

A NEW PSILOPINE GENUS AND SPECIES FROM ISRAEL WITH
A RECHARACTERIZATION OF THE TRIBE AND KEY TO
OTHER PSILOPINE GENERA OF THE MIDDLE EAST
(DIPTERA: EPHYDRIDAE)

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Abstract.—A new psilopine genus and species *Eremomusca nussbaumi*, are described from specimens collected in Israel. The genus is apparently related to *Actocetor* Becker and *Trypetomima* de Meijere. The tribe Psilopini is recharacterized, and a key to genera of Psilopini occurring in the Middle East is presented.

Several years ago I received specimens of a curious psilopine fly from Israel that I did not immediately recognize at the generic or specific level. Eventually I restudied these specimens in connection with my revision of the shore flies of the Middle East. It is apparent now that the specimens represent both a new genus and species. The genus and species are uniquely characterized by several features, the mottled wing being the most notable and conspicuous. This species has now been collected from several localities, all in Israel, but its distribution will undoubtedly be found to range into other Middle Eastern countries as well. The purpose of this paper is to describe this fly and to discuss its relationships within the subfamily Psilopinae. I am also taking this opportunity to present a key to the psilopine genera of the Middle East.

The descriptive terminology follows that published in the recent Manual of Nearctic Diptera, Vol. 1 (McAlpine, 1981) with the exception noted in Mathis (1984).

TRIBE PSILOPINI CRESSON

Diagnosis.—Small to moderately small shore flies; usually vestiture mostly lacking, subshiny to shiny, black (amount of vestiture and coloration varying considerably, however).

Head: Ocellar bristles inserted behind alignment of anterior ocellus, sometimes very slightly so; reclinate fronto-orbital bristle inserted behind or directly laterad of proclinate fronto-orbital bristle; postocellar setae usually weakly developed and laterocline, sometimes more strongly developed, divergent, and slightly proclinate, length usually much less than $\frac{1}{2}$ that of ocellar bristles; arista with 7-14 dorsally branching rays (*Scoliocephalus* is an exception with 1-3); conformation of face variable, usually mostly smooth, sometimes shallowly pitted or rugose; gena, including midportion, setulose, its posterior margin rounded.

Thorax: Supra-alar bristle usually lacking, if present, well developed, subequal

to postalar bristle; arrangement of acrostichal setulae variable; prescutellar acrostichal bristles usually present, widely set apart, and inserted anterior of transverse alignment of posteriormost dorsocentral bristles; scutellar disc usually sparsely setulose; both anterior and posterior notopleural bristles inserted at about the same level near ventral margin.

KEY TO MIDDLE EASTERN GENERA OF PSILOPINI

1. First flagellomere greatly elongate, about 4 times longer than wide; antennal length subequal to eye height; only proclinate fronto-orbital bristle present *Rhynchopsilopa* Hendel
- First flagellomere normally developed, length at most about twice its width; antenna much shorter than eye height; reclinate and proclinate fronto-orbital bristles present 2
2. First flagellomere small, only slightly longer than wide, length subequal to 2nd antennal segment; postocellar setae well developed, with slightly divergent, posterodorsal orientation; facial series comprised of 4 setae; supra-alar bristle present, well developed; wing guttate, mostly dark with white spots *Actocetor* Becker
- First flagellomere conspicuously longer than wide and larger than 2nd antennal segment; postocellar setae weakly developed, laterocline; facial series at most with 2 prominent setae; supra-alar bristle lacking; wing either mostly hyaline or maculation pattern not as above 3
3. Only inner vertical bristle present; fronto-orbital setae much reduced; prescutellar acrostichal setae lacking *Trimerina* Macquart
- Both inner and outer vertical bristles present; fronto-orbital setae well developed, conspicuous; prescutellar acrostichal setae present 4
4. Arista at most with 3–4 dorsally branching rays; distance between reclinate and larger proclinate fronto-orbital bristles greater than between reclinate bristle and inner vertical bristle; bristles generally pale *Scoliocephalus* Becker
- Arista with at least 6 dorsally branching rays; reclinate and proclinate fronto-orbital bristles much closer together than reclinate bristle and vertical bristles; bristles generally dark 5
5. Body generally with extensive areas bare to sparsely microtomentose, shiny; wing hyaline or darkened along crossveins or veins; vein R_{2+3} not bifurcate near apex; base of R_s vein bare of setulae *Psilopa* Fallén
- Body generally microtomentose, appearing dull, gray, with brown maculation; wing white with 2 irregular brown bands, one at midlength, the other apical; vein R_{2+3} bifurcate near apex; base of R_s vein with 3–5 setulae above *Eremomusca*, new genus

Eremomusca Mathis, NEW GENUS

Diagnosis.—Small to moderately small shore flies; body entirely microtomentose, cinereous to dark brown; setae mostly dark colored.

Head: In profile with antenna inserted at dorsal $\frac{1}{3}$; frons conspicuously wider than long; both reclinate and proclinate fronto-orbital bristles well developed, distance between these about $\frac{1}{2}$ that between reclinate bristle and inner vertical bristle; postocellar setae moderately well developed, divergent, and slightly reclinate; both inner and outer vertical bristles present, well developed; postocellar

bristles weakly developed, laterocline; vertex moderately creased; posterior ocelli situated immediately before vertex. Antennal length slightly more than $\frac{1}{2}$ eye height; 1st flagellomere short, subequal or slightly longer than length of 2nd segment; 1st segment not exerted; arista with 6–8 dorsally branching rays. Face densely invested with microtomentum but otherwise smooth, most prominent in profile just below its midheight; 2 strong facial setae, these inclinate, dorsal pair cruciate; proboscis normally developed, not elongate.

Thorax: Generally microtomentose, cinereous or brown; supra-alar bristle lacking; acrostichal setae arranged in 4–6 regular rows, setae of median rows larger and fewer, lateral rows better developed on anterior half; prescutellar acrostichal bristles present, well developed; scutellum only slightly wider than long, dorsum sparsely setulose; basal scutellar bristle over $\frac{1}{2}$ length of apical bristle; anepisternum with 2 large bristles; halter white to yellowish, base brown. Wing conspicuously maculate, pattern irregular, about $\frac{1}{2}$ dark; vein R_{2+3} short and bifurcate subapically with short posterior stump vein, merged with costal vein just apicad of level of crossvein dm-cu; R stem vein with 2–5 setulae dorsally. Legs with forebasitarsomeres concolorous with remaining tarsomeres.

Abdomen: Generally microtomentose, color and vestiture similar to mesonotum; tergum 4 lacking dorsal erect setae along posterior margin. For further details concerning the terminalia, see the species diagnosis and figures.

Type-species: *Eremomusca nussbaumi* Mathis, by present designation.

Etymology.—*Eremomusca* (feminine) is of Greek derivation and is a combination of the nouns *eremia*, meaning solitude, desert, or wilderness, and *musca*, meaning fly.

Distribution.—Middle East. Israel.

Discussion.—Among psilopine genera, *Eremomusca* is very distinctive and is not likely to be confused with any of the others. Unique characters are the pattern of the mottled wing (Fig. 4), the extensive microtomentose vestiture, with its colorational pattern, and shape of the male terminalia. Its relationships with these genera, however, are not as clearly defined. *Eremomusca* appears to be closely related to *Actocetor* Becker (Old World) and *Trypetomima* de Meijere (Oriental and Oceanian), and of the two, a closer relationship with *Trypetomima* is suggested by more character evidence. All three genera have 2–4 setulae at the base of Rs on the dorsal surface, a reduced alula, and maculate wings. Furthermore, like *Trypetomima*, vein R_{2+3} of *Eremomusca* is short and subapically bears a stump vein. Both *Actocetor* and *Trypetomima* differ from *Eremomusca* in having larger postocellar bristles that are moderately divergent and have a slightly reclinate orientation. Moreover, *Actocetor*, unlike *Eremomusca* or *Trypetomima*, has a well-developed supra-alar bristle, high gena, and more facial bristles.

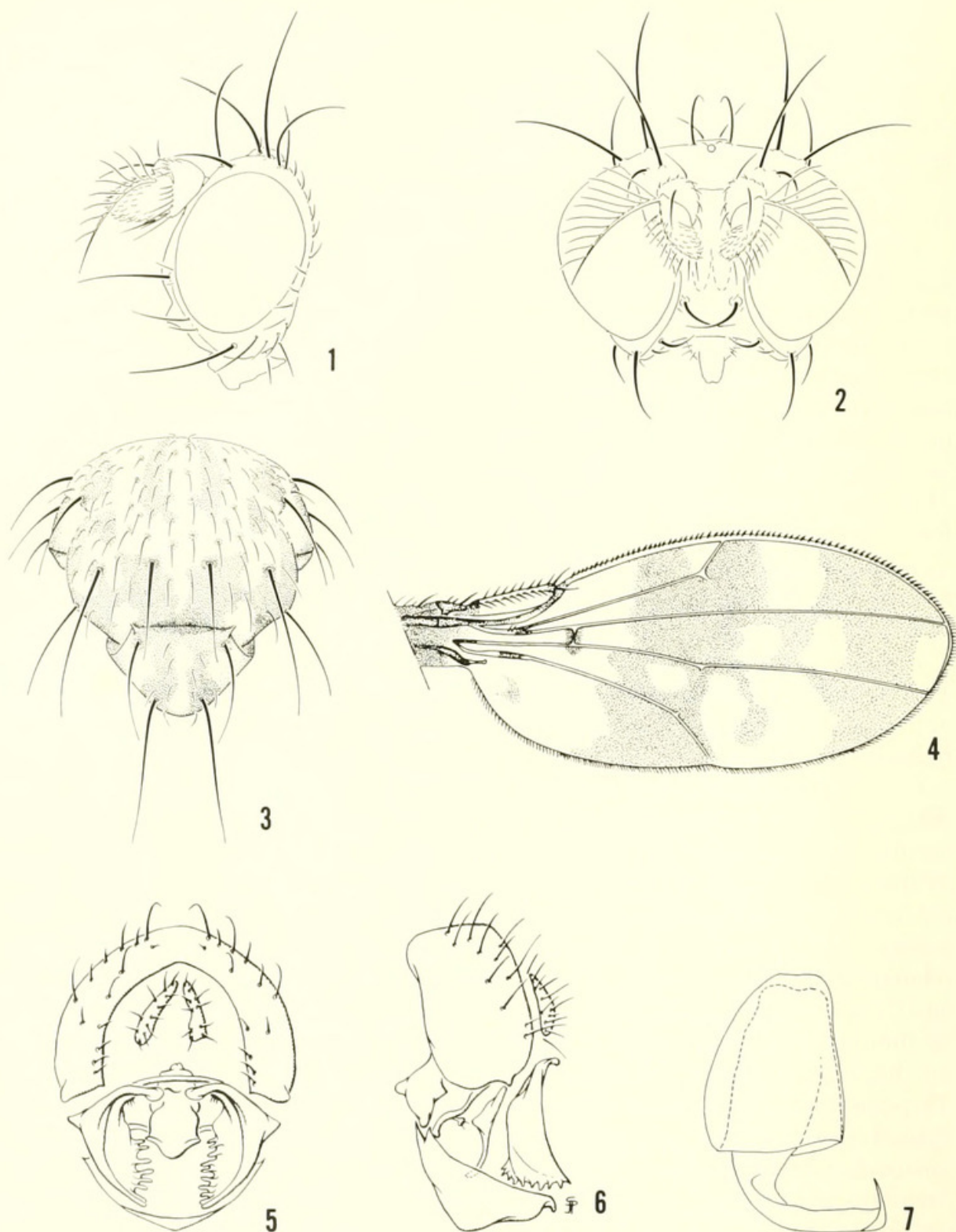
Although I have suggested here that *Eremomusca* is related to *Actocetor* and *Trypetomima* the character evidence has not been thoroughly tested against all other psilopine genera. Thus, the relationships are tentative and await further analysis of the entire tribe.

Eremomusca nussbaumi Mathis, NEW SPECIES

Figs. 1–7

Diagnosis.—Small to moderately small shore flies, length 1.35 to 2.10 mm; body densely microtomentose, appearing dull, gray and brown.

Head (Figs. 1–2): Frons mostly gray, blackish brown immediately around in-



Figs. 1-7. *Eremomusca nussbaumi*. 1, Head, lateral view. 2, Head, anterior view. 3, Mesonotum, dorsal view. 4, Wing, dorsal view. 5, Male terminalia, posterior view. 6, Male terminalia, lateral view. 7, Female ventral receptacle, lateral view.

sertion of setae; mesofrons and parafrons similar in vestiture; postocellar setae moderately well developed, divergent. Antenna with 1st segment black; 2nd segment mostly yellow, venter black; 1st flagellomere black and slightly longer than 2nd segment; arista with 6-8 dorsally branching rays. Face yellow with whitish to grayish microtomentum; in profile slightly more prominent just above dorsal facial bristles, slightly recurved just before oral margin; facial bristles 2, dorsal

pair much stronger, cruciate; clypeus brownish black; maxillary palpus yellowish. Eye conspicuously microsetulose, irregularly oval in lateral view, slightly higher than wide, eye ratio 0.86. Gena concolorous with face, very short, eye-to-cheek ratio 0.10; 1 large genal bristle.

Thorax (Fig. 3): Mesonotum (Fig. 3) mottled, with gray and brown coloration about equally divided, brown at base of most setulae and bristles, and more extensive posteriorly. Wing (Fig. 4) mottled, brown at extreme base, and with 2 irregular transverse brown bands, one at about basal $\frac{1}{3}$, other at about apical $\frac{1}{4}$; stump vein near apex of R_1 about as long as apical section (from stump vein to apex) of R_1 ; costal vein ratio 1.25; M vein ratio 0.56. Legs with femora blackish brown except at femoral-tibial articulation; foretibia mostly yellowish, with faint postbasal brown annulus; mid- and hindtibia with 2 blackish brown annuli, postbasal one more or less twice width of preapical one; tarsomeres yellow except for brownish apical one.

Abdomen: Mostly brownish with somewhat symmetrical sparse grayish pattern. Male terminalia as figured (Figs. 5–6). Epandrium, in posterior view, broadly U-shaped, in lateral view subrectangular; cercus small, reniform to elliptical; surstylus gradually becoming wider ventrally in lateral view, in posterior view with dorsomedian processes that almost touch medially, anteroventral margin deeply edentate; aedeagal apodeme lunate in lateral view with median portion broadly developed; aedeagus irregularly ovate in lateral view; gonite slender, bandlike, with a dorsal process that is loosely attached above the aedeagus to its complement on the other side; hypandrium well sclerotized, shallowly bowl-shaped. Female ventral receptacle as figured (Fig. 7).

Type material.—Holotype ♂ is labeled "ISRAEL Mahanaim 5.v.1975 A. FREIDBERG/HOLOTYPE ♂ *Eremomusca nussbaumi* Mathis [red]." Allotype and 88 paratypes are labeled as follows: ISRAEL. Anti Patris, 9 May–1 Nov 1982–1983, I. Nussbaum (7 ♂, 20 ♀; Tau, USNM); Dan, 28 Sep 1983, I. Nussbaum (1 ♂, 3 ♀; TAU, USNM); Nahal Tut, 18 May 1982, A. Freidberg (1 ♂, 5 ♀; TAU, USNM); Rosh-Ha'ayin, 8–10 Apr–1 Nov 1976–1982, A. Freidberg, I. Nussbaum (21 ♂, 30 ♀; TAU, USNM). The holotype is double mounted (minute nadel in polyporus block), is in excellent condition, and will be deposited in the insect collection of the Tel-Aviv University, Tel-Aviv, Israel.

Natural history.—Adult flies were collected by sweeping vegetation along fresh or partly polluted streams. Sweeping was low, just above the mud or water. Prevailing plants were *Scirpus tuberosus* Desf. (Cyperaceae). *Nasturtium officinale* R. Br. (Cruciferae), *Mentha* sp. (Labiatae) and *Pulicaria dysenterica* (L.) Bernh. (Compositae).

Etymology.—The specific epithet, *nussbaumi*, is a Latinized genitive patronym to recognize Itzhak Nussbaum, who collected most of the paratypic series and furnished the information in the natural history section.

Remarks.—This is a very distinctive species, particularly the vestiture and coloration of the body and wing, and it is not likely to be confused with any other psilopine species.

ACKNOWLEDGMENTS

For reviewing a draft of this paper, I thank Amnon Freidberg and Norman E. Woodley. The illustrations were prepared by Molly Ryan and Stasia J. Penkoff, to whom I am likewise grateful.

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- McAlpine, J. F. 1981. Morphology and Terminology—Adults [chapter 2], pp. 9-63. In McAlpine, J. F. et al., eds., Manual of Nearctic Diptera. Vol. 1. Res. Branch Agric. Can. Mono. 27, 674 pp. Ottawa.

PROC. ENTOMOL. SOC. WASH.
87(2), 1985, p. 380

ZOOLOGICAL NOMENCLATURE

The International Commission on Zoological Nomenclature requests comments on the following items.

- Case No. 2115. Report on *Gyyphipteryx* Hübner, [1825] (Insecta, Lepidoptera).
- Case No. 2318. *Aphodius rufus* Moll, 1782 and *Aegialia rufa* Fabricius, 1792 (Insecta, Coleoptera): proposed conservation under the plenary powers by suppression of *Aphodius scybalarius* Fabricius, 1792.

Comments also are solicited on Z.N.(S.)2474, a proposal by Gagné, Thompson, and Knutson (1984, Bull. Zool. Nom. 41: 149-150) concerning Article 51c. They propose to eliminate the use of parentheses around author names.

Send any comments on the above to: Secretary, International Commission on Zoological Nomenclature, % British Museum (Nat. Hist.), London SW7 5BD, United Kingdom.



Mathis, Wayne N. 1985. "A new psilopine genus and species from Israel with a recharacterization of the tribe and key to other psilopine genera of the Middle East (Diptera: Ephydridae)." *Proceedings of the Entomological Society of Washington* 87, 375–380.

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