

NOTES ON SOME SPECIES OF ECTOPSOCINAE  
IN THE WESTERN HEMISPHERE  
(PSOCOPTERA: PERIPSOCIDAE)<sup>1</sup>

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The following notes include a new synonymy for *Ectopsocus pumilis* (Banks), synonymic notes on *Ectopsocopsis cryptomeriae* (Enderlein), records of three species of Ectopsocinae previously not known to occur in the Western Hemisphere, and distributional records of two others. Two of the species, *Ectopsocus maindroni* Badonnel and *Ectopsocopsis cryptomeriae* (Enderlein) are recorded for the first time from the United States, thus raising the number of species of Ectopsocinae known to occur in the United States to seven. Three of these were recorded by Mockford (1959), and references to the other four are included herein. Of general interest is a corrected identification of the form which has been called *Ectopsocus pumilis* (Banks). This species, exceedingly common in eastern United States, has now been shown to be *Ectopsocopsis cryptomeriae* (Enderlein). The name *pumilis* applies to another species.

*Ectopsocus maindroni* Bádannel (1935: 81)

A bibliography on this species is given by Thornton (1962: 299). The species has not previously been recorded in the Western Hemisphere. On several occasions it has been found by U. S. Department of Agriculture plant quarantine inspectors on materials entering the United States from Mexico, South America, and the West Indies.

Material examined from various localities in the American tropics agrees with the Hong Kong material described by Thornton (1962) in possessing fine hairs on the margin of the hindwing between the branches of Rs.

RECORDS: United States: *Florida*—Grassy Key (Monroe Co.); Lower Matecumbe Key (Monroe Co.); Miami (field collection); Miami (plant quarantine interception from Surinam); Vero Beach. *Texas*—San Antonio (plant quarantine interception from unspecified locality in Mexico).

Mexico: *Veracruz*—23 miles north of Alvarado, Highway 180.

Jamaica: Locality not specified. Puerto Rico: Maricao Insular Forest. Venezuela: Maracay. British Guiana: Georgetown (Botanical Gardens). French Guiana: Cayenne (Botanical Gardens and strand at Mont Joli).

Field records other than that in Jamaica are by the author. Most of the latter collections were made by beating foliage of trees and shrubs which generally bore some dead leaves. To my knowledge, none of the field collections in the Western Hemisphere have been made at a distance of more than 20 miles from the seacoast.

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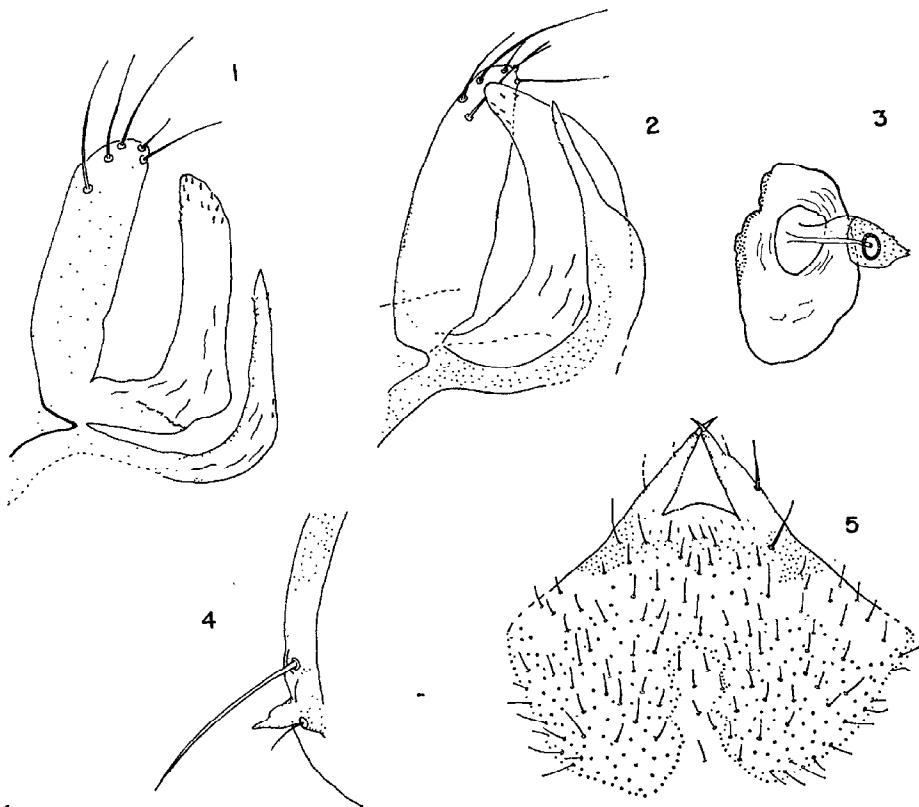


Fig. 1-5. *Ectopsocus pumilis* (Banks). Fig. 1. Gonapophyses of holotype, x330. Fig. 2. Gonapophyses, specimen from Gainesville, Fla., x330. Fig. 3. Sclerite of orifice of spermatheca, holotype, x200. Fig. 4. Free margin of paraproct with process, holotype, x400. Fig. 5. Subgenital plate of holotype, x150. Magnifications are those at which the drawings were made. Reduction is x0.53.

*Ectopsocus ornatus* Thornton (1962: 308)

This species has been recorded previously only from Hong Kong. A single female was taken by U. S. Department of Agriculture officials in San Juan, Puerto Rico, on vegetables originating at an unspecified locality in Puerto Rico.

The following measurements and ratios were recorded for this specimen: IO/D (Pearman method), 3.36; IO/D (Badonnel method), 2.34; body length, 1.62 mm; forewing length, 1.55 mm; distal hind tarsal segment, 0.091 mm; ratio proximal/distal hind tarsal segments, 2.32; antennal length, 1.14 mm; basal flagellar segment, 0.258 mm; hindwing length, 1.20 mm; hind femoral length, 0.38 mm; hind tibial length, 0.58 mm; proximal hind tarsal segment, 0.212 mm; second flagellar segment, 0.152 mm; ratio basal/second flagellar segments 1.70.

All of the above measurements fall within the range for the species given by Thornton, or are so close to the limits of the range that their degree of accuracy (to 0.015 mm) cannot clearly delimit them from it. The IO/D figure of 4 stated by Thornton (presumably using the method

of Pearman described by Ball 1943) seems decidedly larger than that stated above, but there is no information by which to determine whether my figure falls within or without the range for the Hong Kong material.

The genitalia differ from those figured by Thornton in that the third valvulae (outer lobes of the gonapophyses of the ninth segment) bear, in addition to the three long outer hairs, only seven shorter hairs, rather than ten.

Wing markings differ from those illustrated by Thornton in that the pterostigma has a clear border in its apical third, and the medial stem just distal to its junction with Rs has a clear posterior border for a short distance.

A few hairs are visible on the radial margin of the forewing at 440X, but at lesser magnifications these are not visible.

*Ectopsocus pumilis* (Banks)

*Peripsocus pumilis* Banks (1920: 313) (*nec Ectopsocus pumilis* (Banks) Chapman, 1930).

*Ectopsocus ghesquierei* Ball (1943: 11), new synonymy.

An examination of the holotype, a female, in the Museum of Comparative Zoology, Cambridge, Mass., has shown that this is not the species which Chapman (1930) and all subsequent North American authors have assumed it to be. Such an error is certainly excusable in view of the fact that there is nothing diagnostic in Banks' description of the species, and it was very likely impossible for Chapman to make a potash preparation of the type. Subsequent authors, including myself, have simply followed Chapman's determination.

A comparison of the subgenital plate (Fig. 5) of this species with that of *E. ghesquierei* Ball (Ball 1943, Fig. 6) shows a virtual identity in form, details of pigment distribution, and ciliation. The type of *E. pumilis* lacks a definite submarginal row of macrochaetae paralleled by a line across the subgenital plate, but another specimen examined (from Gainesville, Fla., approximately 130 miles from the type locality) shows a row of six macrochaetae in the same position as that shown in *E. ghesquierei* and an inter-nal line slightly anterior to the position of that shown in *E. ghesquierei*.

The tubercle on the edge of the paraproct and the surrounding hairs (Fig. 4) of the *E. pumilis* specimens agree with Ball's figure (1943, Fig. 7) as well as with his description of these features in *E. ghesquierei*. The gonapophyses show a few slight differences (compare my Fig. 1 and 2 with Ball's Fig. 8). The terminal ciliation of the third valvula is subject to a slight amount of variation. Ball illustrates a wide juncture between the second and third valvulae. Although this does not exist in the specimens which I have examined, the membrane of the second valvula is very thin in this region, and it would be easy to mistake an underlying structure or a wrinkle in the cuticle for the edge of the valvula. In fact, Ball's figure leaves some doubt about what the joining line between the two valvulae actually does represent.

Measurements on the type of *E. pumilis* are as follows: forewing length, 1.30 mm; posterior tibial length, 0.52 mm; IO/D 2.7 (Badonnel Method); width of head between eyes, 0.32 mm.

Although there are minor differences between these measurements and those presented by Ball for *E. ghesquierei*, they can scarcely be regarded alone as delimiting distinct species.

In view of the above considerations, I regard these two species as the same, and the name *Ectopsocus ghesquierei* Ball falls into the synonymy of *E. pumilis* Banks.

RECORDS: United States: *Florida*—Gainesville; Monticello (type locality). *Texas*—San Antonio (plant quarantine interception from Marilia, Sao Paulo, Brazil).

DISCUSSION: The species was recorded (under the name *E. ghesquierei*) by Ball (1943) from several localities in the Congo (type locality, Eala). A new Congo locality was added by Badonnel (1946). Pearman (1960) recorded the species from Tanganyika, where it was collected on *Rattus rattus*. Thornton (1962) recorded it from Hong Kong, where it was taken in stored breakfast cereal in a private house. The latter author also cited a personal communication from Mr. C. Tsutsumi of its collection in stored products in Japan. The specimens from Gainesville, Fla., were collected on a leather suitcase covered with mold in an apartment. The series consists of thirty adult females and two nymphs. Males have never been collected.

Thornton (1962: 298) states that the Hong Kong specimens differ from those described by Ball in having the abdomen banded and in that the ocelli are bordered in reddish. Although it was not possible to study these characters on the type of *E. pumilis* due to its condition, the specimens from Gainesville, Fla., agree with Ball's material in these respects.

It would appear that the species has been spread rather readily by human commerce and that it is probably not native to Florida. The complete absence of males in collections suggests the possibility of parthenogenesis.

*Ectopsocus titschacki* Jentsch (1939: 120)

Although Jentsch states in the original description that the type material was apparently from Venezuela, no definite localities have been recorded for the species in the Western Hemisphere. Ball (1943: 11) indicated the presence of the species in the Belgian Congo. Badonnel (1949: 44) recorded it from the Ivory Coast and described the male.

RECORDS: Brazil: *Para*—Belem. British Guiana: Georgetown. French Guiana: Cayenne. Puerto Rico: Mayaguez; Rio Piedras. Surinam: Paramaribo. Trinidad (WI): Piarco; Simla.

The above records represent field collections of the author. In addition, the species was taken in plant quarantine at Mobile, Ala., on material originating in Panama. The species is relatively common in the regions indicated above in dry leaves on branches in disturbed habitats such as botanical gardens and edges of cities.

*Ectopsocus vachoni* Badonnel (1945: 44)

Badonnel (1962: 223-224) has demonstrated the synonymy of this species with *E. dimorphus* Mockford and Gurney, and has cited distribution records from Morocco, France, Great Britain, southern United States, and Argentina. Later (1963) the same author cited records from Chile. I have taken the species from a number of Mexican localities.

RECORDS: Mexico: *Nuevo Leon*—Presa de la Boca; Galeana. *San Luis Potosi*—approximately 19 miles south of San Luis Potosi (city).

*Ectopsocopsis cryptomeriae* (Enderlein)

*Ectopsocus cryptomeriae* Enderlein (1907: 100).

Thornton (1962: 294) has given a synonymy of this species complete to its time and has indicated the likelihood of its synonymy with the species described by Chapman (1930) as *Ectopsocus pumilis* (Banks), but, as shown above, this is not the true *E. pumilis* (Banks). In fact, there appear to be no differences between the species described by Chapman and the true *E. cryptomeriae* Enderlein, as described in detail by Thornton (1962), so that they must be regarded as the same. In the following references to the species, the names indicated were used.

*Ectopsocus pumilis* (Banks):

- Chapman, P. J. 1930: 380-383, pl. XIX, figs. 4, 11, 12.  
Ball, A. 1931: 188, pl. VI, figs. 1-6.  
Sommerman, K. M. 1942: 259 (rearing technique).  
Sommerman, K. M. 1943: 53-64, pl. VI (life history).  
Gurney, A. B. 1950: 153 (proposed common name, review of habits).  
Mockford, E. L. 1950: 199-200 (distribution).  
Mockford, E. L., and A. B. Gurney. 1956: 364 (distribution).

*Ectopsocopsis pumilis* (Banks):

- Badonnel, A. 1955: 185.  
Mockford, E. L. 1961: 136 (distribution).

This species was originally described from Japan (type locality, Kanagawa). It is frequently encountered in United States Department of Agriculture plant quarantine inspections of material from Japan. In view of this and the fact that there are no other known North American species of its genus, it would seem likely that this species is not a native of North America but may have been introduced in commerce from the Old World. The species occurs throughout eastern United States from Florida and Texas in the South to central Illinois and southern New York in the North. It is established in the Monterrey region of northern Mexico (personal observation).

LITERATURE CITED

- Badonnel, A. 1935. Psocoptères nouveaux d'Afrique et d'Arabie. Rev. Franc. Ent. 2: 75-82.  
Badonnel, A. 1945. Contribution a l'etude des Psocoptères du Maroc. Rev. franc. Ent. 12: 31-50.  
Badonnel, A. 1946. Psocoptères du Congo belge. Rev. Zool. Bot. afr. 39: 137-196.  
Badonnel, A. 1949. Psocoptères de la Cote d'Ivoire (mission Paulian-Delamare). Rev. franc. Ent. 16: 20-46.  
Badonnel, A. 1955. Psocoptères de l'Angola. Diamang Publicações Culturais No. 26, Museu do Dundo. 266 pp.

- Badonnel, A.* 1962. Biologie de l'Amerique Australe. Vol. I. Etudes sur la Faune du Sol. Psocoptères. Editions du Centre Nat. de la Recherche Sci. (Paris), pp. 185-229.
- Badonnel, A.* 1963. Biologie de l'Amerique Australe. Vol. II. Psocoptères terricoles, lapidicoles et corticicoles du Chili. Editions du Centre Nat. de la Recherche Sci. (Paris), pp. 291-338.
- Ball, A.* 1931. Note descriptif concernant un *Ectopsocus* des Etats-Unis, Psocoptères, Peripsocidae. Mem. Soc. Ent. Belg. 23: 188, pl. VI.
- Ball, A.* 1943. Contribution a l'etude des Psocopteres, III. - *Ectopsocus* du Congo belge, avec une remarque sur le rapport I.O./D. Bull. Mus. roy. Hist. Natur. Belg. 19(38): 1-28.
- Banks, N.* 1920. New Neuropteroid insects. Bull. Mus. Comp. Zool. 64(3): 299-362, pls. 1-7 (psocids pp. 299-314, pls. 1-3).
- Chapman, P. J.* 1930. Corrodentia of the United States: I. Suborder Isotecnomena. J. N. Y. Ent. Soc. 38(3 & 4): 219-290, 319-402, pls. XII-XXI.
- Enderlein, G.* 1907. Neue Beiträge zur Kenntnis der Copeognathen Japans. Stett. Ent. Ztg. 68: 90-106.
- Gurney, A. B.* 1950. Psocids likely to be encountered by pest control operators. Pest Control Tech. pp. 131-163.
- Jentsch, S.* 1939. Die Gattung *Ectopsocus* (Psocoptera). Zool. Jahrb., Abt. f. Syst. 73: 111-128.
- Mockford, E. L.* 1950. The Psocoptera of Indiana. Proc. Ind. Acad. Sci. 60: 192-204.
- Mockford, E. L.* 1959. The *Ectopsocus briggsi* complex in the Americas (Psocoptera, Peripsocidae). Proc. Ent. Soc. Wash. 61(6): 260-266.
- Mockford, E. L.* 1961. An annotated list of the Psocoptera of the Flint-Chattahoochee-Appalachicola Region of Georgia, Florida, and Alabama. Fla. Ent. 44(3): 129-140.
- Mockford, E. L., and A. B. Gurney.* 1956. A review of the psocids, or book-lice and bark-lice, of Texas (Psocoptera). J. Wash. Acad. Sci. 46(11): 253-268.
- Pearman, J. V.* 1960. Some African Psocoptera found on rats. Entomologist 93: 246-250.
- Sommerman, K. M.* 1942. Rearing techniques for Corrodentia. Ent. News 53: 259-261.
- Sommerman, K. M.* 1943. Bionomics of *Ectopsocus pumilis* (Banks) (Corrodentia: Caeciliidae). Psyche 50: 53-64.
- Thornton, I. W. B.* 1962. The Peripsocidae (Psocoptera) of Hong Kong. Trans. Roy. Ent. Soc. Lond. 114: 285-315.