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EUROPIELLA REUTER (HETEROPTERA: MIRIDAE): RECOGNITION AS A HOLARCTIC GROUP, NOTES ON SYNONYMY, AND DESCRIPTION OF A NEW SPECIES, *EUROPIELLA CARVALHOI*, FROM NORTH AMERICA

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Abstract.—The subgenus *Poliopterus* Wagner of *Plagiognathus* Fieber is placed in synonymy with *Europiella* Reuter. The identity of Holarctic species is clarified. New combinations are created because of generic synonymy, species are transferred from other genera, and many names are placed in synonymy. Most species for which hosts are known feed on *Artemisia*, a few feeding on other Asteraceae such as *Chrysothamnus, Helichrysum,* and *Tanacetum,* with two species being recorded from the Lamiaceae.

Key Words: Heteroptera, Miridae, *Europiella,* new species, new synonymy, Holarctic

Reuter (1909) used the name *Europiella* for two species of phyline Miridae from North America. Since that time many additional American species have been placed in the genus. Wagner (1949) described the subgenus *Plagiognathus* (*Poliopterus*) to contain several species of Palearctic Phylinae related to *P. albipennis* (Fallén). Our individual research efforts have shown that many species placed in *Europiella* and *Plagiognathus* are in fact congeneric, or in a few cases conspecific, that many species from North America that have previously been placed in *Europiella* do not belong there, and some Palearctic species placed in *Plagiognathus* sensu stricto and *Chlorillus* actually belong to *Europiella.* There is much confusion regarding the correct application of species-group names, including substantial synonymy. In the following pages we provide solutions to these problems and describe a new species. Additional details on the history of synonymy for the Nearactic fauna, as well as more detailed distributions of the species, can be found in Henry and Wheeler (1988).

This paper is presented in honor of our long-time colleague and friend José Candido de Melo Carvalho. His influence on the study of the Miridae has been profound, because of his monumental world catalog and his unparalleled descriptive efforts, particularly on the Neotropical fauna.

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Europiella Reuter

Type species.—*Agalliastes stigmosus* Uhler 1893.

Europiella Reuter 1909: 83 (n. gen., desc.); Knight 1968: 37 (key to spp.).

Poliopterus Wagner 1949: 53 (n. subgen. of *Plagiognathus,* desc.). NEW SYNONYMY.

Diagnosis.—Relatively small, length 2–5 mm; some spp. sexually dimorphic, body form varying from elongate and nearly parallel-sided to broadly ovoid, especially in females. Coloration varying from almost completely black to almost completely green or white, usually with a few dark markings at the bases of spines on the legs. Vestiture of dorsum with reclining simple setae and recumbent, woolly, sericeous setae; head weakly produced and not overlapping anterior margin of pronotum. Male genitalia varying greatly in size, but pygophore always large relative to total size of abdomen; right paramere truncate apically, with a more or less well-developed protrusion on either side, never lanceolate in form; vesica always with two apical spines, these sometimes elongate and broadened basally (Figs. 12, 13), or much shorter and variously acuminate and/or strongly curving (Figs. 6, 7, 9, 10, 15–17); secondary gonopore placed to the side of the chitinous bands of the vesica rather than between them and distinctly proximad of attachment of spines. Often breeds exclusively on *Artemisia,* occasionally on other Asteraceae, and rarely on other plant families.

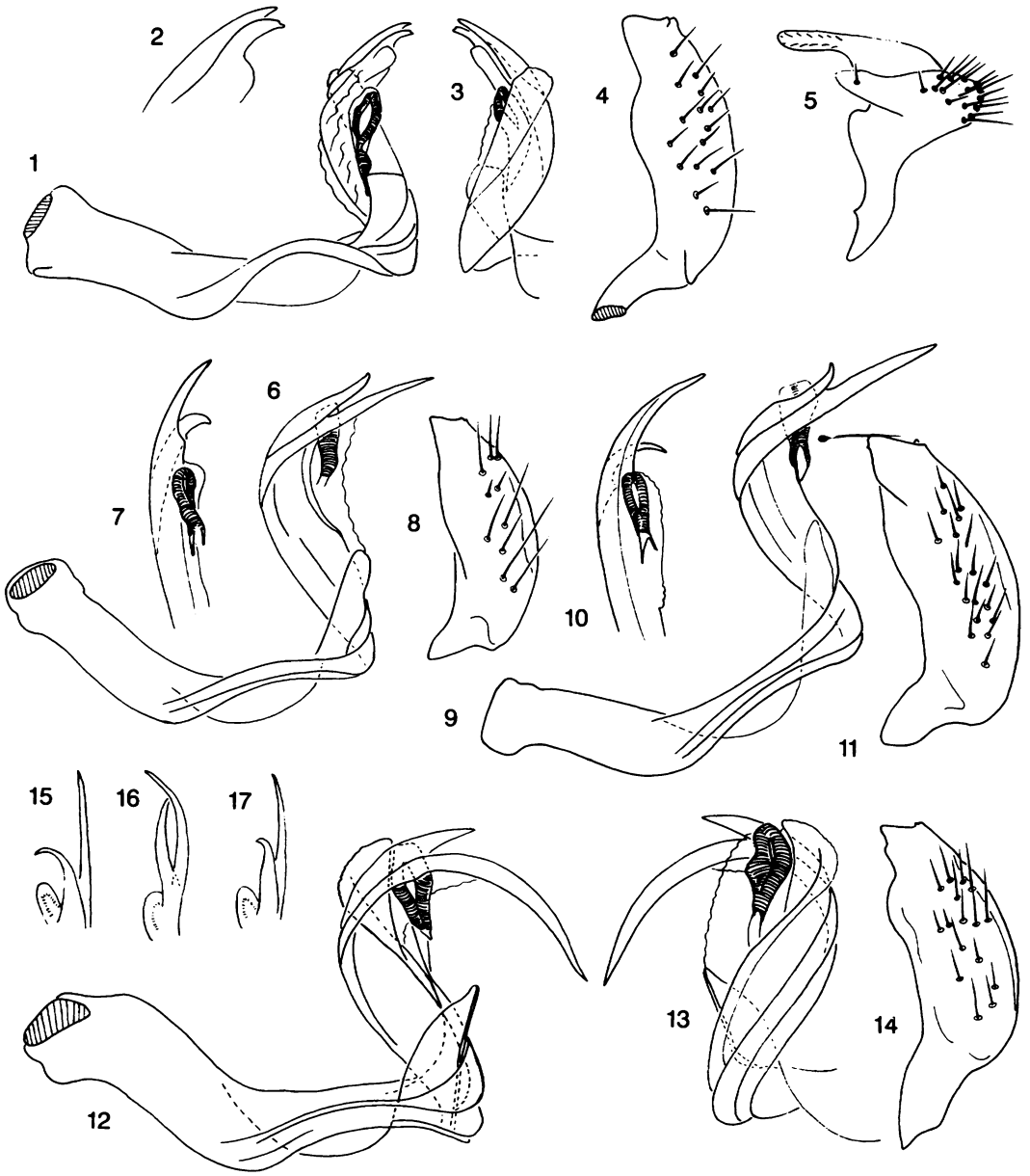
Discussion.—Wagner (1949) described the subgenus *Poliopterus,* with *albipennis* (Fallén) as the type. He consistently placed it in the genus *Plagiognathus* Fieber by virtue of its members having two elongate chitinous spines apically on the vesica and with the secondary gonopore rather distant from them. Within *Plagiognathus,* Wagner recognized *Poliopterus* by the presence of only light colored setae on the dorsum. Wagner (1975) placed 13 species from the Mediterranean Region in *Poliopterus*; the majority of those for which hosts are known feed on species of *Artemisia.*

Members of another assemblage of Palearctic species, richly represented in the Far East (Kerzhner 1988a) and including one European species, are green and dissimilar to *albipennis* in appearance. They were traditionally placed in *Plagiognathus* sensu stricto, but some species such as *Plagiognathus alpinus,* have been placed in *Chlorillus* or *Psallus* by some authors. The structure of the genitalia indicates that they should be placed in *Europiella,* as does comparison with some North American species, which are similar in coloration. All but two of them feed on *Artemisia.*

In the New World there are several species that are very closely related to *albipennis,* and a number of others that we treat as congeneric. Among these is *stigmosa* (Uhler), the type species of *Europiella* Reuter 1909. We are therefore treating *Poliopterus* Wagner as the junior synonym of *Europiella.* The male genitalia of *stigmosa* are shown in Figs. 12–14 and those of *albipennis* in Fig. 16.

The generic limits of *Plagiognathus* are a subject that can be properly addressed only with a much more wide-ranging analysis of the Holarctic Phylini, something that we do not attempt in this paper. Because subgenera have been used primarily in the Palearctic, a consistent treatment of the world fauna including the use of Palearctic subgeneric concepts would leave many species unplaced as to subgenus. It is for these reasons that we treat *Europiella* as a distinct genus.

Knight (1968, 1969, 1970) diagnosed *Europiella* without examining the structure of the male genitalia. He included some species which are clearly congeneric with *stigmosa,* the type. He also included many other species (as enumerated by Henry and Wheeler 1988) which bear a superficial resemblance to *stigmosa* and its congeners. These species are found in desert areas of western North America feeding primarily on *Atriplex, Sarcobatus* (Chenopodiaceae), and *Lycium* (Solanaceae), but nearly all of them belong to a separate lineage. Comparison of preparations of the male genitalia of paratypes of most of these species and the genitalia of *Megalopsallus atriplicis* Knight, the type species of *Megalopsallus* Knight, indicates that most, if not all, of



Figs. 1–17. Male genitalia of *Europiella* spp. 1–5. *E. carvalhoi.* 1. Vesica. 2. Detail of apex of vesica. 3. Obverse view of distal portion of vesica. 4. Right paramere. 5. Left paramere. 6–8. *E. decolor* (western North America). 6. Vesica. 7. Apex of vesica, rotated 90 degrees. 8. Right paramere. 9–11. *E. artemisiae* (western North America). 9. Vesica. 10. Apex of vesica, rotated 90 degrees. 11. Right paramere. 12–14. *E. stigmosa.* 12. Vesica. 13. Obverse view of distal portion of vesica. 14. Right paramere. 15–17. Comparative views of apex of vesica of Holarctic species. 15. *E. artemisiae* (Europe). 16. *E. albipennis* (Europe). 17. *E. decolor* (Europe).

them are congeneric. We provide below a list of all names for which new combinations are formed in *Megalopsallus*.

Some species which are clearly congeneric with *stigmosa* have often been placed in other genera. We have transferred all of those of which we are aware.

In the Holartic there are *Artemisia*-feeding species placed in other genera of Phylinae (e.g. species placed in *Phyllopidea* Knight) as well as in other subfamilies of Miridae. Critical examination of these species indicates that although the host preference of *Europiella* spp. is helpful in beginning to establish a basis for their generic identity, it is often only with examination of the male genitalia that generic placement and specific identity can be determined with certainty.

We have organized most of our treatment on geographical grounds, because the pertinent literature is organized on that basis.

Identity and Synonymy of *Europiella albipennis* and Two Related Species

Three closely related species of *Europiella* are widely distributed in the Palearctic, two of these also occurring in the Nearctic. No other species of the genus are Holarctic. All three of these species have been identified by various authors as *Plagiognathus albipennis*. We found that these taxa are reliably distinguished from one another by the form of the vesical appendages as seen in dorsal view (e.g. Figs. 15–17). The size and color are highly variable, but in some regions the species can be recognized by external appearance.

Europiella albipennis (Fallén), New Combination
Fig. 16

Phytocoris albipennis Fallén 1829: 107 (n. sp., desc.).

Agalliastes albipennis: Fieber 1861: 311 (key); Puton 1873: 25 (syn.).

Agalliastes tibialis Fieber 1864: 228 (n. sp., desc.).

Agalliastes lanuginosus Jakovlev 1875: 172 (n. sp., desc.).

Plagiognathus albipennis var. *tibialis*: Jakovlev 1877: 279 (syn.).

Plagiognathus albipennis: Reuter 1878: 175 (part; descr., variability, syn.).

Plagiognathus collinus Wagner 1941: 249 (n. sp., desc., figs.). New Synonymy.

Plagiognathus arenicola Wagner 1941: 252 (n. sp., desc., figs.). New Synonymy.

Plagiognathus (*Poliopterus*) *collinus*: Wagner 1952a: 197 (key, desc., figs.).

Plagiognathus (*Poliopterus*) *arenicola*: Wagner 1952a: 197 (key, desc., figs.); Wagner and Weber 1964: 413 (key, desc., figs.); Wagner 1975: 35 (key, desc., figs.).

Plagiognathus (*Poliopterus*) *lanuginosus*: Josifov 1974: 14, 20 (restored from synonymy, list, host); Wagner 1975: 34 (key, desc., figs.).

Distribution.—From southernmost Sweden, southeastern Finland, and Leningrad Province, Russia, at least to Bulgaria and from France east at least as far as East Kazakhstan.

Hosts.—Living exclusively on *Artemisia campestris* in Northern Europe; records of *Plagiognathus lanuginosus* from *A. maritima* in southern Europe probably refer to *E. decolor*.

Notes.—In this species the dark spots on the hind tibia are usually larger than in related species and the venter is black in both sexes, even though the dorsum may be pale. The apex of the vesica is shown in Fig. 16.

Fallén (1829) described *Phytocoris albipennis* from four specimens, including male(s) and female(s), all collected by Zetterstedt in July. Type locality: Sweden, Skåne Prov. (Scania), Esperöd. Extant material qualifying as syntypes is present only in the collection of Fallén, not in the collection of Zetterstedt, both collections deposited in the Zoological Museum, Lund University. It consists of one male labelled "*P. albipennis*

[male symbol]" and a small blue square, and one female labelled "*P. albipennis* [female symbol]" plus a few illegible characters, and "Mellby 12 jun." on the underside of the label. The labels are in Zetterstedt's handwriting, and the small blue square is known to signify that Zetterstedt collected the specimen at Esperöd, Mellby Parish. Among these specimens is pin without any specimen with Fallén's label "*P. albipennis* [male symbol] [female symbol] Esperöd."

According to Wagner (1941: 256), F. Ossiannilsson informed him that the type was no longer present in the collection of Fallén, but rather that only an empty pin remained. Ossiannilsson in a letter to Lindskog (Jan. 15, 1982) explained that his reply to Wagner was based on the opinion of museum authorities that in general only specimens carrying Fallén's labels could be considered as his types. It is known that after the death of Fallén in 1830 his collection passed to the possession of Zetterstedt, who notoriously filled in any missing species with specimens from his own collection. Ossiannilsson wrote (in litt.) "In the present case this was apparently fully justified, as I should have realized if time had been taken to look more closely on Zetterstedt's label and Fallén's text. Fallén described *albipennis* based on four specimens. He probably retained two specimens for his own collection which later were lost somehow, and returned two to the collector Zetterstedt, who in turn placed these in Fallén's collection after he acquired it. These two specimens should accordingly be considered as syntypes."

As Fallén indicated that the types were collected in July, and because Zetterstedt in his handwritten notes in his copy of Fallén's (1829) work (now in the library of the Zoological Institute, St. Petersburg), indicated that he collected the species at "l[ocis] aridis Esp[eroed] 18 jul. freq[uens]," it seems doubtful that the female labelled 12 June belongs to the syntype series although no such doubt exists for the male.

We accept these arguments and designate the male as lectotype of *P. albipennis* and have labelled it accordingly.

Wagner (1941) stated that the type specimens were presumably lost and designated from his collection "Neotypen," saying nothing about their number, sex, and locality. Wagner's "neotypes" are not conspecific with the true types (see below) and Wagner's nomenclatural act is invalid because more than one specimen was designated as the neotype.

From the examination of Fallen's specimens we have determined that the name *albipennis* should be ascribed to a species which is not the most common in the Palearctic and which does not occur in North America, in spite of many indications in the literature to the contrary.

Agalliastes tibialis was described from Sarepta (now Krasnoarmeysk, part of Volgograd) from Frey-Gessner's collection. The type specimens were apparently examined by Puton and Reuter, and Reuter (1878, pl. 4, fig. 8) published Fieber's figures of a female. We cannot locate the type(s). Judging from the large, black, tibial spots noted in the original description and the figure, and the pale dorsal surface and black abdomen, this species in a almost certainly identical with *albipennis.*

Agalliastes lanuginosus was described from specimens collected at Sarepta by Christoph and at Akhtubinskaya steppe by Becker. The only known syntype is a badly damaged specimen (probably female) from Sarepta in the Zoological Institute, St. Petersburg. Its remnants include the head with antennae, prothorax, and all legs. Judging from these parts and from the original description, the species is identical with *albipennis.*

Plagiognathus arenicola was described from Germany and Poland and *P. collinus* from Poland. We examined the types and paratypes of both species in the Zoological Museum Hamburg and paratypes in other collections. Some paratypes were dissected

for comparison of the male genitalia, and these are conspecific with *albipennis.*

Reuter (1878: 81, 82) described several varieties of *P. albipennis,* assigning them Greek letters. Reuter did not indicate specimens for his varieties and did not label varieties in his collections. Stichel (1934: 282) named these varieties *assmanni, albella, beckeri,* and *antennaria.* The identity of these names cannot be clarified at present, and it is clear that Stichel did not base his names on specimens which he himself examined.

Europiella decolor (Uhler)
Figs. 6–8, 17

? *Phytocoris pallidulus* Dahlbom 1851: 211 (n. sp., descr.). Questionable NEW SYNONYMY.

Agalliastes decolor Uhler 1893: 380 (n. sp., desc.).

Agalliastes apiatus Uhler 1895: 53 (n. sp., desc.). NEW SYNONYMY.

Agalliastes signatus Uhler 1895: 55 (n. sp., desc.). NEW SYNONYMY.

Chlamydatus bakeri Bergroth 1898: 35 (n. n. for *Agalliastes signatus* Uhler).

Plagiognathus albipennis var. *extrema* Reuter 1901: 187 (n. var., descr.). NEW SYNONYMY.

Chlamydatus uhlerianus Kirkaldy 1909: 390 (unnecessary n. n. for *Agalliastes signatus* Uhler).

Plagiognathus decolor: Reuter 1909: 81 (disc.).

Europiella decolor: Van Duzee 1916: 47 (list).

Chlamydatus apiatus: Van Duzee 1917: 417 (n. comb.).

Psallus waldeni Knight 1923: 468 (n. sp.). NEW SYNONYMY.

Psallus bakeri: Knight 1941: 43 (key, desc.).

Plagiognathus (*Poliopterus*) *litoralis* Wagner 1949: 53 (n. sp., desc., figs.); Wagner 1952a: 199 (key, desc., figs.). NEW SYNONYMY.

Plagiognathus extremus: Wagner 1954: 77 (n. status, descr.).

Plagiognathus (*Poliopterus*) *litoralis* f. *abrotani* Wagner 1949: 53 (n. form, desc.). NEW SYNONYMY.

Europiella bakeri: Carvalho 1955: 227 (n. comb.); Knight 1969: 86 (disc., redesc., host).

Plagiognathus (*Poliopterus*) *abrotani*: Wagner and Weber 1964: 413 (new status, key, desc., figs.).

Psallus artemisicola Knight 1964: 149 (n. sp., desc., host). NEW SYNONYMY.

Europiella nigricornis Knight 1968: 40 (n. sp., desc., host). NEW SYNONYMY.

Plagiognathus (*Poliopterus*) *larae* Kerzhner 1978: 46 (n. sp., desc., figs.). NEW SYNONYMY.

Psallus albipennis (not Fallén 1829): Wheeler and Hoebeke 1982: 696 (n. comb., syn., figs.).

Distribution.—Broadly distributed throughout the Holarctic.

Hosts.—Neararctic hosts include *Artemisia californica, A. campestris, A. dracunculus, A. filifolia, A. ludoviciana, A. nova, A. tridentata,* and *Chrysothamnus* sp. In the western Palearctic known from *Artemisia absinthium, A. maritima,* and *A. abrotani* (in botanical gardens). Kurile Islands specimens are from *A. schmidtiana,* belonging to the "Maritimae" series.

Notes.—The name *decolor* (Uhler) has previously been applied only to the North American fauna. Our studies indicate, however, that the taxon to which this name applies also occurs in the Palearctic.

Uhler (1893) indicated in his discussion of *decolor* that he examined four specimens from American Fork, Utah, as well as larger specimens collected near Los Angeles, California. We located in the National Museum of Natural History, Washington, D.C., a single female specimen from American Fork that seems to pertain to material originally examined by Uhler. In addition to the data noted above it bears the labels "COTYPE

(by Uhler) *Agalliastes decolor* Uhl." [apparently affixed by H. H. Knight], and "Cotype No. 52835 U.S.N.M."

Uhler (1895) described *Agalliastes apiatus* from specimens collected at Fort Collins, Manitou, and Steamboat Springs, Colorado. He indicated that it also occurred in Kansas. The collections of the USNM contain 10 specimens associated with the *apiatus* identification. One of these was labelled as a cotype by H. G. Barber. It is clearly congeneric with *decolor.*

Uhler (1895) described *Agalliastes signatus* from a single male specimen from Manitou, Colorado. We were not able to find any specimens labelled as *signatus* after careful checking of the USNM collections. Bergroth (1898) proposed the replacement name *bakeri* for the preoccupied *signatus.* Our use of the name *bakeri* is based on specimens identified by H. H. Knight, which are clearly conspecific with *decolor.* We therefore treat *bakeri* as a junior synonym.

Wheeler and Hoebeke (1982) correctly synonymized *Psallus waldeni* Knight with what they called *albipennis* (Fallén), but our examination of specimens and literature indicates that the senior synonym is in fact *decolor* (Uhler), not *albipennis* (Fallén).

We examined type specimens of *Plagiognathus litoralis* (described from Germany and the Netherlands), *P. abrotani* (from the Hamburg Botanical Gardens), and *P. larae* (from Kurile Islands), as well as many additional specimens, and found these nominal taxa to be conspecific with *decolor* from North America.

Plagiognathus albipennis var. *extrema* Reuter 1901 (p. 187) was described from several specimens (length 1.75–2.00 mm) collected by J. Sahlberg at "Constantinovskaya" (Konstantinovskaya on River Chu, about 20 km N of Beshkek, Kirgizia). Wagner (1954) examined a female from the University Zoological Museum, Helsinki labelled "Tokmak" (about 60 km E of Beshkek). He designated it as lectotype and considered *Plagiognathus extremus* as a valid species. Additional single male and female specimens identified as this species were found in the collections in Helsinki together with the lectotype. All of them are labelled "Tokmak," but the male has Sahlberg's code label indicating that it was collected at Constantinovskaya. Other cases of confusion in labelling specimens from these two localities were also encountered. All specimens belong to *E. decolor.*

The identity of *Phytocoris pallidulus* Dahlbom, 1851 is unclear. Reuter (1878) placed this name in synonymy with *P. albipennis.* Wagner (1941) treated *pallidulus* as a valid species, but later (Wagner 1952a) considered it as a pale variety of *P. albipennis* sensu Wagner. *Phytocoris pallidulus* was described from two specimens (apparently a male and a female) collected by Dahlbom at Stensuga, Gotland Island, Sweden, from Umbelliferae. The type specimens are apparently lost; according to R. Danielsson (in litt.), Zoological Museum, Lund University, they cannot be located in the collections of Dahlbom, Thomson, or other pertinent collections. Dahlbom's original description is inadequate for identification and was apparently based on teneral specimens. At least the description can hardly be referred to *E. albipennis* or *E. artemisiae* (*albipennis* sensu Wagner). Lindskog was unable to find either of these species from Gotland Island either in Swedish collections or through intensive personal collecting. The only species of *Europiella* found on Gotland Island is *E. decolor* which is abundant there on *Artemisia absinthium.* But, as Dahlbom's description may refer to some other small Miridae, especially to teneral specimens, we prefer to consider *Phytocoris pallidulus* as a possible synonym of *E. decolor* rather than treat it as a valid species.

***Europiella artemisiae* (Becker),**
NEW COMBINATION
Figs. 9–11, 15

Capsus artemisiae Becker 1864: 487 (n. sp., desc.).

Plagiognathus solani Matsumura 1917: 432 (n. sp., desc.). NEW SYNONYMY.
Plagiognathus albipennis var. *obscura* Sahlberg 1920: 167 (n. var., desc.). NEW SYNONYMY.
Plagiognathus albipennis (not Fallén 1829): Wagner 1941: 248 (desc., figs.).
Plagiognathus (*Poliopterus*) *albipennis* (not Fallén 1829): Wagner 1952a: 198 (key, desc., figs.); Kerzhner 1964: 761 (key, figs.); Kerzhner 1988a: 853 (key, figs.); Li and Zheng 1991: 90 (key, dist., figs.).
Plagiognathus (*Poliopterus*) *gracilis* Wagner 1956b: 74 (n. sp., desc., figs.). NEW SYNONYMY.

Distribution.—This species is widely distributed in the Palearctic, in the north to Scandinavia and Chukotka. Our examination of collections from Canada and the Western United States indicates that although this species has not previously been recorded from North America, it ranges from Alaska south to montane areas of the northwestern United States (detailed locality records to be published separately).

Host.—Palearctic hosts include *Artemisia vulgaris*, the related *A. montana*, and *A. rubripes*, as well as other species. The only known Nearctic host is *Artemisia ludoviciana*.

Notes.—This is the most common species of *Europiella* in the Palearctic. Wagner (1941) designated a neotype for what he considered to be *Plagiognathus albipennis*. But because Wagner misidentified the species under discussion as *Phytocoris albipennis* Fallén, his neotype(s) belongs to another species, the oldest available name for which appears to *Capsus artemisiae* Becker.

Capsus artemisiae was described from specimens collected by Becker in 1862 at Sarepta in southern Russia, from a plant he identified as *Artemisia fragrans*. This plant species does not grow in the Lower Volga region, so probably Becker collected from another species of *Artemisia*. In the Zoological Institute, St. Petersburg, there are six specimens which were received from Becker: three females (received in 1866), two males (1872), and one female (1874); one additional male collected by Becker was received with the Jakovlev collection. All males belong to *artemisiae* (Becker) (*albipennis* sensu Wagner). The male bearing the number 13737 is designated here as lectotype. In the Naturhistorisches Museum Wien, there are two males received from Becker in 1870 and one female received in 1869. They were examined by Reuter. One male belongs to *artemisiae*, the other to *albipennis*.

Plagiognathus solani Matsumura was described from Sakhalin and Hokkaido. The name was synonymized with *albipennis* sensu Wagner by Miyamoto (1977) and should put in synonymy with *artemisiae* (Becker). Also the varietal name *obscura* (Sahlberg) given to dark specimens from Finland should be placed here in synonymy.

Plagiognathus gracilis was described from Austria and Croatia. The type series was examined by us and paratypes dissected for study of the male genitalia, indicating that *gracilis* is a junior synonym.

NEARCTIC SPECIES

Europiella angulata (Uhler)

Maurodactylus angulatus Uhler 1895: 53 (n. sp., desc.).
Europiella angulata: Knight 1968: 41 (n. comb., disc., dist., host).
Europiella yampae Knight 1968: 43 (n. sp., desc., host). NEW SYNONYMY.

Distribution.—Montane western United States.

Hosts.—*Artemisia arbustorum, A. dracunculus, A. ludoviciana, A. tridentata* (Asteraceae).

Notes.—Uhler (1895) mentioned having examined "Only one specimen . . . a male . . ." [of *angulatus*]. The specimen here recognized as the holotype of *angulata*, in the USNM, fits Uhler's original description, and bears the additional label "*Maurodactylus angulatus* Uhl."

Examination of the male genitalia of the

holotype of *angulatus* and paratype males of *E. yampae* Knight from the type locality indicates that the two are synonymous.

Europiella artemisiae (Becker), see above.

Europiella carvalhoi Schuh, New Species
Figs. 1–5

Diagnosis.—Recognized by the light coloration of the dorsum with pale simple setae and weakly-flattened, recumbent, sericeous setae, the elongate oval body shape, antennal segment one black, segment two black basally and progressively lighter distally, and the form of the male genitalia, the vesica with two relatively short apical spines of nearly equal length, the more ventral spine with a small notch at the apex. *Europiella carvalhoi* is most similar among described species in body form and coloration to *E. unipuncta* Knight which has more differently formed vesical spines and *E. signicornis* Knight which has totally pale antennae.

Description.—*Male:* Dorsum, including membrane pale, white to tan, tinged with green; neck (when visible) castaneous; thoracic pleuron and venter and pregenital abdominal segments weakly infuscate, pygophore somewhat darker; antennal segment one black, segment two black proximally, progressively lighter distally, segments three and four weakly infuscate; legs weakly infuscate, tibiae narrowly black at femoral articulation, tibial spines black with black bases; femora with a few diffuse scattered infuscate areas.

Dorsum densely clothed with reclining pale simple setae and weakly flattened, recumbent, sericeous setae.

Body elongate ovoid; frons bulging; eyes globular, touching anterior margin of pronotum; posterior margin of vertex sinuous.

Pygophore very large, occupying well more than half of abdomen; vesica with two relatively short apical spines of nearly equal length, the more ventral with a small notch at the apex (Figs. 1–3); left paramere as in Fig. 5; right paramere as in Fig. 4.

Measurements:

	Apex tylus—cuneal fracture	Width head	Interocular space	Width pronotum	Length antennal segment 2
M 8	1.87–2.11	0.67–0.73	0.41–0.47	0.86–0.96	0.60–0.70
F 8	1.65–2.07	0.66–0.74	0.43–0.49	0.82–1.00	0.50–0.68

Holotype.—male, USA: Wyoming: *Big Horn Co.:* 27 mi. W Burgess Jct. on Rt. 14, 7700 ft., Aug. 12, 1986, Schuh, Schwartz, and Stonedahl; *Artemisia tridentata* Nutt. (Asteraceae); deposited in the AMNH.

Paratypes.—3 males, 9 females, same data as holotype (AMNH, OSU, USNM). USA: Nevada: *Washoe Co.:* 7 mi. W of Vya toward Decarville, 1800 m, July 2, 1979, R. T. Schuh and B. M. Massie, ex *Artemisia* sp. (not *tridentata*) (Asteraceae) (AMNH), 5 males, 9 females. Oregon: *Jackson Co.:* Ashland, 6500 ft., September 24, 1968, Oman (OSU), 4 males, 13 females; 1 mi. below summit of Mt. Ashland, 6500 ft., September 24, 1968, J. D. Lattin (OSU), 7 males, 7 females. *Umatilla Co.:* 2 mi. W Tollgate, 4600 ft., August 4, 1986, Schuh, Schwartz, and Stonedahl, *Artemisia tridentata* Nutt. (Asteraceae) (AMNH, USNM), 32 males, 59 females. *Wheeler Co.:* 2 mi. W Mitchell on Rt. 26, June 22, 1979, M. D. Schwartz, G. M. Stonedahl, ex *Artemisia tridentata* (AMNH), 7 males, 20 females; Mitchell, June 22, 1979, R. T. Schuh, ex *Artemisia tridentata wyomingensis* (AMNH), 2 males, 8 females.

Hosts.—*Artemisia tridentata, Artemisia tridentata wyomingensis* (Asteraceae).

Europiella consors (Uhler), New Combination

Maurodactylus consors Uhler 1895: 53 (n. sp., desc.).

Europiella fuscicornis Knight 1969: 82 (n. sp., desc., host). New Synonymy.

Europiella basicornis Knight 1970: 230 (n. sp., desc.). New Synonymy.

Distribution.—Western North America.

Hosts.—*Artemisia dracunculus, A. filifolia, A. ludoviciana ludoviciana, A. tridentata,*

Chrysothamnus nauseosus, C. parryi, C. viscidiflorus, C. sp. (Asteraceae).

Notes.—Uhler (1895) described *consors* on the basis of "one specimen, a male . . . from Colorado." We have examined a specimen in the USNM which fits Uhler's original description, and bears the label "*Maurodactylus consors* col. Uhler." We therefore have assumed that it is the specimen originally examined by Uhler. Dissections of specimens which are almost certainly conspecific indicate that this is actually a species of *Europiella* rather than belonging to the European *Maurodactylus* Reuter, and it is therefore transferred.

Examination of the holotypes of *Europiella basicornis* Knight and *E. fuscicornis* Knight, a large amount of additional material, and many dissections of the male genitalia, indicate that these two nominal species represent the same species and are both junior synonyms of *consors.*

Europiella decolor (Uhler), see above.

Europiella pilosula (Uhler)

Atomoscelis pilosulus Uhler 1893: 377 (n. sp., desc.).
Tuponia subnitida Uhler 1895: 45 (n. sp., desc.). NEW SYNONYMY.
Psallus pilosulus: Van Duzee 1915: 118 (list, n. comb.).
Microphylidea pallens Knight 1968: 29 (n. sp., desc.). NEW SYNONYMY.
Europiella pilosula: Knight 1968: 44 (n. comb., note).
Europiella flavicornis Knight 1969: 82 (n. sp., desc., host). NEW SYNONYMY.
Europiella pallida Knight 1969: 83 (n. sp., desc., host). (Syn. by Stonedahl 1990:79).
Europiella albata Knight 1969: 85 (n. sp., desc.). NEW SYNONYMY.

Distribution.—Interior western United States.

Hosts.—*Artemisia filifolia, A. tridentata* (Asteraceae).

Notes.—Uhler (1893) described *Atomoscelis pilosulus* on the basis of "Several specimens . . . collected on *Bigelovia* near American Fork, June 22." We have located in the USNM 2 specimens, a male and a female, that bear the correct data. A third specimen, a female, was actually a misidentified example of *unipuncta* Knight.

Comparison of the male genitalia of *pilosula* with those of the holotype of *Microphylidea pallens* Knight indicates that the two are synonymous. Comparison of the male genitalia of *pilosula* with those of topotypic males collected on the same date as the holotype of *Europiella albata* Knight indicates that the two are synonymous. Comparison of *pilosula* with *E. flavicornis* Knight indicates that the two are synonymous.

Uhler (1895) described *Tuponia subnitida* from Steamboat Springs, Colorado, on the basis of two specimens. We searched the collections of the USNM, but were unable to find any specimens which appeared to have been examined by Uhler. We did find, however, specimens from Ft. Garland, Colorado, collected by H. H. Knight and labelled by him as "*Tuponia subnitida* Uhler, compared with type." These specimens agree closely with the Uhler's description of *subnitida* with the exception of the fact that antennal segment one is not "blackish" as indicated by Uhler, but rather only weakly brown. All other attributes, including size, shape, and distribution agree, however, and we are therefore treating *subnitida* as a synonym of *pilosula.*

Europiella signicornis Knight

Europiella signicornis Knight 1969: 84 (n. sp., desc., host).

Distribution.—Northern Arizona.
Host.—*Artemisia* sp. (Asteraceae).

Europiella stigmosa (Uhler)
Figs. 12–14

Agalliastes stigmosus Uhler 1893: 379 (n. sp., desc.).
Europiella stigmosa: Reuter 1909: 84 (disc.); Knight 1968: 43 (in part, dist., host).

Distribution.—Western United States.

Hosts.—*Artemisia californica*; *Artemisia tridentata* (Asteraceae).

Notes.—In his original description, Uhler said that "Specimens [of *stigmosa*] were collected at American Fork, June 22." We located three specimens in the USNM which bear these data. One of these, a female, bears an identification label which appears to have been written by Uhler as well as a "lectotype" label affixed by H. G. Barber, although we can find no evidence that Barber ever published this designation. The other two, both males, were in the collection of H. H. Knight and bear his identification labels, but there is no direct evidence that they are part of the material examined by Uhler. We have not designated a lectotype, but neither do we consider the identity of *stigmosa* to be in question.

Europiella umbrina Reuter

Europiella umbrina Reuter 1909: 85 (n. sp., desc.).

Europiella similis Knight 1969: 81 (n. sp., desc., host). NEW SYNONYMY.

Europiella stigmosa: Knight 1968: 43 (misidentification).

Distribution.—Western United States.

Hosts.—*Artemisia californica, A. nova, A. tridentata* (Asteraceae).

Notes.—Henry and Wheeler (1988) listed *umbrina* Reuter as a synonym of *stigmosa*. Comparison of the types of *stigmosa, umbrina,* and *similis* Knight, and the male genitalia of these nominal species, indicates that *umbrina* is distinct from *stigmosa,* but that *similis* is synonymous with *umbrina.*

Europiella unipuncta Knight

Europiella unipuncta Knight 1968: 44 (n. sp., desc., host).

Distribution.—Interior western United States.

Host.—*Artemisia tridentata* (Asteraceae).

Species transferred from *Europiella* to *Megalopsallus* Knight 1927

albipubescens Knight 1968 (*Europiella*), NEW COMBINATION

arizonae Knight 1968 (*Europiella*), NEW COMBINATION

balli Knight 1968 (*Europiella*), NEW COMBINATION

brevicornis Knight 1968 (*Europiella*), NEW COMBINATION

franseriae Knight 1969 (*Europiella*), NEW COMBINATION

grayiae Knight 1968 (*Europiella*), NEW COMBINATION

humeralis Van Duzee 1923 (*Sthenarus*), NEW COMBINATION

knowltoni Knight 1970 (*Europiella*), NEW COMBINATION

lycii Knight 1968 (*Europiella*), NEW COMBINATION

montanae Knight 1968 (*Europiella*), NEW COMBINATION

monticola Knight 1968 (*Europiella*), NEW COMBINATION

multipunctipes Knight 1970 (*Europiella*), NEW COMBINATION

nicholi Knight 1968 (*Europiella*), NEW COMBINATION

nigrofemoratus Knight 1968 (*Europiella*), NEW COMBINATION

punctipes Knight 1968 (*Europiella*), NEW COMBINATION

rubicornis Knight 1968 (*Europiella*, NEW COMBINATION

rufiventris Knight 1968 (*Europiella*), NEW COMBINATION

sarcobati Knight 1969 (*Europiella*), NEW COMBINATION

sparsus Knight 1969 (*Europiella*), NEW COMBINATION

stitti Knight 1968 (*Europiella*), NEW COMBINATION

viridiventris Knight 1968 (*Europiella*), NEW COMBINATION

PALEARCTIC SPECIES

Europiella albipennis (Fallén), see above.

***Europiella alpina* (Reuter 1875), NEW COMBINATION**

Plagiognathus alpinus Reuter 1875: 56 (n. sp., descr.); Kerzhner 1964: 761 (key, figs.).
Psallus pallidus Reuter 1880: 24 (n. sp., descr.) (syn. by Wagner 1958).
Plagiognathus alpinus f. *nigrescens* Stichel 1934: 279 (n. form, key).
Plagionathus alpinus f. *simplex* Stichel 1956: 332 (n. form, key).
Psallus (*Psallus*) *alpinus*: Wagner 1956a: 298 (disc., figs.); Wagner 1958: 325 (syn.).
Plagiognathus (*Chlorillus*) *alpinus*: Kerzhner 1962: 384 (disc., figs.).
Chlorillus alpinus: Wagner 1963b: 155 (disc.,); Wagner 1975: 13 (desc., key, figs.).

Distribution.—Europe, western Palearctic Asia. Contrary to Wagner (1975), this species is not recorded from North America.

Host:—*Mentha aquatica* (Lamiaceae).

Europiella artemisiae (Becker), see above.

***Europiella canoflavida* (Qi and Nonnaizab), NEW COMBINATION**

Plagiognathus (*Poliopterus*) *canoflavidus* Qi and Nonnaizab 1993: 31 (n. sp., desc., figs.).

Distribution.—China: Inner Mongolia.

Note.—We have not examined specimens of this species. It is probably synonymous with either *E. decolor* or *E. artemisiae*, based on the published figures of the male genitalia.

Europiella decolor (Uhler), see above.

***Europiella herbaalbae* (Wagner), NEW COMBINATION**

Plagiognathus (*Poliopterus*) *herbaalbae* Wagner 1969a: 13 (n. sp., desc., figs.); Wagner 1975: 29 (desc., key, figs.).

Distribution.—Algeria, Libya, Tunisia.

Host.—*Artemisia herba-alba* (Asteraceae).

***Europiella gilva* (Kulik), NEW COMBINATION**

Plagiognathus gilvus Kulik 1965: 155 (n. sp., desc., figs.); Kerzhner 1979: 54 (key, syn., figs.); Kerzhner 1988a: 855 (key, figs.).
Chlorillus pilosus Wagner 1969b: 34 (n. sp., desc., figs.).

Distribution.—Russia (Primorsk Territory). Records from Korea (Josifov and Kerzhner 1972) refer to *E. livida*.

Host.—*Rabdosia excisa* (Lamiaceae).

***Europiella kiritschenkoi* (Kulik), NEW COMBINATION**

Plagiognathus kiritschenkoi Kulik 1975: 587 (n. sp., desc., figs.); Kerzhner 1979: 55 (key, figs.); Kerzhner 1988a: 855 (key, figs.); Li and Zheng 1991: 90 (key, distr., figs.).

Distribution.—Russia (Primorsk Territory); China (Heilongjiang).

Host.—*Artemisia* sp. (Asteraceae).

***Europiella leucopus* (Kerzhner), NEW COMBINATION**

Plagiognathus leucopus Kerzhner 1979: 50 (n. sp., desc., figs.); Kerzhner 1988a: 854 (key, figs.); Li and Zheng 1991: 90 (key, distr., figs.).

Distribution.—Russia (Primorsk Territory); China (Heilongjiang).

***Europiella livida* (Reuter), NEW COMBINATION**

Plagiognathus lividus Reuter 1906: 73 (n. sp., desc.); Kerzhner 1979: 51 (part; distr., figs.); Kerzhner 1988a: 855 (key, figs.); Li and Zheng 1991: 91 (key, distr., figs.).

Distribution.—Russia (Amur Province; Primorsk Territory); Korea; eastern China (to Sichuan).

Host.—*Artemisia gmelinii* (Asteraceae).

***Europiella lividella* (Kerzhner), NEW COMBINATION**

Plagiognathus lividellus Kerzhner 1979: 51 (n. sp., desc., figs.); Kerzhner 1988a: 855 (key, figs.); Li and Zheng 1991: 90 (key, distr., figs.).

Distribution.—Russia (Far East); China (Heilongjiang; Fujian, Ningxia).

Hosts.—*Artemisia montana, A. rubripes,* and *A. vulgaris* (Asteraceae).

***Europiella miyamotoi* (Kerzhner), NEW COMBINATION**

Plagiognathus lividus (not Reuter 1906): Miyamoto 1969: 90 (desc., figs.); Kerzhner 1979: 54 (part).

Plagiognathus miyamotoi Kerzhner 1988a: 955 (n. sp., key, figs.); Kerzhner 1988b: 64 (desc.).

Distribution.—Russia (Sakhalin and Kurile Islands); Japan.

Host.—*Artemisia montana* (= *gigantea*) (Asteraceae).

***Europiella moesta* (Reuter), NEW COMBINATION**

Plagiognathus albipennis var. *moesta* Reuter 1906: 75 (n. var., desc.).

Plagiognathus (*Poliopterus*) *moestus*: Wagner 1954: 75 (n. stat., desc., figs.); Li and Zheng 1991: 90 (key, distr., figs.).

Distribution.—China: Sichuan. Collected at high altitudes.

Host.—Unknown.

Note.—This species is very close to *E. artemisiae* and does not differ from it in the structure of the male genitalia, except in size. It is, however, markedly larger, very dark, and strongly shining.

***Europiella nigrocunealis* (Putshkov), NEW COMBINATION**

Plagiognathus (*Poliopterus*) *nigrocunealis* Putshkov 1975: 283 (n. sp., desc.).

Distribution.—Armenia; Azerbaijan.

Host.—*Tanacetum vulgare* (Asteraceae).

***Europiella ovatula* (Wagner), NEW COMBINATION**

Plagiognathus (*Poliopterus*) *ovatulus* Wagner 1952b: 41 (n. sp., desc., figs.); Putshkov 1971: 35 (dist., host); Wagner 1975: 31 (key, desc., figs.).

Distribution.—Croatia; Ukraine.

Hosts.—*Helichrysum angustifolium, H. arenarium* (Asteraceae).

Note.—This species does not differ from *E. artemisiae* in the structure of the aedeagus, but shows marked differences in size and color, and because the host plants are also different, we regard it as a separate species. It is closely related to the less well-known *E. tomentosa* and possibly synonymous with it.

***Europiella strawinskii* (Sienkiewicz), NEW COMBINATION**

Plagiognathus (*Poliopterus*) *strawinskii* Sienkiewicz 1986: 373 (n. sp., desc., figs.).

Distribution.—Romania.

Note.—Probably a synonym of *E. decolor.*

***Europiella strigifemur* (Wagner), NEW COMBINATION**

Europiella (*Poliopterus*) *strigifemur* Wagner 1964: 70 (n. sp., desc., figs.); Wagner 1975: 28 (desc., key, figs.).

Distribution.—Libya.

Host.—Unknown.

Note.—We examined only female specimens of this species. They clearly belong to the group of species closely related to *Europiella albipennis.*

***Europiella tomentosa* (Reuter), NEW COMBINATION**

Plagiognathus tomentosus Reuter 1888: 236 (n. sp., desc.).

Plagiognathus (*Poliopterus*) *ovatulus* (not

Wagner 1952b): Wagner and Weber 1964: 415 (desc.).

Plagiognathus (*Poliopterus*) *tomentosus*: Wagner 1975: 31 (key, desc.).

Distribution.—Southern France; Sicily.
Host.—*Helichrysum* spp. (Asteraceae).

Comments on Additional Palearctic Species

Psallus argyrotrichus Fieber 1861.

This taxon was described from Germany and Spain. Wagner (1963a) examined four specimens from Spain belonging to the collections of Meyer-Dür (now in the AMNH) identified as *P. argyrotrichus*, designating one of them as the lectotype. He transferred *argyrotrichus* to *Plagiognathus* (*Poliopterus*) and placed *P. decolor* Lindberg in synonymy with it. We re-examined the material studied by Wagner and have determined that the specimens are actually *Compsidolon crotchi* (Scott). Contrary to what Wagner (1963a) indicated, the identification label attached to the specimens is written by Meyer-Dür, not by Fieber. Although all of the specimens are badly rubbed, they have remnants of black setae on the hemelytra, which contradicts Fieber's original description. It is clear that the specimens examined by Wagner do not belong to the type series of Fieber and were misidentified. The identity of *P. argyrotrichus* needs clarification.

Plagiognathus bicolor (Jakovlev 1880).

This species, the only representative of *Plagiognathus* (*Zophocnemis*) Kerzhner 1962, resembles some species of *Europiella* in coloration and size, but male genitalia are typical of *Plagiognathus* sensu stricto, and we therefore place it in that genus.

Plagiognathus decolor Lindberg 1934.

This species was described on the basis of four females from Spain (Lindberg 1934). Wagner (1963a) placed the taxon in synonymy with *Psallus argyrotrichus* Fieber and transferred *argyrothichus* to *Plagiognathus* (*Poliopterus*). The synonymy, taxonomic position, and consequent possible secondary homonymy of *P. decolor* Lindberg with *Europiella decolor* (Uhler) need re-examination. See also notes under *Psallus argyrotrichus*.

Plagiognathus flavipes Reuter 1875.

This species is known from southwestern Europe, living on *Lonicera*. Wagner (1952a) placed it in *Plagiognathus* (*Poliopterus*). We examined about 10 specimens, including some from Corsica, the type locality, identified by Puton. The structure of the male genitalia is typical of *Plagiognathus* sensu stricto.

Plagiognathus servadeii Wagner 1972.

Wagner (1972) described this species from northern Italy and placed it in *Plagiognathus* (*Poliopterus*). Judging from the figure of the right paramere accompanying the original description, it does not belong to *Europiella*; the structure of the aedeagus will not clearly place the species in either *Europiella* or *Plagiognathus*, and we therefore provisionally leave the species in *Plagiognathus* sensu stricto.

Plagiognathus pallescens Zheng and Li 1991.

This species was described (Zheng and Li 1991) from China (Sichuan). The type series (of which we examined three specimens labelled as paratypes), is mixed, as could be presumed from the great variability in the length, males 3.30–4.28, females 3.02–3.22. One male specimen labelled as a paratype from "Szechwan, 2000–2300 m, 10.IX.1963," measures 4.5 mm in length and contradicts the original description regarding length and collecting data; it bears a handwritten paratype label where the other two specimens available for our examination have printed labels. The genitalia of this specimen are of the species figured with the original description. A male from "Hsiao-chin" is 4.2 mm long, has genitalia very different in structure from the first discussed specimen, and is possibly not even congeneric with it. Neither of these specimens belong to *Europiella* and could only be placed in *Plagiognathus*

sensu stricto with difficulty. The third specimen is a female measuring 3.2 mm in length, from "Pao-shing, 950–1350 m, 1.VII.1963," these data matching the original description except for the date; it possibly belongs to the group of species closely related to *alpina*.

Salicarus bimaculatus Zheng and Li 1991.

This species was described from Sichuan, China. Judging from the size variability indicated in the original description (2.09–3.5 mm), it may be based on a mixed series. Clearly, this is not a species of *Salicarus*, but judging from the description closely resembles species closely related to *albipennis*, especially *E. artemisiae*.

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