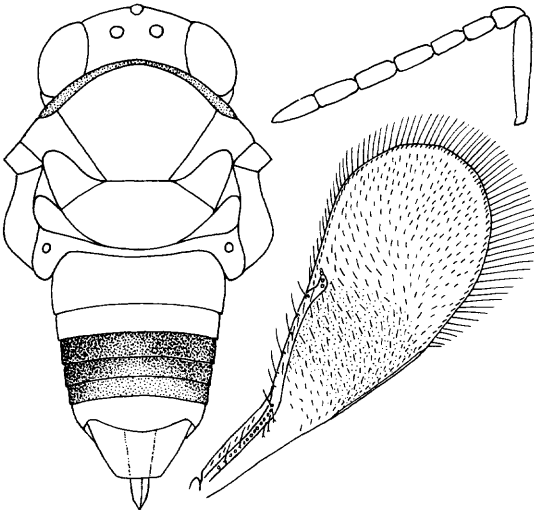


Distinguishing characters: Very similar to P. opulenta except abdomen with segments 4 and/or 5 and 6 brownish (i.e., in opulenta about three-fourths of the abdomen is dark, whereas in brasiliensis about one-half or one-third is dark).

Distribution: This species is known from Brazil, Haiti, and Florida.

Host: Aleurothrixus floccosus (Maskell).

Prospaltella citrella Howard

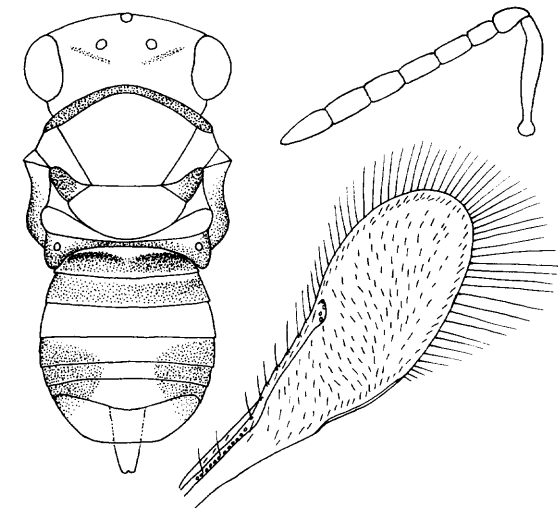


Distinguishing characters: Abdomen with brownish stripe across middle, otherwise yellowish. F1 subequal to length of pedicel and F2, slightly shorter than F3. Wing medially shaded; stigma attenuated distally.

Distribution: Florida, Arizona, California, and Chile.

Hosts: Aleuroplatus coronatus Quaintance and Dialeurodes citri. (Howard's 1908 record of Kermes sp. as a host in Arizona has been repeated often (see Peck, 1963:277-278) but never verified. Howard noted that specimens of Amitus (Hymenoptera:Platygasteridae) were also reared at the same time as citrella. Since both are typically parasites of whitefly I suspect that there may have been some contamination of the Kermes rearing.)

Prospaltella fasciata Malenotti

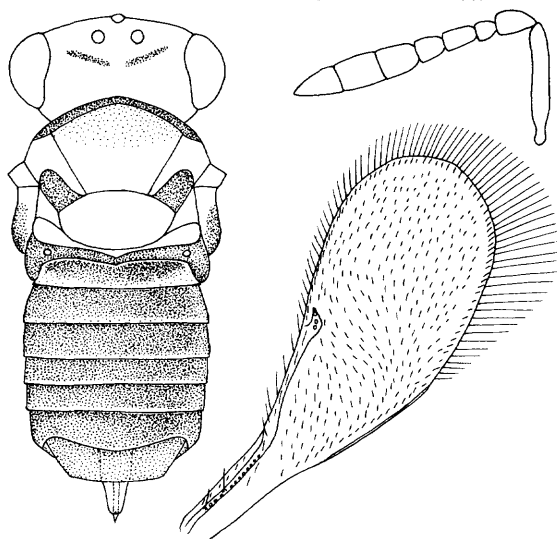


Distinguishing characters: Conspicuously patterned abdomen as shown. F1 about 1.3 times as long as wide. Wing medially clear; marginal cilia of forewing 0.75 times width of wing at stigma.

Distribution: United States (D.C. south to Florida, west to Texas), Trinidad, India, and Europe.

Hosts: Common armored scale pest species in tropical or subtropical areas.

Prospaltella aurantii (Howard)



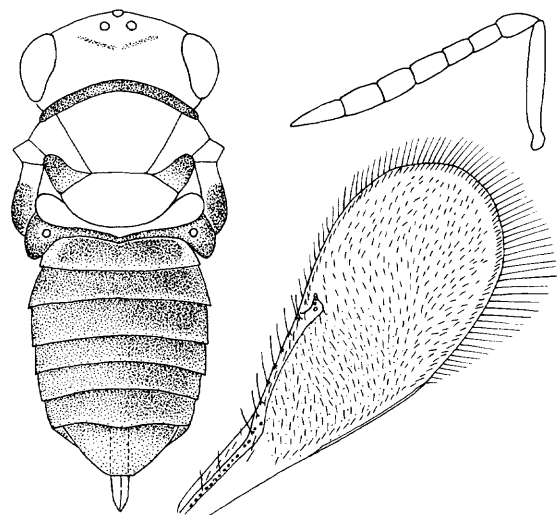
Distinguishing characters: Abdomen entirely brown. F1 about 0.5X length of pedicel, F2 longer than F3. Wings medially clear.

Distribution: Cosmopolitan (however this may represent more than one species).

Hosts: Numerous genera and species of Diaspididae, a few Coccidae, and Kermes nigropunctatus Ehrhorn and Cockerell (Peck, 1963:275-276).

(The related species P. perniciosi Tower, although not yet known from Florida, would run here. It is closely associated with the San Jose scale, Quadraspidiotus perniciosus (Comstock), which is widespread in Florida. It may be separated from aurantii (with difficulty) as follows: perniciosi has the scutum (dorsum of thorax) entirely dark, whereas aurantii has only a dark triangular spot; perniciosi has F3 equal in length to the 1st club segment, whereas aurantii has F3 about 0.8X the length of the 1st club segment.)

Prospaltella berlesei (Howard)



Distinguishing characters: Abdomen entirely brown. F1 and 2 subequal, each shorter than pedicel or F3, F1 about 1.5 times as long as wide, F3 appears as part of club which tapers to a point. Wings faintly shaded medially.

Distribution: Essentially cosmopolitan.

Hosts: Melanaspis obscurus (Comstock) and Pseudaulacaspis pentagona (Targion-Tozzetti).

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