

***PHORBELLIA KUGLERI*, A REMARKABLE NEW SPECIES FROM
MT. HERMON, WITH OTHER NEW RECORDS OF SCIOMYZIDAE
FROM ISRAEL (DIPTERA: ACALYPTRATAE)**

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ABSTRACT

Pherbellia kugleri Knutson (Diptera: Sciomyzidae) is described from Mt. Hermon, Israel, and is shown to be related to *P. albicarpa* Rondani. Newly recorded from Israel are three additional species (*Colobaea punctata* Lundbeck, *Ilione truquii* Rondani, and *Sepedon spinipes spinipes* Scopoli), which brings the number of species now known from Israel to 22, compared to the two species known a few years ago. New distributional data are provided for the following species previously recorded from Israel: *Coremacera amoena* Loew, *C. catenata* Loew, *Dichetophora obliterata* Fabricius, *Euthycera flavostriata* Villeneuve, *Ilione albiseta* Scopoli, *Pherbellia cinerella* Fallen, *P. grisescens* Meigen, and *P. hermonensis* Knutson and Freidberg.

KEY WORDS: Diptera, flies, snail-killing flies, Sciomyzidae, *Pherbellia kugleri* n. sp.

Before the study by Knutson and Freidberg (1983), in which 18 species of Sciomyzidae were recorded, only two species of this family were known from Israel. Recent collecting in Israel has revealed the existence of a hitherto undescribed species of *Pherbellia* and the presence in that country of three described species previously unrecorded there. These four species are treated herein. I also take this opportunity to bring the list of Sciomyzidae in Israel up-to-date with recent nomenclatural changes. The following abbreviations are used: TAU = Tel-Aviv University, USNM = United States National Museum of Natural History.

It is a great pleasure to congratulate my friend Professor Jehoshua Kugler on his distinguished contributions to science and to describe *Pherbellia kugleri* in his honor on the occasion of his 70th birthday. I hope to continue to celebrate his birthdays regularly over the next several decades. Among Professor Kugler's significant contributions to entomology is an important collection of insects that has been formed at Tel-Aviv. Behind the collection, of course, are the many avid collectors and energetic students inspired by Professor Kugler.

Pherbellia kugleri Knutson n. sp.
(Figs. 1, 2)

Color: Ground color of body brownish, thorax and abdomen not strongly contrasting in color. Head with face and cheeks whitish pruinose; ocellar triangle, fronto-orbital plates, and occiput pruinose brownish gray, rest of frons subshiny yellow; eye margin whitish pruinose. Fronto-orbital spot black, well developed. Third

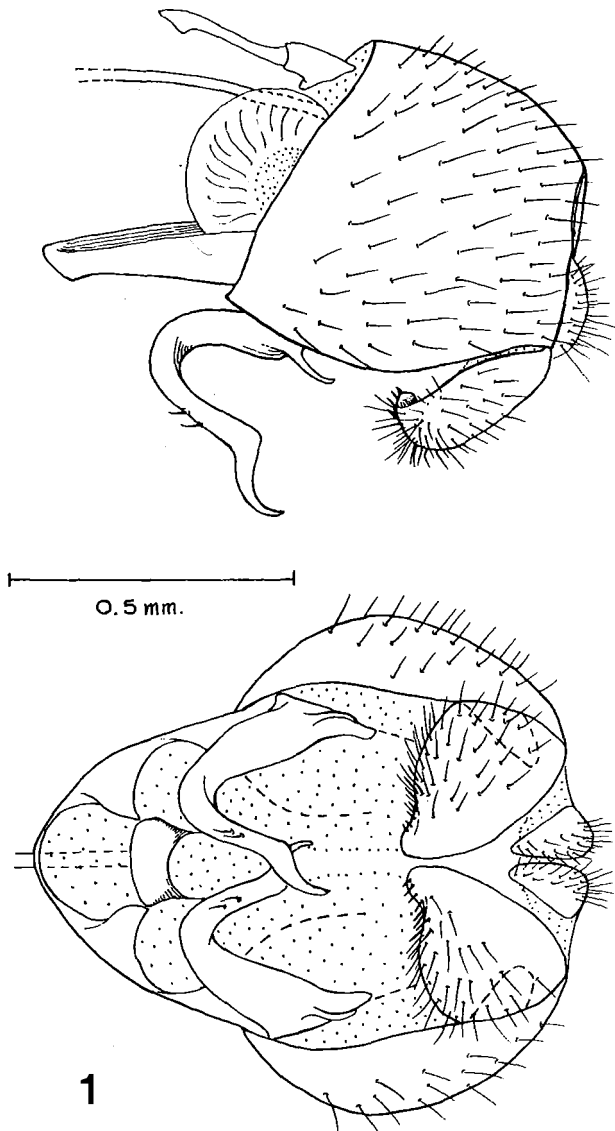


Fig. 1. *Pherbellia kugleri* n. sp. Male terminalia, left profile and ventral view.

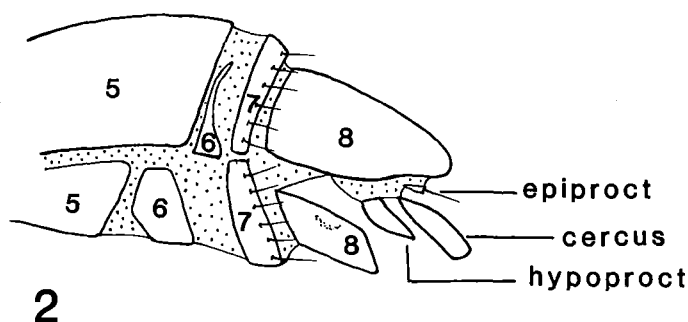


Fig. 2. *Pherbellia kugleri* n. sp. Tip of female abdomen in left profile, extended, schematic.

antennal segment yellow or apical 1/2 brownish to black. This character is highly variable. The apical 1/2 of the 3rd antennal segment is black on one of the two specimens from Lebanon (both males, with apices of the characteristic anterior surstyli exposed), whereas the segment is entirely yellow on the other specimen. The apical 1/2 of the 3rd antennal segment is slightly darkened on two of the females collected on Mt. Hermon on 8.VI.1983 and on 2 collected on 3.IX.1981 but black on a female collected on 8.VI.1983. Thorax laterally with extensive but faint pattern of grayish-brown pruinosity; subshiny brown stripe extending from notopleural bristle to upper 2/3 of hind margin of mesopleuron and onto pteropleuron above patch of bristles and hairs; dorsum yellowish laterally, with 4 relatively distinct brown stripes; scutellum yellow with broad brown median stripe; area below scutellum, sternopleuron, and hypopleuron bluish-gray; abdomen yellow with anterior portions of terga slightly brownish and with darker, grayish mid-dorsal stripe. Femora yellowish with faint bluish-gray pruinosity, anterior pair darkest, most densely pruinose, and blackish on apico-mesal 1/3 or more. Middle and hind tibiae concolorous with femora; anterior tibia yellowish basally, darker along most of length and almost blackish at apex. Front basitarsus dusky white, rest of tarsomeres brown to black; middle and hind apical tarsomeres sometimes slightly darkened.

Head: Two pairs of strong fronto-orbital bristles, posterior pair 1/3 longer than anterior pair. Width of cheeks about 1/2 of eye height. Mid-frontal stripe not reaching middle of frons, anterior edge level with or extending slightly beyond anterior margin of fronto-orbital plates.

Thorax: Mesopleuron bare. Pteropleuron with 2 or 3 moderately strong bristles and 0-3 hairs, usually 2 and 1 or 2 and 2.

Wing hyaline grayish yellow, stigma somewhat more opaque; otherwise wing without pattern; no accessory vein.

Abdomen: Male terminalia (Fig. 1) with anterior surstylus unlike that of any other species of *Pherbellia*: long, thin, curved, heavily sclerotized, and ending in clawlike structure. Strong spurlike outgrowth at base, directed posteriorly, and 2 or 3 thornlike projections posterolaterally, before apex. Posterior surstyli not unusual, being scooplike, broadly triangular in posterior view, and with posterior surface extensively haired.

Female terminalia (Fig. 2) with eighth tergum much larger than in other species

of *Pherbellia*, posterior margin indented mesally. Sixth tergum in a normal position, mostly under the fifth tergum; seventh tergum and sternum form a nearly complete annulus, only narrowly separated laterally, largely shining and contrasting with adjacent sclerites, furnished with complete series of hindmarginal setae; epiproct consists of minute sclerotized plate with single pair of setae; eighth sternum has a pair of inner, C-shaped sclerotizations.

MATERIAL EXAMINED. Holotype ♂, Israel, Mt. Hermon, alt. 1,700m, 9.VI.1983, A. Freidberg (TAU). Paratypes: same data as holotype, (2 ♀♀, allotype, TAU; 1 ♂, R. Rozkošný; 1♂, USNM). Israel, Mt. Hermon, alt. 1,600m, 9.VI.1983, I. Yarom (1 ♀, TAU). Israel, Mt. Hermon, 2,000m, 2.VIII.1982, F. Kaplan (2 ♀♀, TAU); 29.VIII.1981, A. Freidberg (1 ♀, TAU; 1 ♂, USNM); 3.IX.1981, A. Freidberg (1 ♂, 1 ♀, USNM; 1 ♀, TAU). Lebanon, Barukh Mt., 1,900m, 9.IX.1984, I. Nussbaum (2 ♂♂, USNM, TAU).

Diagnosis: This species of *Pherbellia* belongs to the group of species with a bare mesopleuron, unpatterned wing, 2 pairs of fronto-orbital bristles, and short midfrontal stripe. It appears to be most closely related to *P. albicarpa* Rondani, both externally and on the basis of the male genitalia. Characters of both the male and female postabdomens most reliably separate the two species, with *P. kugleri* having an enlarged 8th tergum in the female and an unusually elongate, sickle-shaped anterior surstylus in the male. Interestingly, the long, curved process of the anterior surstylus that bears thornlike processes is similar in basic structure in both species, although various details clearly separate the two. Externally, *P. albicarpa* always has a yellow 3rd antennal segment, whereas in *P. kugleri* it may be entirely yellow or darkened apically. *Pherbellia kugleri* shows 4 well-developed mesoscutal stripes, but *P. albicarpa* shows only 2.

MODIFICATION OF KEY TO *PHORBELLIA* SPP. OF ISRAEL
(see Knutson and Freidberg (1983), p. 374, couplet 6)

- 6. Antennal segment 3 black on apical 3/4; thorax (bluish-gray) and abdomen (yellowish) strikingly contrasting *P. hermonensis* Knutson and Freidberg
- Antennal segment 3 black or brownish only on apical 1/2 or entirely yellow; thorax (brownish-gray) and abdomen (yellowish-brown) not strikingly contrasting 7
- 7. Third antennal segment entirely yellow; fore basitarsus entirely yellowish white; mesoscutum with 2 indistinct stripes posteriorly; tergum 8 of female not enlarged; apex of anterior surstylus with hairs, not clawlike
- *P. pninae* Knutson and Freidberg
- Third antennal segment entirely yellow or apical 1/2 brownish to blackish; fore basitarsus whitish, darkened apically; mesoscutum with 4 distinct stripes; female tergum 8 unusually large; apex of anterior surstylus bare, clawlike
- *P. kugleri* Knutson

NOMENCLATORIAL NOTES AND NEW DISTRIBUTIONAL RECORDS

1. *Colobaea punctata* Lundbeck, 1923

Remarks. Rozkošný (in press) records the distribution of this species as Ireland and southern Fennoscandia to Yugoslavia, eastward through northern Kazakhstan to eastern Siberia; Knutson and Freidberg (1983) also recorded the species from Turkey. I am preparing descriptions of two new species of *Colobaea* related to *C. punctata*, one represented by specimens from southeastern Pakistan, Afghanistan, and southwestern Iran, and one known only from northern Nigeria.

MATERIAL EXAMINED. A single female was collected on 8.VII.1985 by I. Nussbaum at Qeziot in the northern Negev. In collection of the Department of Zoology, Tel-Aviv University; identification confirmed by A. Freidberg.

2. *Pherbellia cinerella* Fallén, 1820

MATERIAL EXAMINED. Kefar Shemuel: 28.II.1968, 3 ♂♂; 23.III.1968, 1 ♂; 1.IV.1968, 2 ♂♂, 2 ♀♀, 5.IV.1968, 1 ♂, 1 ♀; 9.IV.1968, 1 ♀; 12.IV.1968, 2 ♂♂, 2 ♀♀; 19.IV.1968; 1 ♀; 26.IV.1968, 1 ♂, 2 ♀♀. Beer Sheva: 31.III.1968, 1 ♀. Ramia (?), 25 km east of Tel-Aviv: 14.III.1968, 1 ♂, 3 ♀♀, Latroun: 13.II.1968, 1 ♂; 22.II.1968, 1 ♀. Ilanot: 17.III.1968, 1 ♂. Holon, nr. Tel-Aviv: 26.II.1968, 1 ♂, 1 ♀. (All above collected by S. Bleszynski and in the Canadian National Collection, Ottawa). Haifa, 31.III.1980, W.N. Mathis (1 ♂, 4 ♀♀; USNM). Mt. Hermon, 1,600m, 14.V.1981, W.N. Mathis (2 ♂♂, 1 ♀; USNM). Mt. Hermon, 2,000m, 14.V.1981, W.N. Mathis (5 ♂♂, 4 ♀♀; USNM). Hagoshrim, 25.II.1977, A. Freidberg (1 ♂, USNM).

3. *Pherbellia grisescens* Meigen, 1830

MATERIAL EXAMINED. Hadera, Birket Atta: 24.V.1980, A. Freidberg (2 ♂♂, 3 ♀♀; USNM). Herzliyya: 10.III.1975, A. Freidberg (1 ♂; USNM). Golan, 13.V.1981, W.N. Mathis (1 ♀; USNM). Tel-Aviv, 23.VI.1977, A. Freidberg (2 ♂♂; USNM).

4. *Pherbellia hermonensis* Knutson and Freidberg, 1983.

MATERIAL EXAMINED. Mt. Hermon, 1,600m, 12.VII.1984, A. Freidberg (1 ♀; USNM); A. Freidberg and I. Yarom (3 ♂♂; TAU).

5. *Coremacera amoena* Loew, 1853

MATERIAL EXAMINED. Baniass, 13.VI.1982, A. Freidberg (1 ♂, 1 ♀; USNM).

6. *Coremacera catenata* Loew, 1847

MATERIAL EXAMINED. Lifta (Jerusalem), 21.V.1982, I. Nussbaum (1 ♀; TAU).

7. *Dichetophora obliterata* Fabricius, 1805

MATERIAL EXAMINED. Mt. Meron, 28.V.1981, W.N. Mathis (1 ♂; USNM).

8. *Euthycera flavostriata* Villeneuve, 1911

Remarks. We originally recorded *Limnia hendeli* Mayer, 1953, from Israel and placed the species in *Euthycera*, noting that it fits the original description of *Limnia flavostriata* Villeneuve, but we did not formally synonymize it (Knutson and

Freidberg, 1983). Vala and Leclercq (1983) studied the type specimens of both taxa and synonymized *L. hendeli* under *L. flavostriata*.

MATERIAL EXAMINED. Mt. Hermon, 1600m, malaise trap: A. Freidberg (8.IX.1981, 1 ♂; 9.IX.1981, 1 ♂; 10.IX.1981, 2 ♂♂; USNM) (10.IX.1981, 1 ♂, 1 ♀; TAU). Mt. Meron, 18.V.1981, W.N. Mathis (6♂♂, 2 ♀♀; USNM). Baniass, 16.V.1981, W.N. Mathis (1 ♂; USNM). Rosh Haniqra (1 ♀; TAU).

9. *Euthycera sticticaria* Mayer, 1953.

Remarks. We originally recorded ?*Euthycera stictica* Fabricius, 1805 (*Scatophaga*) from Israel and noted that it may be the same as *Limnia s. syriaca* Mayer, 1953 (Knutson and Freidberg, 1983). Rozkošný (in press) noted that the specimens we recorded as ?*E. stictica* from Israel are in fact *E. sticticaria*.

10. *Ilione albiseta* Scopoli, 1763.

MATERIAL EXAMINED. Golan, 13.V.1981, W.N. Mathis (7 ♂♂, 7 ♀♀; USNM). Qeshet, 13.V.1981, W.N. Mathis (1 ♂, 2 ♀♀; USNM).

11. *Ilione truquii* Rondani, 1863.

Remarks. Knutson and Freidberg (1983) recorded *Ilione truquii* (as *Knutsonia truquii*) from Syria and Turkey on the basis of published records.

MATERIAL EXAMINED. A single female was collected on 21.VIII.1983 by I. Nussbaum 0.5 km north of Tel Dan, Israel. In collection of the Department of Zoology, Tel-Aviv University; identification confirmed by A. Freidberg.

12. *Sepedon spinipes spinipes* Scopoli, 1763.

Remarks. Rozkošný (in press) records *S. s. spinipes* from "Ireland and northern Scandinavia to Spain, Italy, Crete, and Turkey, eastwards across Siberia to the Far East." Knutson and Freidberg (1983) recorded the species from Turkey and Syria.

MATERIAL EXAMINED. A single male was collected on 8.VIII.1983 by I. Nussbaum at (Tel) Dan. In collection of the Department of Zoology, Tel-Aviv University; identification confirmed by A. Freidberg.

(NOTE: The legend for the habitat abbreviations is Table 1 of Knutson and Freidberg (1983) was omitted. The abbreviations, which refer to the habitats of the larvae, are as follow: A = aquatic, I = intermediate, T = terrestrial.)

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REFERENCES

- Knutson, L. and A. Freidberg. 1983. The Sciomyzidae (Diptera: Acalyptratae) of Israel, with notes on the distribution of the Near East species. *Entomologica Scandinavica* 14: 371-386.
- Rozkošný, R. (In press.) Revision of the Palearctic Sciomyzidae.
- Vała, J.C., and M. Leclercq. 1983. Redescription et génitalia males de *Euthycera flavostriata* (Villeneuve, 1911) (Diptera, Sciomyzidae). *Bulletin de la Société Linnéenne de Lyon* 52 (3): 69-72.