

- . 1962. New Phytoseiidae (Acarina: Mesostigmata) from Florida. Fla. Ent. 45: 1-10.
- . 1963. The genus *Galendromus* Muma, 1961 (Acarina: Phytoseiidae). Fla. Ent. Suppl. 1: 15-41.
- , AND H. A. DENMARK. 1968. Some generic descriptions and name changes in the family Phytoseiidae (Acarina: Mesostigmata). Fla. Ent. 51(4): 229-40.
- , H. A. DENMARK, AND D. DE LEON. 1970. Phytoseiidae of Florida. Arthropods of Florida and Neighboring Land Areas 6: 1-150.
- PRICHARD, A. E., AND E. W. BAKER. 1962. Mites of the family Phytoseiidae from Central Africa, with remarks on the genera of the world. Hilgardia 33(7): 205-309.
- RIBAGA, CONSTANTINO. 1904. Gamasidi planticoli. Riv. Patol. Veg. 10: 175-8.
- SCHUSTER, ROBERT O., AND A. EARL PRITCHARD. 1963. Phytoseiid mites of California. Hilgardia 34(7): 191-285.
- WAINSTEIN, B. A. 1959. A new subgenus and species of genus *Phytoseius* Ribaga, 1902 (Phytoseiidae, Parasitiformes). Zool. Zhurn. 38: 1361-5.
- . 1962. Revision du genre *Typhlodromus* Scheuten, 1857, et systématique de la famille des Phytoseiidae (Berlese, 1916) (Acarina: Parasitiformes). Acarologia 4(1): 5-30.

NEW SPECIES OF *ESENBECKIA* (*PROBOSCOIDES*)
(DIPTERA: TABANIDAE)
WITH A KEY TO THE SUBGENUS^{1,2}

G. B. FAIRCHILD³ AND RICHARD C. WILKERSON³
Department of Entomology and Nematology
University of Florida
Gainesville, FL 32611 USA

ABSTRACT

Descriptions and figures are given for 3 new *Esenbeckia* (*Proboscoides*) species; *farraginis* from Brasil: Goiás; *punctiventer* from Brasil: Rio de Janeiro, and *geminorum* from western Ecuador. Figures are included for *E. (P.) tristis* Kröber (= *infrataeniata* Lutz & Castro NEW SYNONONY), *suturalis* (Rondani), *schlingeri* Philip, *rostrum* Philip, *arcuata* (Williston), and *ecuadorensis* Lutz and Castro. The remaining 2 species, *fairchildi* Philip, *dichroa* Brèthes (= *E. ferruginea* var. *nigrovillosa* Kröber NEW SYNONONY), and subspecies *ecuadorensis chagresensis* Fairchild are included in a key with the above. *Esenbeckia (P.) schlingeri* and *tristis* are moved from *E. (Esenbeckia)* to *E. (Proboscoides)*.

Proboscoides was proposed as a full genus by Philip (1943) with *P. fairchildi* Phil. as type species. Fairchild (1969) briefly characterized the group and included 6 species and 2 subspecies, but reduced it to a subgenus of

¹Florida Agricultural Experiment Station Journal Series No. 2420.

²This work was supported by National Science Foundation Grant DEB 78-10121.

³Research Associate, Florida State Collection of Arthropods, Florida Department of Agriculture and Consumer Services, Gainesville 32602.

Esenbeckia due to the existence of species with proboscides of intermediate structure. The chief character used to define the subgenus has been the structure of the proboscis, in which the labella are thickened, heavily sclerotized, and kidney or sausage shaped, without ventral membranous areas and with the pseudotracheae of the opposing surfaces markedly reduced or absent. In dorsal or ventral view, a space generally can be seen between the labella, and the labella appear forceps-like. In addition, the theca is heavily sclerotized and usually shiny, generally rather stout, but in some species quite slender. None of the species has particolored or patterned wings, and the frontal callus is weakly developed and ridge-like or absent. There is much interspecific variation in the structure and relative proportions of the parts of the proboscis, and in several species the labella are so small and little modified that their relationship to the more typical members of the group was not previously recognized. Males of only 3 species have been studied. Nothing is known of the habits of any species except *E. (P.) ecuadorensis chagresensis* Fchld., the type series of which was taken attacking horses. The purpose of the highly modified proboscis is thus unknown.

The group ranges from Panama to Paraguay, but specimens are not common in collections. The type series of *chagresensis* consisted of about 50 specimens, all but 2 taken in June or July in various years. The present series of *rostrum* Philip was taken at several localities in the Amazon basin, from October to March. All other species we have seen are represented by less than a dozen specimens each. We give below a key to the females followed by notes on described taxa and descriptions and figures of new species. They are discussed in alphabetical order.

We are grateful to C. B. Philip (C.B.P.) and the authorities at the California Academy of Sciences (C.A.S.), to L. L. Pechuman (L.L.P.) at Cornell University, to P. Wygodzinsky at the American Museum of Natural History (A.M.N.H.), to C. A. Triplehorn at Ohio State University, and to K. Hays at Auburn University for the generous loan of material.

Key to *Proboscoides* Females

1. Fourth posterior cell strongly coarctate to closed and petiolate. Small yellowish brown species (wing length 11-12 mm) with bases of fore and mid femora and all of hind legs infuscated, blackish and black haired. Labella of proboscis short, slender, less than 1/3 length of proboscis. Abdomen yellowish brown, without contrasting markings, the tergites with broad pale haired hind marginal bands *geminorum* n. sp. (W. Ecuador)
- 1'. Fourth posterior cell widely open, at most slightly narrowed apically. Wing length over 12 mm 2
- 2(1'). Labella short, 1/4 or less length of proboscis. Palpi short and slender, 1/2 or less length of proboscis. Legs with coxae and femora dusky to blackish, black haired. Fore and mid tibiae contrastingly pale, hind tibiae brown with brown or mixed brown and black hairs. Abdomen with 1st tergite yellowish, remainder yellowish brown to mahogany brown, dark haired except for posterior white haired fringes. Wings smoky *schlingeri* (E. Peru)
- 2'. Without the above combination of characters 3

- 3(2'). Hind tibiae pale brown or orange haired, rarely with a few black hairs dorsally 4
- 3'. Hind tibiae and usually hind femora dusky to black, densely black haired 7
- 4(3). Abdomen with largely yellow to orange hairs above. Legs yellow to rufous haired 5
- 4'. Abdomen with largely black hairs above. Legs with some to numerous long black hairs 6
- 5(4). Legs, including coxae entirely yellow and yellow pilose. Palpi brown, yellow haired, short, and slender, less than 1/2 length of long and stout proboscis. Labella of proboscis 1/2 or more length of theca. Abdominal tergites 3 and 4 brown, basally black haired. Sternites without contrasting dark integumental markings *fairchildi* (E. Peru)
- 5'. Femora, especially the hind pair, basally brownish, the hind tibiae also brown; hind legs, especially tibiae, with rufous to dark brown hairs. All abdominal tergites orange to rufous with concolorous hairs, the posterolateral corners of tergites 2-4 with silvery hair tufts. Sternite 2 with paired ventrolateral brown spots, 3 with larger lateral spots, 4 and 5 with basal dark bands interrupted in the middle *punctiventer* n. sp. (S. Brasil)
- 6(4'). Palpi slender and pointed, without a conspicuous bare area on outer aspect, black haired. Hairs and pollinosity of face, pleura and venter yellowish to brownish. Abdomen with narrow sparsely orange haired hind marginal bands on all tergites and lateral dark integumental stripes beneath *tristis* (S. E. Brasil)
- Palpi broad and apically rounded, with a large and conspicuous bare area on outer aspect, yellow haired. Hairs and pollinosity of beard, pleura, and venter gray to white. Abdomen with pale white hairs, limited to posterior corners of tergites, and with only a diffuse median dark ventral stripe *farraginis* n. sp. (Brasil: Goias)
- 7(3'). All femora light yellow in ground color, contrasting with blackish coxae. Mid and hind femora and hind tibiae with long black hairs. Wings only faintly yellowish tinted. Middle of mesonotum and scutellum blackish in ground color, the sides, including notopleural lobes yellowish, both yellowish pollinose. Abdomen with at least 1st 3 tergites clear yellow, remaining segments orange to brown. First tergite yellow haired, remainder sparsely black haired with yellow haired hind marginal bands *dichroa* (Argentina)
- 7'. Femora pale brown to black, not contrasting with coxae, and without the above combination of characters 8
- 8(7'). Proboscis greater than head height. Labella apparently at least 3/4 length of theca, slender, and curved. Palpi slender, not over 1/2 length of proboscis 9
- 8'. Proboscis equal to or less than head height. Labella shorter, stouter, apparently not over 1/2-2/3 length of theca. Palpi

- broader, rounded or blunt ended 10
- 9(8). Frons broader, index 3.0, about as wide at base as at vertex. Legs pale yellowish, entirely short dark pilose. Beard, pleura, and pale vestiture of abdominal venter grayish white. First abdominal tergite translucent whitish, white pilose, 2nd pale yellowish, 3rd and succeeding tergites blackish brown with broad pale hind margins. Vestiture black pilose on basal 1/2 of 2nd tergite, 2/3-3/4 on succeeding tergites. Venter similarly banded, the pale bands wider
..... *arcuata* (Brasil: Mato Grosso)
- 9'. Frons narrower, index 3.9, nearly as wide at vertex as at base. Legs dark brown to black, all densely black pilose. Beard, upper pleura and abdominal venter yellow to orange pilose, only lower pleura and coxae white pilose. Abdomen as above, except that all pale vestiture is rich yellow
..... *rostrum* (E. Peru, Brasil: Pará)
- 10(8'). Terminal antennal annulus short, not longer than 3 preceding annuli. Fore and mid legs yellowish to brown, hind legs mainly black, all clothed with black hairs. Wings lightly tinted. Mesonotum orange haired with some black admixture, pleura and coxae grayish white haired. Abdomen with 1st tergite whitish, pale haired; 2nd yellowish, black haired, 3rd to last black, black haired, all with narrow pale and white haired hind margins. Beneath, the ground color is the same, but hairs entirely pale *suturalis* (Trinidad to E. Peru)
- 10'. Terminal antennal segment longer, equal to 4 preceding annuli. All femora black, but fore and mid tibiae paler. Wings strongly brown tinted 11
- 11(10'). Mesonotum clothed with reddish brown pollen and orange hairs. Abdomen with at least 1st 2 and much of 3rd segments pale in ground color, remainder dark with pale hind margins. Hairs mainly black, but with pale haired hind marginal fringes, wider laterally *ecuadorensis* (W. Ecuador)
- 11'. Mesonotum clothed with gray pollen and blackish hairs. Abdomen largely black, only the 1st segment pale at sides, black haired and with narrow white haired hind marginal fringes *ecuadorensis chagresensis* (Panama, N. Colombia)

Esenbeckia (*Proboscoides*) *arcuata* (Williston)

(Fig. 7a-d)

Pangonia arcuata Williston 1895, Kansas Univ. Quart. 3(3): 190, ♀ Brasil, Chapada. Ricardo 1900, Ann. Mag. Nat. Hist., Ser. 7,5: 174, Brasil: ? Amazonas.

Esenbeckia arcuata: Lutz 1909, Zool. Jahrb. 4, Suppl. 10: 673. Kröber 1931, Rev. Ent. 2(1): 73-4, Fig. 20, Peru, Ecuador, Manaos, Colombia. Lutz and Castro 1935, Mem. Inst. Oswaldo Cruz (3): 558-9. Kröber 1934, Rev. Ent. 4(2): 240. Vianna Martins 1940, Tabanid. Minas Gerais, p. 72-3, Lassance, Minas Gerais, Brazil.

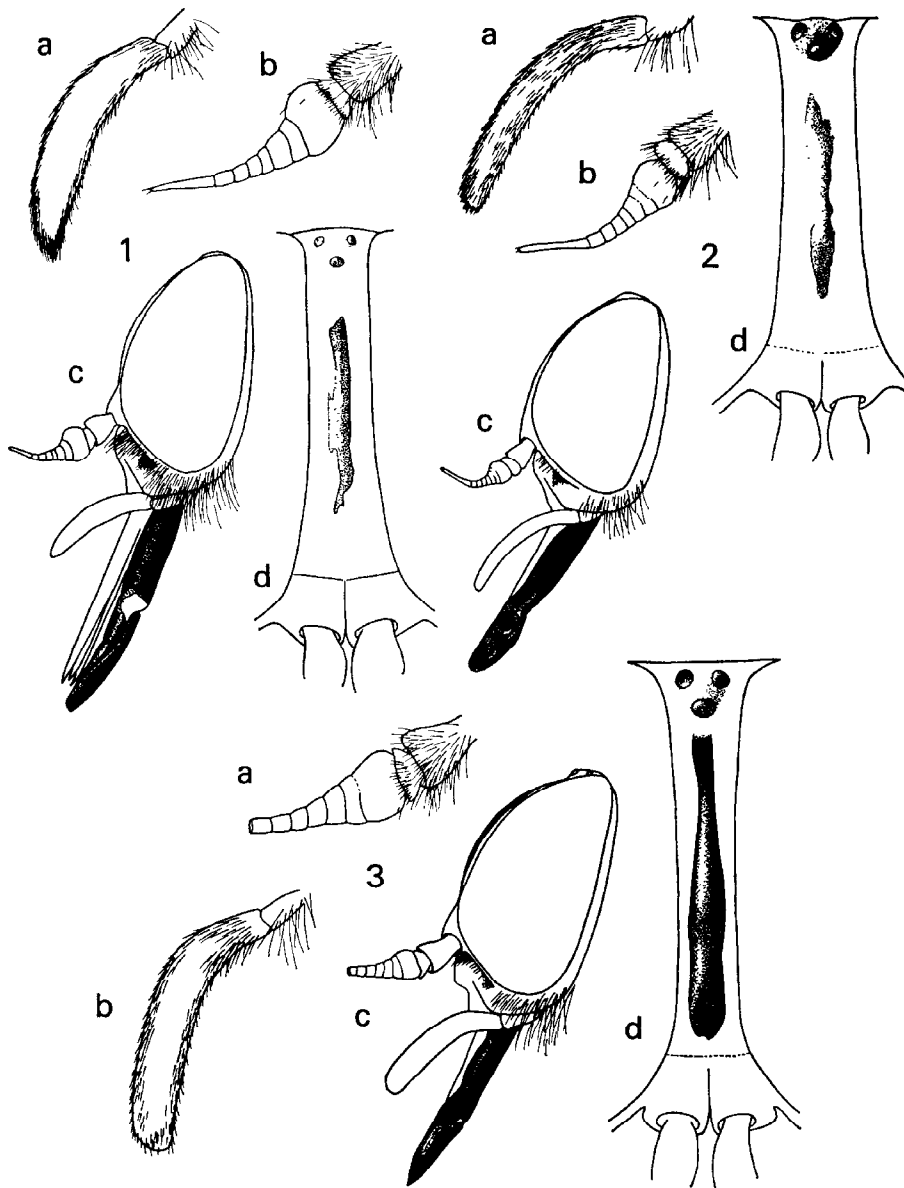


Fig. 1-3. All figures of the same structure are to the same scale, those of heads at $\frac{1}{2}$ the scale of others. 1) *Esenbeckia (Proboscoides) farraginis*; a. frons, b. antenna, c. palp, d. head. 2) *E. (P.) tristis*; a. frons, b. antenna, c. palp, d. head. 3) *E. (P.) punctiventer*; a. head, b. antenna, c. palp, d. frons.

Esenbeckia (Proboscoides) arcuata: Fairchild 1971, Cat. Dipt. Americas S. United States 28: 9.

A rather small pale species with yellowish but black pilose legs, bare callus, and labella of proboscis long and slender.

Female: Length 14 mm, of wing 13.5 mm. Head structures as figured.

Frons yellowish gray, the frontal callus a raised pollinose ridge with a hair-fine median bare line. Frontoclypeus and genae brownish gray, the former rather protuberant. Beard and sparse oculogenal hairs white. Antennae yellow, the 1st 2 segments with black hairs above. Palpi yellow, slender, the lateral bare area margined with black hairs. Proboscis black, heavily sclerotized, the stylets equaling head height, the labella slender, over 1/2 length of theca, forceps-like. Thorax yellowish brown in ground color, with a broad blackish dorsal band and the lower parts including coxae also infuscated. Scutellum dusky in middle, paler at sides. Vestiture is of yellowish pollinosity and pilosity dorsally, becoming grayish and white on pleura. Legs, except coxae, yellow in ground color, the coxae dusky or brownish. Coxae white pollinose and pilose. All femora and hind tibiae and tarsi sparsely short dark pilose, fore tibiae and tarsi yellowish pilose. Wings pale yellowish hyaline, costal and humeral cells slightly darker. Venation normal for the genus.

Abdomen with 1st 2 segments translucent yellowish, with the 1st slightly paler, and the 2nd with a slight dusky shadow along its fore border in 1 specimen. Segment 3 broadly blackish basally, yellowish on posterior 1/3, remaining segments blackish with broad pale hind borders. Pattern is essentially the same dorsally and ventrally. Vestiture is of dark hairs on anterior 2/3-3/4 of all but tergite 1; it and hind borders of remaining tergites pale pilose. Sternite 2 and posterior 1/3-1/4 of all others pale pilose, the bases of sternites 3-6 black pilose.

This redescription based on the 2 ♀ syntypes, 1 (the figured specimen) labeled "Chapada." "S. W. Williston Collection," "AMNH Dept. Invert. Zool. 19418," "Type No. AMNH" "*Pangonia arcuata* Will." in Willistons hand, and det. *Proboscoides arcuata* Will. by C. B. Philip 1950. The other bears the same printed labels, with in addition a printed 'Jan.' We refrain from selecting a lectotype, since the 1st specimen above lacks hind legs and the 2nd specimen lacks the theca and labella of the proboscis. The 1st specimen is a trifle larger but nearly denuded of hairs, while the smaller 2nd specimen is a little darker. Our description is based on both syntypes.

Additional specimens seen are the following: 3 ♀, Buena Vista, Bolivia, 7-, 8-, 20-IV-1950, L. E. Peña coll., 1 in coll. G.B.F., 2 in coll. L.L.P., 2 ♀, Roboré, S. Cruz, Bolivia, 30-X-1958, Juan Foerster coll., in coll. L.L.P. All are somewhat darker than the probably somewhat faded types, and 1 from each locality was determined *arcuata* by G.B.F. in 1952 and 1961.

There is some doubt that all references in the literature refer to this taxon, as the type locality was thought by Lutz (1909) to be in the state of Maranhão in N.E. Brasil, while Ricardo (1900) felt the specimens she studied may have been taken on the Amazon by Bates. Kröber's (1931) discussion suggests his material may have been composite. Lutz and Castro (1935) clearly describe the present species from the Serra do Chapada in Mato Grosso, Brasil and separated Amazonian material as var. *ricardoe*. Their description of females of the latter agrees closely with what we treat below as *E. (Proboscoides) rostrum* Philip.

Esenbeckia (Proboscoides) dichroa (Brèthes)

Pangonius dichrous Brèthes 1910, An. Mus. Nac. Buenos Aires 20: 472,

no sex, Tucuman; 1911, An. Mus. Nac. Buenos Aires Ser. 3, 13: 472; 1921, Estudios 21(5): 44.

Proboscoides fairchildi: Mackerras 1955, Australian J. Zool. 3(3): 482, Fig. 21 ♂ only. Not Philip.

Fidena dichroa: Hack and Garcia 1959, Prim. J. Entomoep. Argentina 2: 566, Tucuman.

Proboscoides dichroa: Coscaron 1967, Seg. J. Entomoep. Argentina 1: 107, not seen.

Esenbeckia (Proboscoides) dichroa: Fairchild 1971, Cat. Dipt. Americas S. United States 28: 10. Coscaron 1976, Rev. Mus. La Plata, N.S., 12, Sec. Zool. No. 144: 109-10, Fig. 14.

Esenbeckia ferruginea var. *nigrovillosa* Kröber 1931, Zool. Anz. 94: 253, Fig. 3, ♀, Paraguay, San Bernardino; 1934, Rev. Ent. 4(2): 241. Philip 1954, Rev. Brasileira Ent. 2: 47; 1969, Acta Zool. Lilloana 22(1967): 110-11, suggests better in *Proboscoides*. Fairchild 1966, Studia Ent. 9(1-4): 345, says not.

Esenbeckia obscurithorax Lutz and Castro 1935, Mem. Inst. Oswaldo Cruz 30(3): 553-4, ♂, ♀, Brasil, Mato Grosso; Paraguay. Fairchild 1961, Mem. Inst. Oswaldo Cruz 59(2): 225-6, types seen (NEW SYNONYMY).

We have seen the following specimens: 1 ♀ Tartagal, Salta, Argentina III-1960, det. Coscaron as *arcuata* Williston, but probably from the same lot as specimens listed later under *dichroa* by Coscaron (1976), who sent Fairchild this specimen. 1 ♀, Rep. Argentina, Jujuy, Muto 14-III-1945, Munros coll. 1 ♀, Argentina, Las Tablillas, Dept. Oran (Vespucio), XI-1940; 1 ♀, Paraguay, Villarica, I-1937, F. Schade coll.; 1 ♂, Bolivia, Prov. Sara, 450 meters elev., XI-1909, J. Steinbach, det. as *E. (P.) fairchildi* by C. B. Philip, the last 4 specimens in C.A.S. The ♀ from Las Tablillas was determined by Hack as *E. argentina* Krob. in 1949 and as *E. nigrovillosa* Krob. by Philip in 1959. The Paraguay specimen was compared with the type of *nigrovillosa* in Vienna by Dr. Max Beier in 1951 and thought to agree, as discussed by Philip (1954), and contrary to Fairchild's earlier statement (Fairchild, 1951: 445). One ♀, Puerto Suarez, Bolivia, 8-III-1957, det. *dichroa* by C.B.P. 1965, in coll. L.L.P.; 1 ♀, Roboré, Sta. Cruz, Bolivia, 30-X-1958, Juan Foerster coll., det. *rostrum* by G.B.F. 1961, in coll. L.L.P.; 1 ♀, Yuto, Prov. Jujuy, Argentina 15-II-1955, det. sp. near *fairchildi* by C.B.P. 1957, in coll. L.L.P.

The above specimens are conspecific in our opinion. Philip's description (l.c.) of his homotype of *nigrovillosa* from Villarica, Paraguay (the specimen above), indicates clearly a species of *Proboscoides*, and the dark thoracic integument also suggests *dichroa*. Fairchild's (1967) definite remark that Kröber's type was not a *Proboscoides* seems to have been due to the fact that in this species the proboscis is more slender than in other *Proboscoides*, and in the type it is twisted under the body and not optimally visible. Specimens that I took to be *nigrovillosa* (Fairchild, 1942: 197), and which Philip (1954) thought might be *P. fairchildi* Phil. are described elsewhere in this paper as *E. (P.) farruginis* n. sp.

Lutz and Castro's (1935) description of *obscurithorax* agrees almost hair for hair with the ♂ and ♀ before us. They did not note the characteristic proboscis, as it is quite slender in this species, and *Proboscoides* had not been described at that date. Fairchild (1961) also failed to note the proboscis,

but the ♂ type was much damaged, and he did not study the types in detail.

Esenbeckia (*P.*) *dichroa* is characterized by the slender proboscis and nearly wholly yellow abdomen, whose integument contrasts strongly with the black integument of the thorax and scutellum. Coscaron's (1976) detailed figures of both sexes and the genitalia are definitive.

Esenbeckia (*Proboscoides*) *ecuadorensis* Lutz and Castro

(Fig. 9a-d)

Esenbeckia ecuadorensis Lutz and Castro 1935, Mem. Inst. Oswaldo Cruz 30 (3) : 556-8, ♀, Naranjal, Ecuador. Philip 1960, Proc. California Acad. Sci., Ser. 4, 31 (3) : 73, mentions 5 from Los Rios Prov. Ecuador. 1961; Pan Pacific Ent. 37 (2) : 112, Ecuador, 20 miles west Guayaquil. Fairchild, 1961, Mem. Inst. Oswaldo Cruz 59 (2) : 222.

Esenbeckia (*Proboscoides*) *ecuadorensis*: Fairchild 1971, Cat. Dipt. Americas S. United States 28: 10.

We have seen but 3 specimens of this species, 2 from near Quevedos, Los Rios Prov., Ecuador, both det. by C. B. Philip, no doubt part of the material he reported in 1960. The other is from Hda. Sta. Rita, Guayas Prov., 13-II-1973 (figured specimen). Fairchild also studied the types in Rio de Janeiro in 1959 but failed to record any information on their appearance. The proboscis has the labella wholly sclerotized and pincers-like, though proportionately shorter than in *fairchildi* and *suturalis*. *Ecuadorensis* differs from its northern subspecies, *chagresensis*, in having a yellow to rufous haired mesonotum and 1st 3 abdominal tergites largely pale. They are structurally indistinguishable and are one of only 3 *Proboscoides* species west of the Andes.

Esenbeckia (*Proboscoides*) *ecuadorensis chagresensis* Fairchild.

Esenbeckia chagresensis Fairchild 1942, Ann. Ent. Soc. America 35 (2) : 192-4, Fig. 9, ♀, Panama, New San Juan, Chagres River Valley. Bequaert and Renjifo 1946, Psyche 53 (3-4) : 49, Colombia. Philip 1960, Proc. California Acad. Sci. 31 (3) : 73.

Esenbeckia (*Proboscoides*) *ecuadorensis chagresensis*: Wilkerson 1979, Cespidesia 8 (30-31) : 141-2.

This subspecies differs from the nominate form from Ecuador as discussed above and in the key. It is known only from the localities listed in the original description in Panama and northern Colombia, and from a single collection from Morti River, Darien Prov., Panama, 29-VII-1967. This latter specimen differs from the description and from a paratype in having an inverted triangular dark spot on the anterior margin of the otherwise dull, dark yellowish 2nd tergite.

Esenbeckia (*Proboscoides*) *fairchildi* Philip

Proboscoides fairchildi Philip 1943, J. New York Ent. Soc. 51: 111-2, ♀, Peru, Middle Rio Ucayali. Fairchild, 1951, Ann. Ent. Soc. America 44 (3) : 445. Philip, 1954, Rev. Brasileira Ent. 2: 48, Fig. 5; 1960, Proc. California Acad. Sci., Ser. 4, 31 (3) : 74, Yurac, Peru.

Esenbeckia (Proboscoides) fairchildi: Fairchild, 1971, Cat. Dipt. Americas S. United States 28: 9.

We have seen only a single specimen of this species, from Peru, Yurac, 67 miles east of Tingo Maria, 16-XI-1954 Schlinger and Ross colls. It was det. by C. B. Philip and is in C.A.S. It differs from most other species of the group by entirely yellow and pale haired legs, and abdomen wholly orange pilose beneath and above, except on basal 1/2-2/3 of tergites 3 and 4, where the hairs are black or dark brown. The integument of the thorax is reddish brown and the scutellum reddish, nearly concolorous with the 1st abdominal tergite. Only the beard, lower pleura, and fore coxae are whitish haired. Philip's figure (1954) of head structures agrees quite well with this specimen, except that he shows the palpi with a more defined bare area outwardly. The palpi of the Yurac specimen seem to have at least some hairs on the outer aspect, as in the original description. Specimens determined as *fairchildi* by Philip and Fairchild are not that species but a new species described below. *Fairchildi* females can be separated from *rostrum* Philip by the wholly yellow and yellow pilose legs, largely black in *rostrum*. The ♀ type of *fairchildi*, supposed to be in A.M.N.H., cannot now be found there (Wygodzinsky in litt. 1980).

Esenbeckia (Proboscoides) farraginis
Fairchild and Wilkerson, NEW SPECIES

(Fig. 1a-d)

Esenbeckia ferruginea var. *nigrovillosa*: Fairchild 1942, Ann. Ent. Soc. America 35(2): 197, Pyrenopolis, Goyaz, Brasil; 1951, *ibid*, 44(3): 445, misident.

Proboscoides fairchildi: Mackerras 1955, Australian, J. Zool. 3(3): 482, Fig. 21, ♀ only.

A reddish brown and dull yellowish species, the abdominal hairs largely black, the legs yellow, scutellum red, and wings faintly smoky.

Female: Length 15 mm; of wing 14 mm. Eyes bare, black, the original color unknown. Head structures as figured. Frons yellowish gray pollinose, the callus largely pollinose, where irregularly denuded the red integument shows as a shiny stripe. Subcallus, frontoclypeus, and genae concolorous, the frontoclypeus subshiny. A fringe of long white hairs along oculogenal margin, beard white, with darker orange to brown hairs around the base of palpi. Antennae orange yellow, the scape and pedicel with white hairs below, black hairs dorsally. Extreme apex of last annulus of style dusky. Palpi orange yellow, the fringing hairs mainly yellow to reddish with sparse black hairs intermixed basally and ventrally. Proboscis with theca inflated, very dark shiny brown; labella shiny black.

Thorax with integument reddish brown, the dorsum and scutellum thinly yellowish gray pollinose, the pleura and coxae grayish pollinose. Mesonotum quite densely beset with short erect black hairs and abundant long dark hairs. Pleura with pale yellowish hairs above, grayish white below. Legs orange yellow, the femora with long black hairs dorsally, and long yellowish hairs ventrally. Tibiae wholly short orange haired. Wings faintly yellowish brown tinted, the veins wholly yellow.

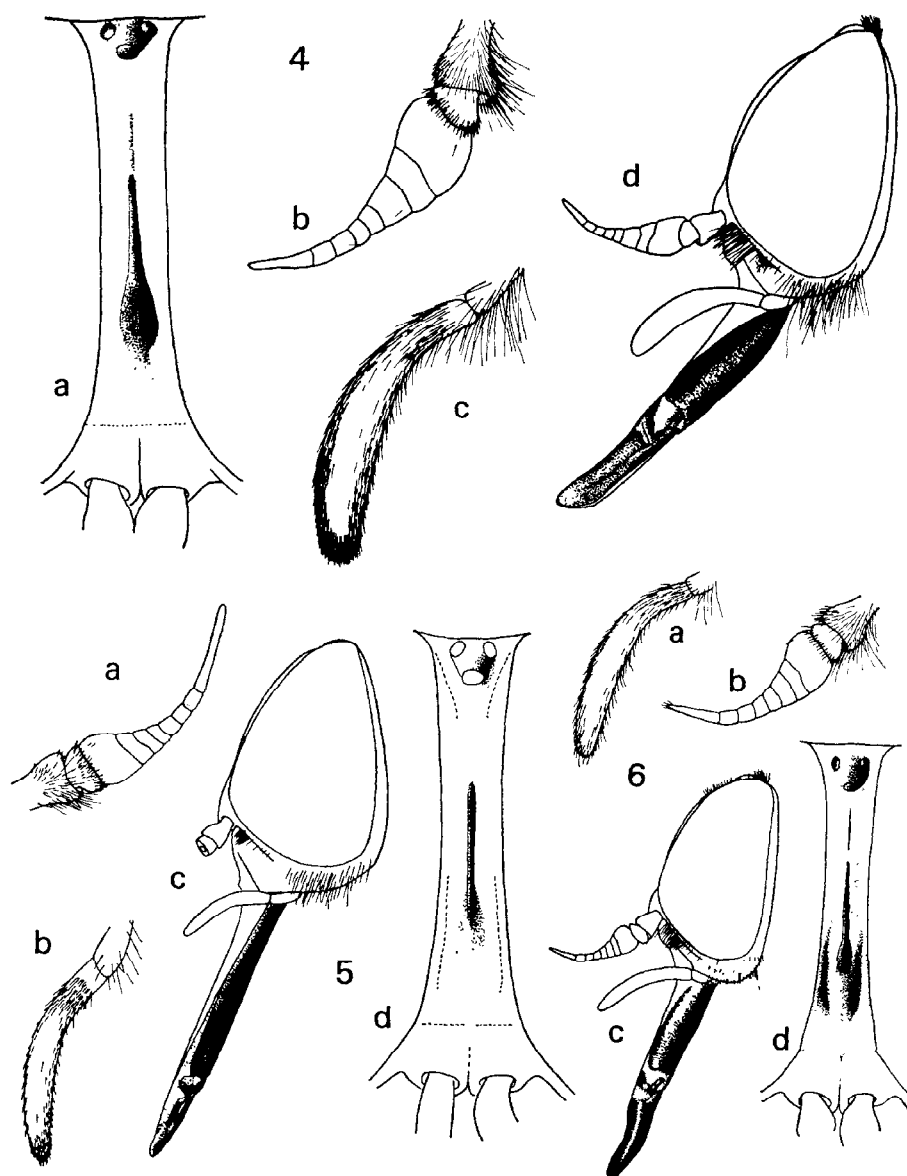


Fig. 4-6. All figures of the same structures are to the same scale, those of heads at $\frac{1}{2}$ the scale of the others. 4) *Esenbeckia (Proboscoides) suturalis* n. sp.; a. palp, b. antenna, c. head, d. frons. 5) *E. (P.) schlingeri*; a. antenna, b. palp, c. head, d. frons. 6) *E. (P.) rostrum* n. sp.; a. antenna, b. palp, c. head, d. frons.

Abdomen with integument of 1st tergite translucent yellowish, 2nd the same, but slightly orange stained, 3rd and succeeding tergites opaque yellowish brown. Dorsal vestiture of thin sparse brown pollinosity and fairly dense black hairs, paler yellowish to white haired on the posterolateral corners of

tergites 2-4 or 5. Beneath, the 1st sternite is translucent, the 2nd opaque yellow, the 3rd and succeeding segments reddish brown. Vestiture is of thin gray pollen and long yellowish white hairs.

Type Material: Holotype, ♀ (figured), Pyrenopolis, Goias, Brasil, 30-V-1936, det. *E. ferruginea* var. *nigrovillosa* by O. Castro 1937, as *P. fairchildi* var. by C. B. Philip 1952, and as *Proboscoides* sp. by Fairchild previous to 1952. To be deposited in Florida State Collection of Arthropods, Gainesville.

Paratypes: 2 ♀, same locality and date, 1 with genitalia dissected and mounted on a strip of cover glass pinned with the specimen is in C.A.S. The other det. as *Proboscoides fairchildi* by J. Bequaert and as *E. ferruginea* var. *nigrovillosa* by O. Castro will be deposited in M.C.Z. The paratypes are intact, except for slightly tattered wings, and agree in detail with the holotype.

The species differs from *E. (P.) dichroa* in the heavier proboscis and in brown rather than black thoracic integument, and from *fairchildi* in having black hairs dorsally on abdomen, rather than mostly golden yellow, in less strongly tinted wings, broader antennae, and reddish brown rather than yellowish thoracic integument. The species strongly resembles *E. (Esenbeckia) illota planaltina* Fairchild (whose holotype bears the same collecting data) except for the structure of the proboscis, the broader frons, strong bare frontal callus, and largely pale haired abdomen of the latter.

A ♂ from Prov. Sara, Bolivia that was sent with the paratype from C.A.S. and det. by Philip as *fairchildi*, without a query, also bears a genotype label, and its genitalia have been dissected and similarly mounted. It is, however, not *fairchildi* and not the present species. We believe this ♂ to be *dichroa*, as it has the thoracic integument, including scutellum, black, and it agrees with Coscaron's description of *dichroa* ♂. We believe that the dissected ♀ and ♂ are the pair sent to Mackerras and illustrated as *fairchildi* by him, as he mentions Peru, Bolivia, and Brasil; further, the method of mounting is that used by him. Mackerras' (l.c.) figure of the head of the ♀ also differs slightly but significantly from that of Philip's (1954) figure of *fairchildi*.

Esenbeckia (Proboscoides) geminorum
Fairchild and Wilkerson, NEW SPECIES

(Fig. 8a-d)

A small brown and yellowish species with a slender proboscis, small labella, pale yellow haired beard and pleura, golden yellow haired mesonotum, bicolored dark brown and yellow legs, and wings with 4th posterior cell (3rd M) closed.

Female: Length 11 mm; of wing 12 mm. Head characters as figured. Frontal index 2.8. Frons somewhat inflated, blackish brown in ground color, covered with yellowish brown pollinosity. Callus indistinct, extended above into a thin sparsely pollinose ridge. Ocellar tubercle prominent, bearing 3 reddish brown ocelli. Subcallus and genae yellowish brown pollinose, the frontoclypeus grayish yellow pollinose. Oculogenal hairs and beard pale yellow. Antennal scape yellowish brown with concolorous pollinosity. Pedicel and flagellum pale orange yellow, the tip dusky. Antennal hairs pale yellow except for a few dark brown hairs dorsally on scape and laterally on pedicel.

Palpi pale orange yellow and pale yellow pilose except for black hairs basally and intermixed dorsally; outer aspect with a groove, as figured. Proboscis dark reddish brown, slender, wholly sclerotized, the slender labella relatively short.

Mesonotum and scutellum dark blackish brown in ground color with yellowish brown pollinosity and numerous recumbent golden yellow and erect black hairs. Pleura and coxae dark brown in ground color with grayish yellow pollinosity and long dense pale yellow hairs. Fore femora with basal 1/2 dark and with long black hairs, the mid femora nearly all dark, only the apex pale. Hind femora dark brown, clothed with long black hair. Fore and middle tibiae yellow, and tarsi mostly pale yellow haired, the hind tibiae and tarsi dark brown, black haired. Halteres pale yellowish brown. Basicosta pointed, pale brown in contrast with dark brown costa. Wings tinted brown, the 4th posterior cell practically closed, the fork with an appendix.

Abdominal segment 1 pale translucent yellow and golden yellow haired, sharply contrasting with the black scutellum. Tergite 2 brownish yellow, the following tergites slightly darker, the posterior borders of tergites 2-6 paler. Tergites 2-6 dark pilose except for the broad posterior pale yellow pilose borders. Abdomen below as above except sternite 2 is wholly pale yellow pilose.

Male: Not known.

Type Material: Holotype, ♀ (figured), Ecuador, Guayas Prov., Colonche, "6b," 16-IV-1973, J. Buestan coll. To be deposited in Florida State Collection of Arthropods, Gainesville. Paratype, ♀ same data, retained in collection of senior author. Paratype is 10 mm in length and has a frontal index of 2.9. The paratype agrees well with the above description except the abdomen is paler, and there are golden yellow hairs intermixed with the brown hairs above and below. The frontal characters are the same, but there has been some greasing and/or rubbing which exposes more of the median ridge so that the callus appears as a long thin bare median line. In the paratype the 4th posterior cell is closed with a short stalk.

Both specimens have evidently been taken from alcohol because the thoraces and abdomens are collapsed and the longer body hairs are in clumps. Body length was probably greater in life. The paratype also has the palpi and antennae partially collapsed.

Discussion: *Esenbeckia* (*P.*) *geminorum* differs from all others in the subgenus in the closed 4th posterior cell (3rd M), in this respect resembling *E. (Ricardoa) scionodes* Philip. Otherwise it much resembles *E. (P.) dichroa* Brethès, except for mainly dark legs and more strongly tinted wings. It is one of only 3 taxa in *Proboscoides* found west of the Andes.

Esenbeckia (Proboscoides) punctiventer
Fairchild and Wilkerson, NEW SPECIES

(Fig. 3a-d)

A pale brown, largely yellow pilose species with paired sublateral brown to black integumental spots on sternites 2-4.

Female: Length 15 mm; of wing 15 mm. Eyes bare, blackish, the color in life not recorded. Head characters as figured. Frons light brownish yellow

pollinose with a narrow dark brown median stripe encompassing the ocelli and upper 1/2 of frontal callus, the latter prominent, shiny yellowish brown. Subcallus concolorous, with 2, probably secondarily denuded, bare brown patches. Frontoclypeus thinly steel gray pollinose, the genae more thickly coated with darker gray pollinosity. Oculogenal hairs short and sparse, yellowish white. Beard pale gray, darker close to bases of palpi. Antennae orange yellow, the scape and pedicel yellowish gray pollinose, beset with dark hairs dorsally, pale hairs below. Third segment dark yellow, moderately broad basally but lacks the terminal 1 or 2 annuli on the only antenna remaining. Palpi orange yellow, the fringing hairs predominantly black to dark reddish brown. Proboscis with theca somewhat retracted, very dark brown, shiny, the labella slightly paler, short, and acutely pointed. The whole proboscis is hardly longer than palpi and much less than head height; it is no doubt somewhat longer when fully extended.

Thoracic integument yellowish brown dorsally, becoming blackish on lower pleura and coxae. Scutellum yellowish red apically, brown basally. Vestiture of dorsum of yellowish brown pollinosity, erect dark hairs and shiny yellow recumbent hairs. There are tufts of longer yellow hairs at each side of scutellum and on notopleural lobes. Pleura with yellowish white hairs above, becoming white on coxae and sternum. First 2 pairs of legs yellow, hind pair orange brown in ground color. Vestiture of fore and mid legs entirely pale, yellow to orange; of hind pair reddish to dark brown. Wings yellowish smoky, the veins yellow.

Abdomen with 1st 2 tergites translucent yellow, the remainder opaque light yellowish brown. Vestiture is of sparse concolorous pollinosity and mainly dark reddish brown hairs, except for 1st tergite and hind margins of tergites 2-4, which bear a fringe of lighter yellow hairs. Sides of tergites 3 and 4 have vague darker integument and dense dark hairs anteriorly, the posterolateral corners with patches of long nearly white hairs. Beneath, the integument of first 2 and middle of 3rd sternites is translucent yellow, but with a pair of small round brown spots on each side of the middle of sternite 2, and a larger, darker pair resting on the lateral margin of sternite 3. Sternite 4 has a transverse band of dark brown, much wider at the sides. Remaining sternites are largely blackish brown. Vestiture is of long dark hairs, mainly reddish brown, and broad hind marginal bands of shorter pale yellowish hairs.

Type Material: Holotype, ♀ (figured), Petropolis, Rio de Janeiro, Brasil, II-III-1938, in C.A.S. The specimen is determined as *Esenbeckia inframacula* Lutz (sic) by Fairchild 1951 and as not agreeing with the type of *Pangonia notabilis* Walker by Philip. It differs from *notabilis* in smaller size and structure of the proboscis, as *notabilis* is an (*Esenbeckia*). It also lacks the conspicuous median row of black integumental ventral triangles found in *notabilis*. *Esenbeckia inframaculata* Lutz, whose presumed types were discussed by Fairchild (1961), has been placed as a synonym of *notabilis* by most authors, we believe correctly. The discrete lateral ventral spots are almost unique in (*Proboscoides*); only *E. (P.) ecuadorensis* L. & C. approaches this condition, but that species has black legs and a quite different proboscis.

Esenbeckia (Proboscoides) rostrum Philip

(Fig. 6a-d)

Proboscoides rostrum Philip 1943, J. New York Ent. Soc. 51 (June) : 112, ♂, Peru, Middle Rio Ucayali; 1954, Rev. Brasileira Ent. 2: 48, ♀, Peru.

Esenbeckia arcuata var. *Ricardoe* (sic) Lutz and Castro 1935, Mem. Inst. Oswaldo Cruz 30(3) : 559-61, ♀, vic. Manaus, Brasil.

A medium sized golden yellow and brown species with a white beard, golden haired mesonotum, largely black legs, brown tinted wings, and yellow banded abdomen.

Female: Length 12 mm; of wing 12 mm. Head characters as figured. Frontal index 3.9. Frons divergent below, pale yellowish brown pollinose at the base, changing to brown on the upper 1/3 and on ocellar tubercle. Tubercle bordered laterally by strong grooves, bearing 3 distinct brownish ocelli. Callus ridge-like, largely pollinose, but with a hair-fine bare black median denuded streak. Subcallus, genae, and frontoclypeus pale yellowish gray pollinose. Oculogenal hairs pale yellow and, except for a patch of brown hairs just above the palpal bases, the beard is pale yellow to white. Antennal scape and pedicel pale yellow with concolorous pollinosity. Flagellum orange yellow. Antennal hairs black except for long golden yellow hairs on the ventral part of scape. Palpi orange yellow, black haired, the outer surface of segment 2 slightly concave and bare. Proboscis shiny dark reddish brown.

Mesonotum and scutellum blackish brown in ground color with yellowish brown pollinosity. The vestiture is a mixture of numerous recumbent golden yellow hairs and sparse slender mostly erect black hairs. Longitudinal sutures indistinctly paler. Pleura and coxae pale brown to blackish in ground color, densely pale grayish pollinose. Pleural hairs whitish except for a dense patch of golden yellow hairs below the wing bases. Legs dark brown, the hind pair slightly darker, all clothed with dense black hairs except for sparse long white hairs near bases of femora. Halteres yellowish. Wings tinted brown, the costal and basal cells slightly yellowish. First posterior cell closed, the fork appendiculate.

Integument of entire 1st abdominal tergite translucent yellowish, 2nd tergite translucent yellow with orange brown patches laterally, remaining tergites brown with pale hind margins. Vestiture of tergite 1 entirely thinly yellow pollinose and golden haired, the remaining segments largely dark pollinose and black haired except for golden yellow haired hind margins. Below mostly as above but sternite 2 pale yellow and pale yellow haired. Sternite 3 pale yellowish brown but the brown accentuated laterally.

Male: Like the ♀ in color and vestiture, except integument of scutellum apically yellowish, while usually, but not always, blackish in females. Eyes holoptic, the facets in the central 3rd of each eye slightly larger than those on margins. Ocellar tubercle but slightly raised above eye level.

Material examined: Holotype, ♂, Middle Rio Ucayali, Peru 26-XII-1926, F6113. H. Bassler coll. in A.M.N.H. Twenty-two ♀♀ from the following localities (1 of these figured), all in Brasil: Pará, 22 km west of Altamira, XI-1974, J. F. Reinert coll., 8; Para, vic. Bacuri, north of Maraba, X-XI-1974, J. Reinert coll., 3; Quilometro 300, Paragominas, B.R.14 Pará, I-1965, L. Gomes coll., 9; Nova Olinda, Filadelfia, B.R.14 Goiaz, III-1965, L. Gomes

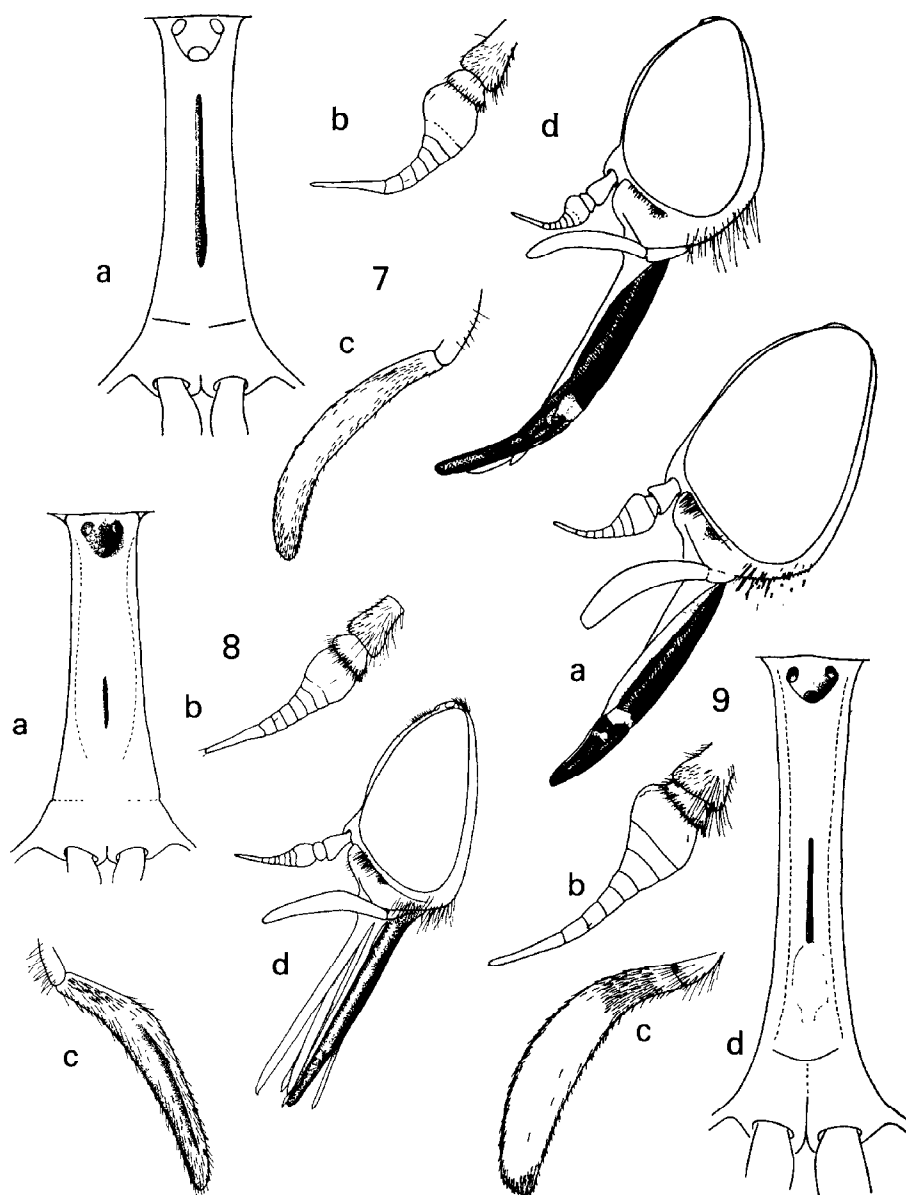


Fig. 7-9. All figures of the same structures are to the same scale, those of heads at $\frac{1}{2}$ the scale of the others. 7) *Esenbeckia (Proboscoides) arcuata*; a. frons, b. antenna, c. palp, d. head. 8) *E. (P.) geminorum*; a. antenna, b. palp, c. head, d. frons. 9) *E. (P.) ecuadorensis*; a. palp, b. antenna, c. head, d. frons.

coll., 2; Faz. Ric. Franco, 13-III-1961, Mato Grosso, J. & B. Bechyne colls., 1 (headless).

Specimens range from 11.5-13.5 mm ($\bar{x} = 21$, $\bar{x} = 12.2$ mm) and have frontal indices of from 3.6-4.3 ($\bar{x} = 3.9$). All agree well with the above de-

scription. There is some variation in the frontal callosity probably due to the relative amount of wear of the specimens. Some have only a thin line as in *arcuata*, while in others it is somewhat broader than the figured specimen. Most specimens collected by L. Gomes are slightly greased, and the callosities are indistinct. There is a dark ventral abdominal triangle extended forward in a thin line from sternite 3 on some, and there is considerable variation in the degree of infuscation of the posterior sternites. The females show some variation in color of vestiture, the yellow abdominal bands being quite narrow in some and the pleura being more or less yellow pilose. The headless specimen is paler, the pilosity of abdomen and pleura more extensively whitish.

The largely black and black pilose legs and banded abdominal venter will easily separate this species from *fairchildi*, the most similar species. *Suturalis* is quite like *rostrum* but has stouter palpi and antennae, and all the abdominal hairs, which are golden yellow in *rostrum*, are silvery white in *suturalis*. *E. arcuata* is also similar, and, in addition to a longer last antennal annulus and much wider frons, it too has silvery white abdominal hairs.

We associate these ♀♀ with the ♂ largely on the color of the legs. The ♂ has, however, a wholly yellow pilose venter, like *fairchildi* and may, in fact, be the ♂ of that species as suggested by Philip when he described both species. If future collections should turn up ♂♂ with banded venters, the question will have to be reexamined. There is an earlier name for this taxon, since *E. arcuata* var. *ricardoae* L. & C. seems to apply to these Amazonian examples. Varietal names have no standing under the International Rules, and we hesitate to use this one in a specific or subspecific sense so long as there is doubt as to the status of this material. It is not in any case a form of *arcuata* which has different palpi and proboscis and a wider frons.

Esenbeckia (Proboscoides) schlingeri Philip

(Fig. 5a-d)

Esenbeckia schlingeri Philip 1960, Proc. California Acad. Sci., Ser. 4, 31(3): 72-3, Peru, Monson Valley, Tingo Maria. Fairchild 1971, Cat. Dipt. Americas S. United States 28: 9.

Esenbeckia ecuadorensis: Patrick and Hays 1968, Fla. Ent. 51(4): 220, Ecuador. Not Lutz and Castro, misident.

We have studied a paratype (figured specimen) as well as 5 additional females, 2 from Tingo Maria, Weyrauch coll., IX-47, 2 from Peru, Huallaga, Aguaytia, IX-61, and the female reported from E. Ecuador by Patrick and Hays (l.c.). Philip's description is excellent. The frontal callus is reduced in unabraded specimens to a short slender bare line. The dark and black haired coxae and femora contrast with the generally paler tibiae and tarsi. Both palpi and antennae are markedly slender and of about equal length. As Philip noted, the theca of the proboscis is quite slender, dull, not shiny, but apparently well sclerotized. The labella are quite small, but apparently of the same pincers-like structure as other species of the group.

Esenbeckia (Proboscoides) suturalis (Rondani)

(Fig. 4a-d)

Pangonia suturalis Rondani 1848, in Baudi and Truqui, Studi Ent., Turin, 1(2): 107, ♀, Brasil.

Esenbeckia suturalis: Lutz 1909, Zool. Jahrb., 4, Suppl. 10: 672-3, not recognized; gives copy of original description. Kröber 1932, Rev. Ent. 2(1): 85, lists the name, not recognized; 1934, Rev. Ent. 4(2): 243, references, not recognized. Philip 1965, J. Med. Ent. 2(2): 120, places in *Proboscoides*. Fairchild 1967, Pacific Ins. 9(2): 251, Fig. 10, discusses and figures type.

A stout brownish species with dark legs and dark pilose, broad palpi and prominently banded abdomen. It can be distinguished from *rostrum* and *fairchildi* by the shorter labella of the proboscis and wholly pale pilosity of the abdomen, and from *ecuadorensis* and its ssp. *chagresensis* by more pointed labella, narrower frons, and more slender palpi. It may well be that *suturalis* is the Amazonian representative of *ecuadorensis*.

We have seen the following specimens: 2 ♀, Trinidad, Arima Valley, 22, 26-III-1953, in AMNH; 1 ♀ Trinidad, Turure Forest, Sangre Grande, 1967, Ambros Guerra coll.; 2 ♀ Peru, Madre de Dios, Avispas, 1-15-X-1962, and 10-30-IX-1962, L. E. Pena coll.; 1 ♀ Peru, Middle Rio Ucayali, 27-X-1923, H. Bassler, F 6116, comp. with ♂ type of *Proboscoides rostrum* and said to be probably ♀ of *rostrum* by C. B. Philip 1949, in C.A.S. The Trinidad specimens are a little paler in ground color than those from Peru, with yellower mesonota and paler legs, but we detect no structural differences. All agree quite well with Fairchild's (1967) figure of the type of *suturalis*. The Sept. Avispas specimen, in collection of L.L.P., was determined as *ecuadorensis* by G.B.F. in 1970.

Esenbeckia (Proboscoides) tristis Kröber

Fig. 2a-d)

Esenbeckia triste Kröber 1931, Zool. Anz. 94: 251-2, ♂, Rio Grande do Sul, Brasil; 1934, Rev. Ent. 4(2): 243. Fairchild 1966, Studia Ent. 4(2): 243.

Esenbeckia tristis: Fairchild 1971, Cat. Dipt. Americas S. United States 28: 9.

Esenbeckia infrataeniata Lutz and Castro 1935, Mem. Inst. Oswaldo Cruz 30(3): 554-6, ♀, Puerto Bertoni, Paraguay (NEW SYNONYMY).

We possess a homotype of *tristis* (figured specimen), as well as 2 other ♀ and 1 ♂ from Nova Teutonia, Sta. Catarina Brasil and Foz do Iguazu, Paraná, Brasil, all of which agree in detail with Lutz and Castro's description of *infrataeniata*. The species is an undistinguished dirty grayish yellow all over, but easily told from others by the very long terminal antennal annulus, equal to 5 or 6 of the preceding annuli, and the lateral dark stripes ventrally on the abdomen. The palpi are very slender, nearly without an outer lateral bare area. The proboscis is structurally similar to that of *ecuadorensis* though more slender.

LITERATURE CITED

- COSCARON, S. 1976. Contribucion al conocimiento de los Tabanidae Neotropicales II. Los Pangoniini del sur de sudamerica y datos sobre la tribu Scepsidini. Rev. Mus. La Plata, N.S., 12. Zool. 114: 75-116.
- FAIRCHILD, G. B. 1942. Notes on Tabanidae from Panama VIII. The genera *Pityocera*, *Scione* and *Esenbeckia*. Ann. Ent. Soc. America 35(2): 183-99, 16 fig.

- . 1951. Descriptions and notes on Neotropical Tabanidae. *Ann. Ent. Soc. America* 44(3): 441-62.
- . 1961. The Adolfo Lutz collection of Tabanidae. I. The described genera and species, condition of the collection, and selection of lectotypes. *Mem. Inst. Oswaldo Cruz* 59(2): 185-249.
- . 1967. Notes on Neotropical Tabanidae IX. The species described by Otto Kröber. *Studia Ent.*, S. Paulo, 9(1-4): 329-79, 33 fig. (1966).
- . 1969. Notes on Neotropical Tabanidae XII. Classification and distribution, with keys to genera and subgenera. *Arq. Zool.*, S. Paulo, 17(4): 199-255.
- KRÖBER, O. 1931. Neue Arten aus dem Genus *Esenbeckia* Rond. *Zool. Anz.* 94: 245-57, 7 fig.
- LUTZ, A. 1909. Tabaniden Brasiliens und einiger Nachbarstaaten. *Zool. Jahrb.* 4(10): 619-92, pl. 1-3.
- , AND G. M. DE OLIVEIRO CASTRO. 1955. Sobre algumas novas espécies de motucas do genero *Esenbeckia* Rond. *Mem. Inst. Oswaldo Cruz* 30(3): 543-62.
- PHILIP, C. B. 1943. New Neotropical Tabanidae. *J. New York Ent. Soc.* 51(2): 111-6.
- . 1954. New North American Tabanidae, Pt. VIII. Notes on and keys to the genera and species of Pangoniinae other than *Chrysops*. *Rev. Brasileira Ent.* 2: 13-60, fig. 1-10.
- RICARDO, G. 1900. Notes on the Pangoniinae of the family Tabanidae in the British Museum Collection. *Ann. Mag. Nat. Hist.* 5(7): 97-112, 167-82, pl. 1.



ECOLOGICAL NOTES ON LOWER RÍO GRANDE VALLEY *XYLOCOPA* (HYMENOPTERA: ANTHOPHORIDAE)¹

CHARLES C. PORTER²
Biology Department, Fordham University
Bronx, NY 10458

ABSTRACT

The Middle American Neotropic *Xylocopa mexicanorum* Cockerell, the eastern Nearctic but Neotropic-derived *Xylocopa micans* Lepeletier, and the Sonoran *Xylocopa tabaniformis parkinsoniae* Cockerell are cited from Hidalgo County, Texas. All vary slightly to moderately among themselves in yearly abundance, monthly phaenology, diel periodicity, and activity temperatures. Some extralimital southwest North American *Xylocopa* differ notably from their south Texas congeners in certain or all of the above parameters. South Texas *Xylocopa* are polylectic, but each species apparently visits some plants not attractive to the others. I give the first flower records for *X. mexicanorum* and new floral data for *X. t. parkinsoniae*.

Since 1973, I have been surveying Hymenoptera in Hidalgo County,

¹Contribution No. 491, Bureau of Entomology, Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Gainesville, FL 32602 USA.

²Research Associate, Florida State Collection of Arthropods, Florida Department of Agriculture and Consumer Services, Gainesville.