

On the Taxonomy of the Genus *Pseudopsylla* Froggatt, with a Redescription of the Type-Species (Homoptera: Coccoidea)^{1,2}

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ABSTRACT

The history of the genus *Pseudopsylla* Froggatt and the rediscovery of the type specimens of *P. hirsutus* Froggatt, the type species, are discussed. *Pseudopsylla* is placed as a junior synonym of *Lachnodioides* Maskell on the basis of the morphological and biological similarities between the type species of these genera which are enumerated. Froggatt's species is redescribed and illustrated from the type specimens as a new combination, *Lachnodioides hirsutus* (Froggatt), and a lectotype is designated.

The genus *Pseudopsylla* Froggatt (1921) was based upon a single species, *P. hirsutus* Froggatt, described from specimens from woody twig galls on an unidentified species of *Eucalyptus* collected near Darwin, Northern Australia. No additional species have been assigned to *Pseudopsylla*, and no further collections of the type species have been reported. Froggatt did not illustrate his description of *P. hirsutus*, except for a drawing of the galls from which the insects were obtained, and he made no attempt to compare *Pseudopsylla* with other genera of Coccoidea. Consequently, until now, it has been impossible to determine the taxonomic relationships of *Pseudopsylla*.

During 1972, while working in Australia, I was afforded an opportunity to examine the Froggatt collection of Coccoidea housed at the New South Wales Department of Agriculture, Biological and Chemical Research Institute at Rydalmere. During the course of my examination of the Rydalmere collection I located what is undoubtedly the type material of Froggatt's *Pseudopsylla hirsutus*. Through the kindness of D.E. Chadwick, Systematic Entomologist at Rydalmere, I was permitted to borrow this material for detailed study, the results of which are reported here.

The Froggatt *Pseudopsylla* material (Froggatt's collection number 629) consisted of a single microscope slide bearing two specimens and a section of twig bearing four empty galls. The slide bore a label, apparently in Froggatt's hand, identifying it as "*Pseudopsylla solida* n.s. & g." and the additional information "gall coccoid [,] Loc. Pt. Darwin [,] coll. Hill". Since the section of twig bearing the galls (fig. 1), although broken, appeared to be identical with that figured by Froggatt under the name of *Pseudopsylla hirsutus*; since the location and collector were identical with data cited in the description of *P. hirsutus*, and since there are no references in published literature to a "*Pseudopsylla solida*", it was concluded that this material was in fact the type lot of *P. hirsutus*. Froggatt's

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description of the genus *Pseudopsylla* includes a comparison of the galls of *P. hirsutus* to those of a psyllid, *Trioza solida*, and it is my opinion that the mislabeling of the type material of the former as "*Pseudopsylla solida*" was a lapsus on Froggatt's part.

The two specimens on Froggatt's type slide were removed, stained and remounted on separate slides. Prior to remounting it was noted that neither specimen was in perfect condition. The larger lacked all three pairs of legs while the smaller possessed one intact foreleg and two mesothoracic legs, but both hind legs were missing except for one coxa. Both specimens were adult females. Froggatt's description states that the adult female has two pairs of legs, but that the "immature female" has three pairs of legs, all of similar form. The sclerotized coxal attachment points of both specimens are clear evidence that three pairs of legs, not two, are present. Froggatt also apparently erred by considering the smaller of the two specimens "immature".

Following the remounting and study of the two Froggatt specimens, the smaller, more complete specimen was designated the lectotype of *Pseudopsylla hirsutus* Froggatt, and the larger specimen was designated a paralectotype. Both specimens and the gall-bearing twig were returned to Rydalmer in August, 1972.

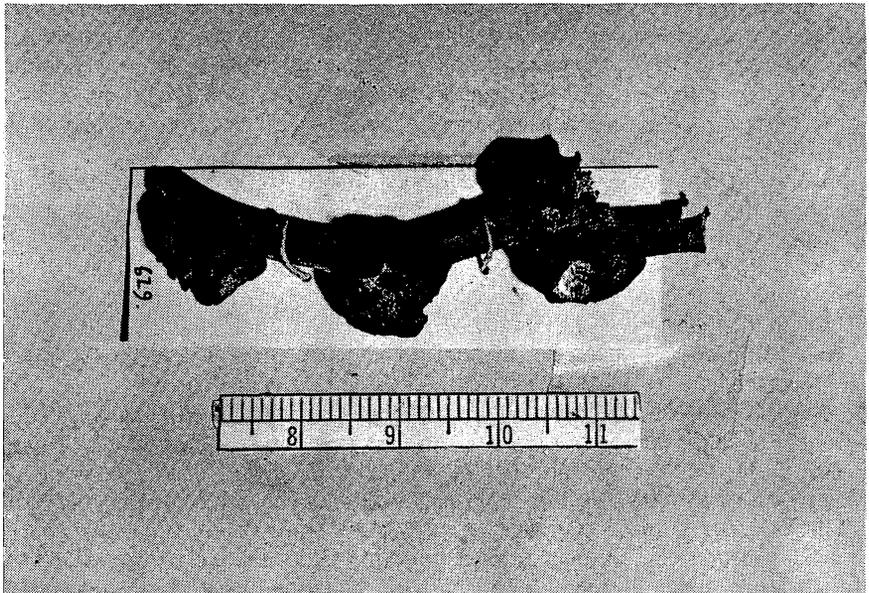


FIGURE 1. Section of *Eucalyptus* twig bearing galls from which type specimens *Pseudopsylla hirsutus* emerged (Froggatt collection no. 629, Dept. of Agriculture, New South Wales, Rydalmer). Metric scale, centimeters.

Taxonomic Relationships of *Pseudopsylla*:

During the study of Froggatt's type material it became apparent that *Pseudopsylla hirsutus* is closely allied to species of the genus *Lachnodius* Maskell (1896). *P. hirsutus* shares the following characters in common with *Lachnodius eucalypti*

Maskell (type-species of *Lachnodioides*) and other species of that genus:

1. The insects develop within open-top pit galls on *Eucalyptus* spp.
2. The body form is broadly oval to nearly circular in outline, without protruding anal lobes.
3. The head bears a pair of membranous or weakly sclerotized lobular protuberances of unknown function on the venter between the bases of the antennae. These structures are peculiar to *Lachnodioides* and the closely related *Sphaerococcopsis* Cockerell (Beardsley, 1974).
4. The anal ring is setigerous, with a few very small pores situated adjacent to the bases of the ring setae. This unusual arrangement of the anal ring pores is also peculiar to *Lachnodioides* and *Sphaerococcopsis*.
5. The third segment of the antennae is the longest, and the apical segment is shorter than the preceding segments. This feature is characteristic of many genera in the eriococcid group.
6. The dorsal margin of body bears a continuous peripheral fringe of specialized, usually enlarged setae.
7. The tubular ducts are of a distinctive type, apparently different than those of both Pseudococcidae and Eriococcidae.
8. The body lacks certain specialized structures characteristic of other groups of Coccoidea.

The genus *Lachnodioides* is represented by three described species, but an additional seventeen undescribed species are at hand, all of which share the characteristics enumerated above. It is my opinion that *Pseudopsylla hirsutus* is not sufficiently divergent from the general "gestalt" of the genus *Lachnodioides* to warrant its placement in a separate genus. Therefore I am placing the genus *Pseudopsylla* Froggatt as a junior synonym of *Lachnodioides* Maskell.

The taxonomic position of *Lachnodioides* and *Sphaerococcopsis* within the Coccoidea is somewhat enigmatic. Hoy (1963) placed both genera in the Eriococcidae. However, Beardsley (1972) called attention to several important differences between these genera and typical eriococcids, and suggested that these genera constitute a distinct family level taxon, a position taken more recently by Koteja (1974) on basis of the comparative morphology of the mouth parts. This matter will be treated in greater detail in a forthcoming revision of the genus *Lachnodioides*.

Genus *Lachnodioides* Maskell. 1896. Trans. New Zealand Institute 28:400.

Pseudopsylla Froggatt 1921. Dept. Agric. New South Wales, Sci. Bul. 19:6, New Synonymy.

Lachnodioides hirsutus (Froggatt), new combination (Figure 2).

Pseudopsylla hirsutus Froggatt 1921. Dept. Agric. New South Wales, Sci. Bul. 19, p. 6.

Adult female. Size large, the larger of the two specimens in Froggatt's type material is nearly 7 mm in length. Legs well developed (hind legs missing except for one coxa on the lectotype specimen); tibiae and tarsi with a series of strong spines along inner margins; tarsi distinctly curved; tarsal claws without a denticle on inner face, about 125 μ long; claw digitules setiform, without a spatulate apex; hind coxa with numerous minute pores apparently distributed over entire surface. Antennae six-segmented, third segment conspicuously longer than

others, apical segment shortest; approximate length of segments from base outward 150 μ , 120 μ , 400 μ , 130 μ , 50 μ . Labium small, damaged in both specimens but apparently one-segmented. Anal ring on venter a short distance behind vulva, small, with six or seven relatively short setae directed inward; a few tiny pores situated around base of each ring seta. Marginal fringe unusually long, composed of several hundred slender filiform setae each 350 to 450 μ long. Dor-

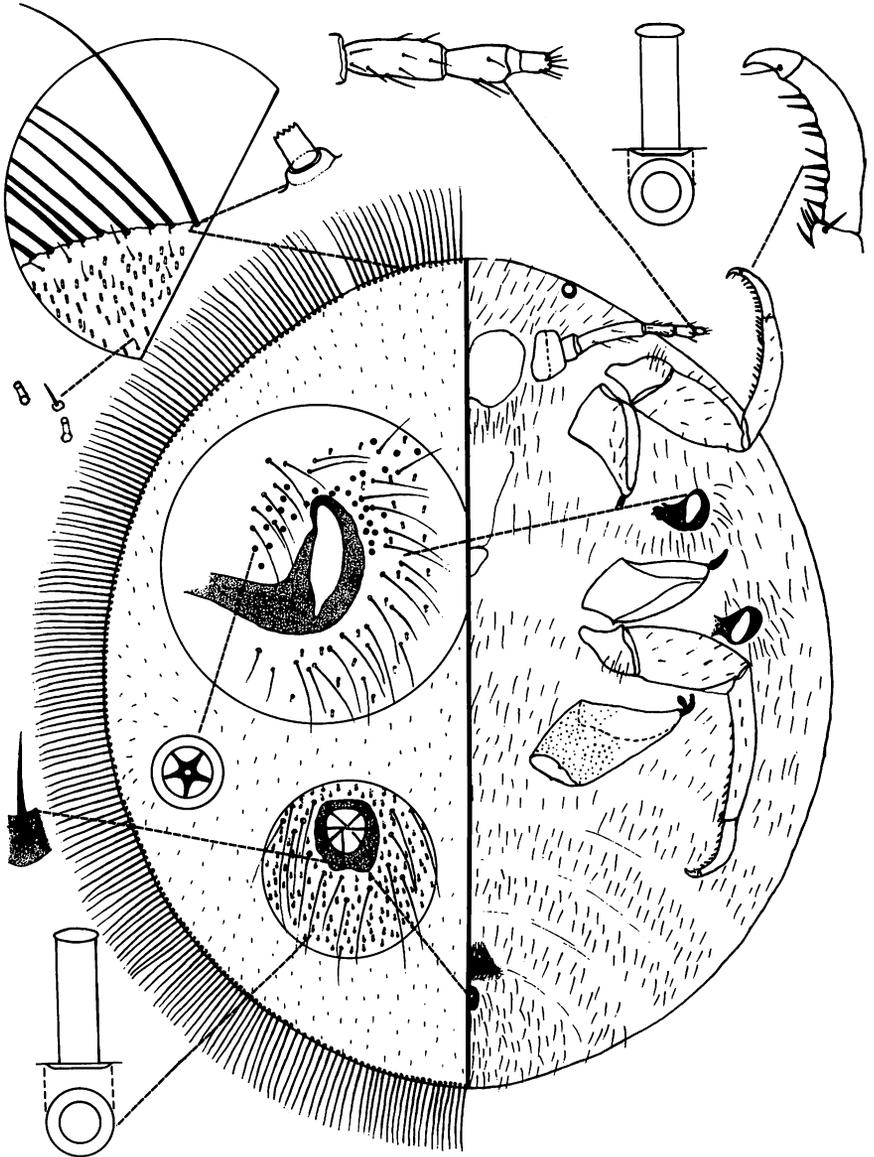


FIGURE 2. *Lachnodium hirsutus* (Froggatt) (formerly *Pseudopsylla*), dorsal and ventral surfaces and details (dorsal marginal setal fringe shown on dorsal half only).

sum with scattered short setae 17-25 μ long; ventral setae conspicuously longer, those of head and in region of vulva and anal ring ca 150-200 μ long.

Tubular ducts with moderately wide rims densely distributed on both dorsum and venter, about 6 μ diameter across rim, 4 μ across orifice, varying slightly in size but apparently all of a single class; ducts densest on venter in area around anal ring and vulva. Multilocular disc pores relatively few, all quinquelocular, present only in sparsely scattered ventral spiracular bands extending from spiracular openings anteriolaterally to body margin.

Redescribed from lectotype and paralectotype specimens previously cited. No additional specimens are known to me.

Among the three other described *Lachnodi* species, *L. hirsutus* most closely resembles *L. lectularius* Maskell from which it can be easily separated by such characters in *L. lectularius* as the normally seven-segmented antennae, larger anal ring with 10-15 ring setae, much shorter marginal fringe setae which are elongate conical in form, and the much more numerous multilocular disc pores which are widely distributed over the venter. *L. lectularius*, like *L. hirsutus*, develops within open-top twig galls on *Eucalyptus* spp.

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