

GENUS *EREMOPSOCUS* McLACHLAN: DISTINCTION  
FROM *CERASTIPSOCUS* KOLBE AND REVIEW OF  
SPECIES (PSOCOPTERA: PSOCIDAE)\*

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During investigation on the systematics of *Cerastipsocus* and its close relatives, I have experienced difficulty in assigning species between the two genera *Eremopsocus* and *Cerastipsocus*. In this paper, I attempt an unequivocal definition of these genera. I also include diagnoses of the species placed by the new definition in *Eremopsocus*, and a reconsideration of geographic variation in the type species, *E. infumatus* McLachlan. The subgenera of *Eremopsocus* are also re-evaluated. One new species is described.

Measurements (Table II) were made on whole specimens either pinned or temporarily mounted in glycerine. They are in mm and have an error of  $\pm 1.04$  microns. Abbreviations used with the measurements are explained as follows:  $f_1$ ,  $f_2$  = lengths of first and second flagellomeres; Fw = forewing length; F = length of posterior femur; T = length of posterior tibia;  $t_1$ ,  $t_2$  = length of first and second posterior tarsomeres;  $t_{1ct}$  = number of ctenidia on posterior first tarsomeres; IO/D = least distance between compound eyes in dorsal view divided by greatest antero-posterior diameter of eye in dorsal view; PO = greatest transverse diameter of compound eye in dorsal view divided by greatest antero-posterior diameter of the eye in same view.

Characters of *Eremopsocus* and distinction from *Cerastipsocus*.—*Eremopsocus* McLachlan (1866) was erected for a single large Brazilian species, *E. infumatus*, with fuscous wing membranes. This species was reported to have incrassate flagellomeres in the male only, those of the female being slender. This antennal character, alone, was held to separate the genus from *Psocus*, which was then used in a very broad sense.

Pearman (1933) correctly aligned *Eremopsocus* with its close relatives by placing it in subfamily Cerastipsocinae of Family Psocidae. Pearman's material, from Venezuela, showed incrassate flagellomeres in both sexes, and on that account, he designated a distinct subspecies, *E. infumatus venezuelensis*.

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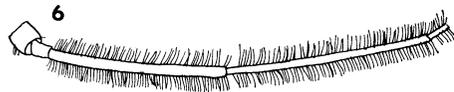
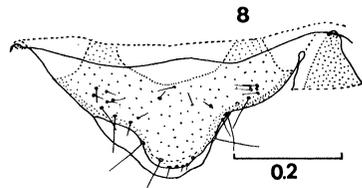
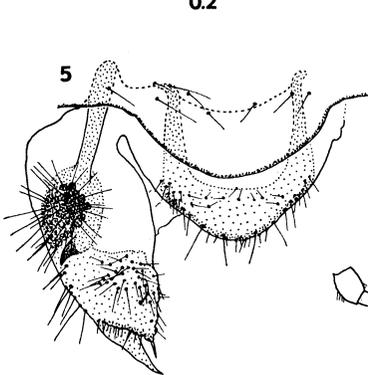
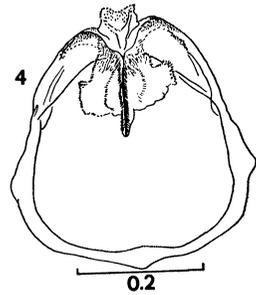
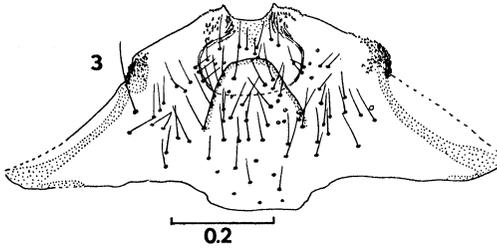
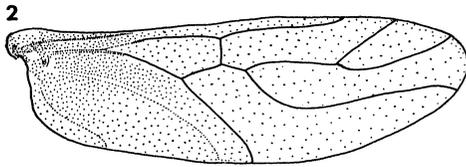
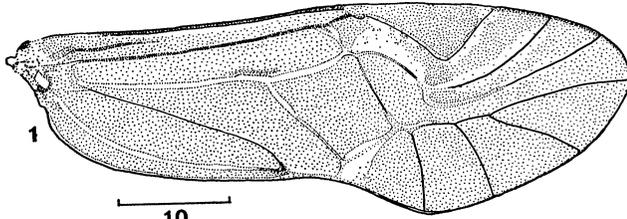
\*Manuscript received by the editor August 15, 1975.

I have examined 15 adult specimens of this species from two localities in central Brazil, and I find that all individuals of both sexes have antennae incrassate. I believe that McLachlan's observation was incorrect and that the error arose from his having had more than one large, fuscous-winged *Cerastipsocine* species in his material. There are several such species in Brazil. Those with slender flagellomeres in both sexes are currently assigned to *Cerastipsocus*. The argument for McLachlan's having had a mixture of species is strengthened by another of his observations: that males have wings shining, while females have them dull. Pinned specimens in the series of *E. infumatus* which I studied have the wings shining in both sexes while pinned specimens of *Cerastipsocus fuscipennis* (Burmeister) received in the same shipment from a nearby locality in Brazil have the wings dull. I conclude that the flagellomeres of both sexes of *E. infumatus* are incrassate and that Pearman's Venezuelan subspecies has no validity.

Pearman (1933) described the genitalia of both sexes of *E. infumatus*. The hypandrium is symmetrical and bears an apically rounded lobe in the middle of the disc; distally, it bears a pair of blunt, posteriorly-directed prongs. This hypandrium differs from that of the type of *Cerastipsocus* (*C. fuscipennis* [Burmeister], designated by Roesler [1944], not *C. venosus* [Burmeister], erroneously designated by Smithers [1967]).

In *C. fuscipennis*, there is no trace of a rounded lobe in the middle of the disc and distal prongs are absent. This type of hypandrium has been illustrated for *C. cubanus* Enderlein (Mockford, 1974: 164, Fig. 118) and *C. venosus* Burmeister (Chapman, 1930, pl. XIII, Fig. 9). *C. beaveri* New (1972: 207, Fig. 32) is much the same but its hypandrium has a pair of short, laterally directed distal prongs.

The distinctive hypandria of the types of *Eremopsocus* and *Cerastipsocus* provide useful character complexes for distinguishing between these two genera. Unfortunately, these complexes do not correlate with the distribution of incrassate and slender flagellomeres in the species as currently assigned in these two genera. Thus *E. reductus* (Banks) has the flagellomeres developed as in *E. infumatus* but the hypandrium as in *C. venosus*, completely lacking a lobe in the middle of the disc and without distal prongs (personal observation). *C. crassicornis* (Kolbe) in which the male has only the first flagellomere incrassate and the flagellomeres of the female are slender has the hypandrium developed as in *E. infumatus* (personal observation).



It is my opinion that the hypandrium in these insects presents more information than the relative widths of flagellomeres and that the two genera can best be recognized on the basis of type of hypandrium. This opinion is strengthened by the fact that no intermediate type of hypandrium has been found, whereas flagellomeres of different species show varying degrees of incrassation.

In order to test this opinion further I have searched for additional characters showing essentially two states in the assemblage of species under consideration and noted how their states are distributed. The following characters were found:

(1) shape of posterior clunial margin of male in region of base of epiproct: slightly protruding and bilobed (Fig. 8) or decidedly protruding and not at all bilobed (Fig. 5);

(2) presence (Fig. 5) or absence of a protuberance immediately distad of sense cushion on paraproct in male;

(3) relative length of stem of dark T-shaped mark of female subgenital plate (stem of vase-shaped figure extending into distal process of plate): either more than twice as long as broad or scarcely longer than broad to much shorter than broad.

The following species were examined (assigned to genera according to current usage): *Cerastipsocus bogotanus* (Kolbe), *C. crassicornis* (Kolbe), *C. cubanus* Enderlein, *C. fuscipennis* (Burmeister), *C. ochraceocristatus* Enderlein, *C. sivorii* Ribaga, *C. trifasciatus* (Provancher), *C. venosus* (Burmeister), two undetermined species of *Cerastipsocus*, *Eremopsocus infumatus* McLachlan, and *E. reductus* (Banks).

The data are summarized in Table I. From this table, the following correlations are seen:

1. Incrassate flagellomeres correlate with hypandrial type of *E. infumatus*. The notable exception is *E. reductus*, while *C. cubanus* shows slight incrassation.

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#### EXPLANATION OF FIGURES 1-8

Fig. 1. *Eremopsocus crassicornis* (Kolbe) ♂, forewing, scales in mm. Fig. 2. *E. crassicornis* (Kolbe) ♂, hindwing. Fig. 3. *E. crassicornis* (Kolbe) ♂, hypandrium. Fig. 4. *E. crassicornis* (Kolbe) ♂, phallosome. Fig. 5. *E. crassicornis* (Kolbe) ♂, epiproct, left paraproct, and adjacent clunial margin, scale of Fig. 3. Fig. 6. *E. crassicornis* (Kolbe) ♂, antenna (scape to base of  $f_3$ ), scale of Fig. 1. Fig. 7. *E. crassicornis* (Kolbe) ♀, antenna (scape to base of  $f_3$ ), scale of Fig. 1. Fig. 8. *Cerastipsocus venosus* (Burmeister) ♂, epiproct, base of right paraproct, and adjacent clunial margin.

Table I. Some character states of *Ceratipsoeus* and *Eremopsoeus* species assigned to genera by traditional criteria.

	<i>Ceratipsoeus bogotanus</i>	<i>C. crassicornis</i>	<i>C. cubanus</i>	<i>C. fuscipennis</i>	<i>C. ochraceo-cristatus</i>	<i>C. stovrii</i>	<i>C. trifasciatus</i>	<i>C. venosus</i>	C. sp. #11	C. sp. #2	<i>Eremopsoeus infunatus</i>	<i>E. reductus</i>
Flagellum incrassate (+) or not (-)	-	+	+	-	-	-	-	-	+	-	+	+
Hyandrium with (+) or without (-) central lobe of disc	-	+	-	-	-	-	-	-	+	-	+	-
Clunial margin bilobed (bl) or protruding and simple (pr)	bl	pr	pr (slight)	bl	bl	bl	bl	bl	pr	bl	pr	pr (slight)
Presence (+) or absence (-) of protuberance distad of $\delta$ para-proctal sense cushion	+	+	-	-	-	-	-	-	+	-	+	-
Long (L) or short (S) stem of T-shaped mark of $\delta$ subgenital plate (see text)	S	L	S	S	S	S	S	S	L	S	L	S

<sup>1</sup>This species is described in this paper as *Eremopsoeus nigripes* n. sp.

2. The protruding male clunial margin tends to correlate with the *E. infumatus* hypandrial type, while the bilobed male clunial margin tends to correlate with the *C. venosus* hypandrial type. This correlation is better than indicated on the table. In *E. infumatus*, *C. crassicornis*, and *C. sp. no. 1*, the protrusion is a thickened lip, while in *C. cubanus* and *E. reductus* it is only a thin rim, as in those species with the bilobed margin.

3. The protuberance distad of the male paraproctal sense cushion tends to correlate with the *E. infumatus* hypandrial type and absence of the protuberance with the *C. venosus* hypandrial type. Again, the correlation seems better than the table suggests, as the protuberance in *E. infumatus*, *C. crassicornis*, and *C. sp. no. 1* is small and decidedly pointed, while that in *C. bogotanus* is low, larger, and rounded.

4. The long stem of the T-shaped mark of the female subgenital plate shows complete correlation with the *E. infumatus* hypandrial type and the shorter stem with the *C. venosus* hypandrial type.

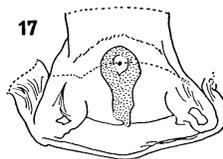
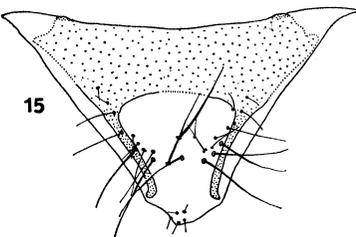
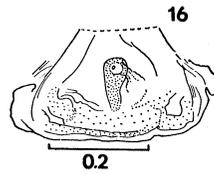
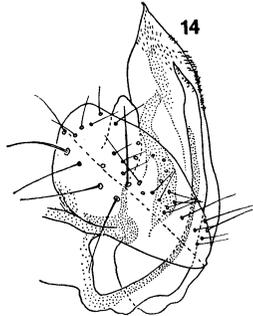
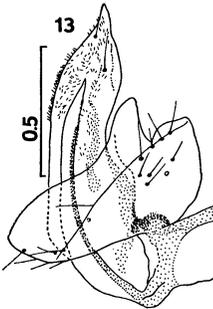
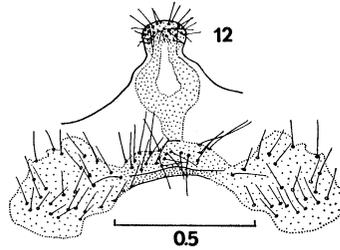
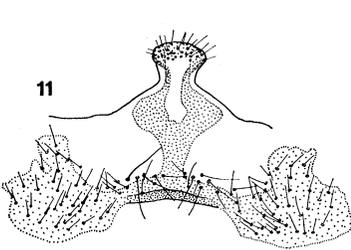
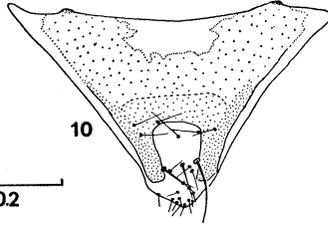
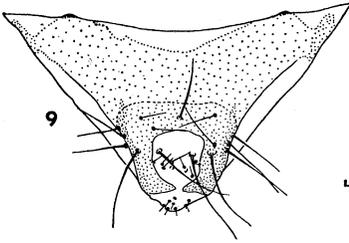
From the above correlations, I conclude that the genera *Eremopsocus* and *Cerastipsocus* may be differentially defined as follows:

*Eremopsocus*. — Antennae incrassate at least in male; hypandrium with central lobe of disc; male clunial margin protruding above epiproctal base as a rounded, thickened lip; a pointed protuberance distad of male paraproctal sense cushion; stem of T-shaped mark of female subgenital plate more than twice as long as broad.

*Cerastipsocus*. — Antennae incrassate or not; hypandrium lacking central lobe of disc; male clunial margin bilobed before base of epiproct or slightly protruding above epiproctal base but never developed as a decidedly protruding, thickened lip; generally lacking a protuberance distad of male paraproctal sense cushion, or with a low, rounded protuberance; stem of T-shaped mark of female subgenital plate little longer than broad to much shorter than broad.

Assignment of species to *Cerastipsocus* and *Eremopsocus*. — I can affirm, either through examination of specimens or by existing published descriptions, the generic assignment of the following species according to the above definitions:

*Cerastipsocus*. — *C. fuscipennis* (Burmeister) (type species), *C. beaveri* New, *C. bogotanus* (Kolbe), *C. cubanus* Enderlein, *C. ochraceocristatus* (Enderlein), *C. reductus* (Banks), new combination, *C. sivorii* (Ribaga), new combination, *C. trifasciatus* (Provancher), *C. venosus* (Burmeister).



*Eremopsocus*.—*E. infumatus* McLachlan (type species), *E. crassicornis* (Kolbe) new combination, *E. nigripes* n. sp. (heretofore referred to in this paper as *Cerastipsocus* sp. no. 1).

Several species traditionally assigned to *Cerastipsocus* are unassignable by the above definition, and I hope to review that genus and assign these species in the near future.

Subgenera of *Eremopsocus*.—Roesler (1944) assigned *Syngonosoma* Kolbe, *Dinopsocus* Banks, and *Podopteroocus* Banks as subgenera of *Eremopsocus*. These assignments were presumably made on the basis of incrassate flagellomeres alone. As I have shown that this character is not a reliable guide to relationships, it seems advisable to retain the old-world genera *Dinopsocus* and *Podopteroocus* at least until their external genitalia are known. The type of *Syngonosoma* being South American, it seems likely that this genus may be a synonym (not a subgenus) of *Eremopsocus* as was suggested by Enderlein (1911) and Pearman (1933), but it will be necessary to examine material of the type species in order to confirm this suggestion. Of the species listed in *Eremopsocus* by Smithers (1967), only the type species can be retained with certainty.

Systematics of *Eremopsocus* species.—In this section the species now assigned to *Eremopsocus* are diagnosed, the description of *E. infumatus* is augmented, a detailed description of *E. crassicornis* is presented and *E. nigripes* n. sp. is described. A key to the species is included.

#### *Eremopsocus infumatus* McLachlan

*E. infumatus* McLachlan, 1866: 348.

*E. infumatus venezuelensis* Pearman 1933: 159.

Diagnosis.—First four flagellomeres incrassate in both sexes, the basal two decidedly so, the next two somewhat less. Female subgenital plate with a single row of long setae along cross-piece of T-shaped mark (the row double to the sides and single in middle on specimen examined).

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#### EXPLANATION OF FIGURES 9-17

Fig. 9. *Eremopsocus crassicornis* (Kolbe) ♀, epiproct. Fig. 10. *E. nigripes* n. sp. ♀, epiproct. Fig. 11. *E. crassicornis* (Kolbe) ♀, subgenital plate, scale of Fig. 12. Fig. 12. *E. nigripes* n. sp. ♀, subgenital plate. Fig. 13. *E. crassicornis* (Kolbe) ♀, gonapophyses. Fig. 14. *E. nigripes* n. sp. ♀, gonapophyses, scale of Fig. 9. Fig. 15. *E. infumatus* McLachlan ♀, epiproct, scale of Fig. 9. Fig. 16. *E. crassicornis* (Kolbe) ♀, spermapore sclerite. Fig. 17. *E. nigripes* n. sp. ♀, spermapore sclerite, scale of Fig. 16.

Pearman's description (1933) is augmented as follows: Measurements (Table II). Lateral prongs of hypandrium joined along their length to sides of hypandrium by semimembranous cuticle. Female epiproct (Fig. 15) with postero-lateral sclerotized strips turning slightly outward at their distal ends.

Material examined.—Brazil: Goiás: Jatai, October, 1972 1 ♀ F. M. Oliveira; 20 Km. north of Sao Joao da Alianca, April 14, 1956, 1 ♂, 13 ♀, F. S. Truxal.

*Eremopsocus crassicornis* (Kolbe), new combination

*Cerastis crassicornis* Kolbe, 1883: 70.

*Cerastipsocus crassicornis* (Kolbe), Smithers, 1967: 96.

Diagnosis.—See diagnosis of *E. nigripes* n. sp.

Male.—Measurements (Table II).

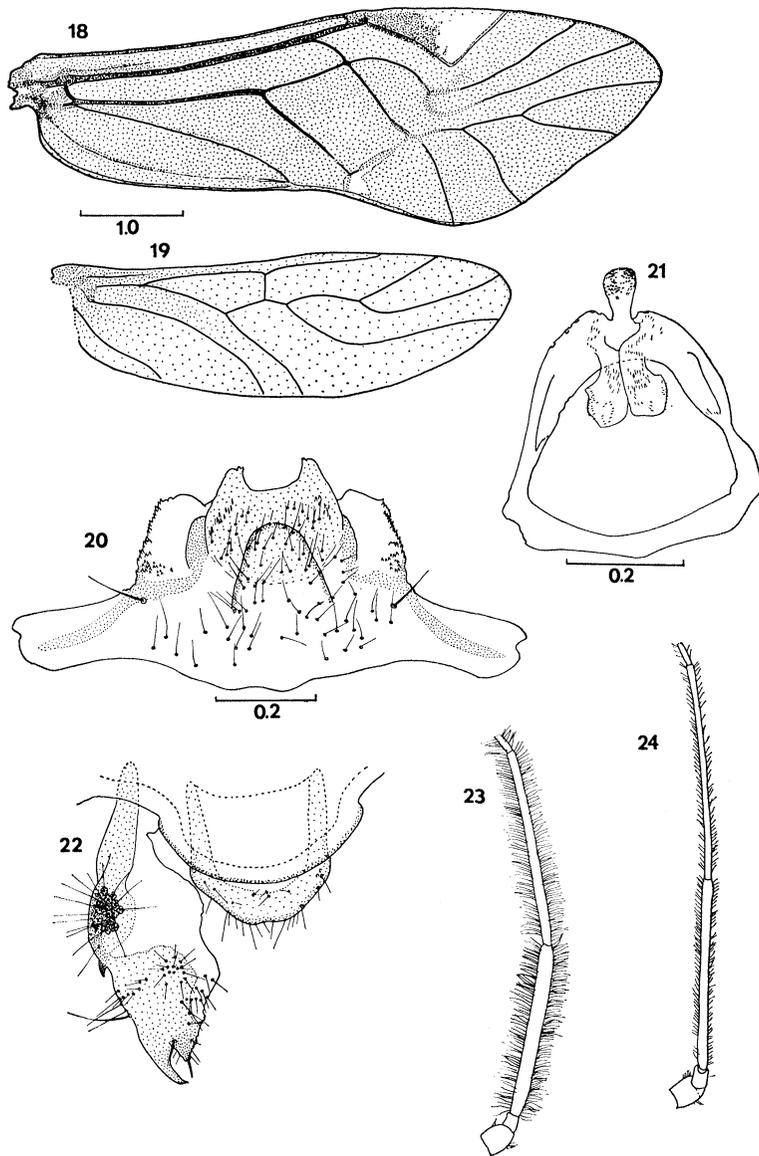
Morphology.—Antenna with basal flagellomere (Fig. 6) decidedly incrassate, second less so, third slightly incrassate basally; all flagellomeres densely beset with upright hairs. Compound eyes small (see Table II). Hypandrium (Fig. 3) with pair of short distal prongs; these and distal ends of lateral thickenings beset with minute denticles. Discal lobe and regions to its sides and base bearing setae. Phallosome (Fig. 4) a closed ring with truncate distal process, the process and weakly-sclerotized region to its sides bearing minute denticles. Paraproct (Fig. 5) with a long distal spur and a short spur distad of sense cushion. Epiproct and posterior clunial margin as in Fig. 5.

Color (in alcohol).—Compound eyes and inner rims of ocelli black. Head deep orange-brown with faint clypeal striations. Maxillary palpi dark brown. Antennal scape and pedicel dark chestnut brown; flagellum black. Mesonotal lobes deep to medium chestnut brown, their borders and thoracic pleura orange-brown. Forewing membrane (Fig. 1) uniformly fumose-brown except colorless in base of areola postica and nearly so in basal region of cell R<sub>1</sub> from behind stigmata nearly to apex of pterostigma. Pterostigma brown

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EXPLANATION OF FIGURES 18-24

Fig. 18. *Eremopsocus nigripes* n. sp. ♂, forewing. Fig. 19. *E. nigripes* n. sp. ♂, hindwing. Fig. 20. *E. nigripes* n. sp. ♂, hypandrium. Fig. 21. *E. nigripes* n. sp. ♂, phallosome. Fig. 22. *E. nigripes* n. sp. ♂, epiproct, left paraproct, and adjacent clunial margin, scale of Fig. 20. Fig. 23. *E. nigripes* n. sp. ♂, antenna (scape through base of f<sub>3</sub>), scale of Fig. 18. Fig. 24. *E. nigripes* n. sp. ♀, antenna (scape through base of f<sub>3</sub>), scale of Fig. 18.



outlined in white. Veins of forewing white except following brown: short segment of Rs before its fork, short segments of M before M-Cu1a junction, R2 + 3, except its extreme base, R4 + 5 in its distal two-thirds, M1, M2, M3, Cu1a beyond junction with M. Hindwings (Fig. 2) uniformly pale fumose-brown. Coxae, trochanters and femora orange-brown; tibiae and tarsi duskier. Membranous portions of abdomen ringed with slender white stripes on a purplish-brown background (subcuticular pigment). Terminal abdominal segments medium to dark brown.

Female. — Measurements (Table II).

Morphology. — Flagellomeres slender (Fig. 7). Subgenital plate (Fig. 11) with pigmented area roughly T-shaped as in *E. infumatus* but with narrow region of stem of T shorter and setae distad of cross-piece shorter and not forming a distinct row, being interrupted in middle. Gonapophyses (Fig. 13) with first valvula acuminate distally, bearing a few minute spines on its edges; second valvula tapering distally and spinulose over distal third; third valvula with basal, more sclerotized region bearing setae (this region shown folded over rest in figure), remainder membranous, distal lobe straight. Ninth sternum and spermapore as in Fig. 16. Epiproct (Fig. 9) with clear region surrounded by approximately quadrate frame of heavier sclerotization, the frame and clear area bearing setae of various lengths.

Color. — Same as in male.

Material examined. — Brazil: Prov. Minas Gerais: Sao Joao del Rei, Coll. Sello, 1 ♂ (holotype); Santa Catarina: Nova Teutonia, November, 1970, Coll. F. Plaumann, 14 ♂, 23 ♀. Uruguay: Depto. de Treinta y Tres: Rio Olimar Chico, 25 Km. WSW Treinta y Tres, 11 April 1963, Coll. J. K. Bouseman, 8 ♂, 2 ♀.

### ***Eremopsocus nigripes*, new species**

Diagnosis. — Differing from *E. infumatus* in having only the first two flagellomeres incrassate and only in the male. Differing from *E. crassicornis* in having first two male flagellomeres decidedly more incrassate and having in both sexes posterior vertex of pterostigma angular, forming approximately a right angle, rather than rounded. Differing from the described fuscous-winged neotropical *Cerastipsocus* species in which external genitalia not known: from *C. ocellaris* (Kolbe), *C. moestus* (Kolbe), *C. pallidinervis* (Kolbe), *C. vetustus* (Kolbe) in having pterostigma deep and with decidedly angular posterior vertex.

Male. — Measurements (Table II).

Table II. Measurements (in mm) head ratios, and otenidial counts for three species of *Eremopsocus*. Abbreviations are explained in text.

	$f_1$	$f_2$	$F_w$	F	T	$t_1$	$t_2$	$t_{1ct}$	IO/D	PO
<u>E. infunatus</u> ♂	1.82	1.92	5.72	1.23	2.29	0.53	0.30	19	2.56	0.81
<u>E. infunatus</u> ♀	1.91	1.94	7.11	1.33	2.61	0.51	0.32	21	3.10	0.69
<u>E. infunatus</u> ♀	1.70	1.78	7.25	1.40	2.62	0.54	0.29	19	3.07	0.78
<u>E. crassicornis</u> ♂	1.43	1.58	4.79	1.02	2.00	0.50	0.30	21	3.01	0.81
<u>E. crassicornis</u> ♂	1.70	1.89	5.21	1.15	2.26	0.55	0.34	25	3.05	0.81
<u>E. crassicornis</u> ♀	1.65	1.95	5.94	1.32	2.21	0.48	0.35	18	3.27	0.78
<u>E. crassicornis</u> ♀	2.06	2.24	6.45	1.45	2.80	0.59	0.32	23	3.27	0.88
<u>E. nigripes</u> ♂	1.66	1.89	5.60	1.30	2.45	0.55	0.30	21	2.86	0.78
<u>E. nigripes</u> ♂	1.58	1.86	5.33	1.09	2.32	0.52	0.26	19	2.95	0.85
<u>E. nigripes</u> ♀	1.62	1.66	5.66	1.14	2.18	0.46	0.28	18	3.35	0.76
<u>E. nigripes</u> ♀	1.90	1.61	6.85	1.44	2.80	0.59	0.30	20	3.29	0.79

Morphology. — Basal flagellomere (Fig. 23) more incrassate than in *E. crassicornis*, second about the same, third to tip slender. All flagellomeres beset with upright hairs. Compound eyes small (see Table II). Hypandrium (Fig. 20) with distal prongs somewhat longer than in *E. crassicornis*; these and sides of hypandrium, to extreme base beset with minute denticles. Discal lobe and regions to its sides and base bearing setae. Phallosome (Fig. 21) symmetrical, with somewhat flattened base; the inset, spatulate distal process larger than in *E. crassicornis* and bearing minute denticles. Paraproct (Fig. 22) as in *E. crassicornis*. Epiproct and posterior clunial margin as in Fig. 22. The latter differing from that of *E. crassicornis* in having sides slightly indented.

Color (in alcohol). — Compound eyes and inner rims of ocelli black. Head yellow deepening to burnt orange on vertex with a spot of medium orange-brown in front of ocellar interval; clypeal striations faintly indicated by orange-brown mottling. Maxillary palpi pale brown on basal two segments, becoming darker distally on second; third segment dark brown, distal segment black. Antennal scape pale brown, rest of antenna black. Mesonotal lobes orange peripherally, deep orange-brown in a broad central band running length of mesonotum. Thoracic pleura violet. Forewing membrane (Fig. 18) uniformly fumose-brown except small region in base of areola postica extending distally along vein Cu1a; pterostigma and narrow *stigmaeum* white mottled in base with fumose brown. Veins of forewing fumose brown except following: R1 colorless from posterior apex of pterostigma to wing margin; Rs pale brown at and immediately before and in its junction with Cu1a, colorless immediately beyond junction; Cu1a colorless before and immediately beyond junction with M; Cu1b colorless. Hindwing (Fig. 19) uniformly pale fumose brown. Coxae, trochanters, and femora yellow; tibiae and tarsi black. Membranous portions of abdomen (note variation below) longitudinally striped with purple bands: a broad band along each side including spiracles, a narrower band along dorsal mid-line; an incomplete band ventrally from hypandrium, widest in 7th segment, narrowing to its anterior end in third segment; abdomen creamy white between purple bands. Terminal abdominal segments largely dark brown, paler on poorly sclerotized portion.

Female. — Measurements (Table II).

Morphology. — Flagellomeres slender (Fig. 24). Subgenital plate (Fig. 12) with narrow region of stem of T-shaped pigmented area shorter than in *E. infumatus*; setae distad of cross-piece of T

shorter and forming a continuous subquadrate region. Lamp-globe shaped pigmented region distad of narrow portion of T-stem not as broad as in *E. crassicornis*. Gonapophyses (Fig. 14) with second valvula not as long from broadest region to tip as in *E. crassicornis*; inner lobe of third valvula relatively longer. Epiproct (Fig. 10) with heavily sclerotized sides of distal clear area not decidedly pointing medially at their distal ends. Spermapore plate (Fig. 17) much as in *E. crassicornis*.

Color (in alcohol).—As in male except no spot of medium orange-brown before ocelli and three faint purple lines radiating from each compound eye medially.

Variation.—Some individuals lack the longitudinal purple bands of the abdomen but have, instead, transverse purple bands, one per segment, each band dividing into two at the spiracle on each side and continuing ventrally as two narrow bands which dissipate before reaching the ventral mid-line. These individuals have the dark pigmentation of the mesonotum more diffuse and, in males, the dark pigmentation of the pterostigma and *stigmasaum* more dispersed. I can detect no morphological difference between these and the form described above. The two forms were apparently collected together.

Holotype ♂, allotype ♀, 3 ♂ paratypes and 2 ♀ paratypes, Brazil: Santa Catarina: Nova Teutonia, November, 1970, Coll. F. Plaumann. Types will be deposited in the United States National Museum, Washington, D. C.

Other material examined.—(all from Nova Teutonia, Santa Catarina, Brazil, Fritz Plaumann collector). Same data as holotype, 12 ♂, 13 ♀, October, 1971, 4 ♂, 4 ♀; December, 1971, 2 ♂, 1 ♀.

#### Key to the Species of *Eremopsocus*

- 1a. First four flagellomeres incrassate in both sexes. Female subgenital plate with a single row of long setae along cross-piece of T-shaped mark ..... *E. infumatus* McLachlan
- 1b. At most first two flagellomeres incrassate, and these only in male. Female subgenital plate with scattered setae bordering cross-piece of T-shaped mark, these not forming a single row ..... 2
- 2a. Pterostigma with angular posterior apex. Veins in basal half of forewing, especially M + Cu1 brown, not contrasting sharply with wing membrane. First male flagellomere decidedly incrassate (Fig. 4) ..... *E. nigripes* n. sp.

- 2b. Pterostigma with rounded posterior apex. Veins in basal half of forewing, especially M + Cu<sub>1</sub> white, contrasting strongly in well colored individuals with fumose wing membrane. First male flagellomere only slightly incrassate .....  
 ..... *E. crassicornis* (Kolbe).

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