

**A NEW PALEARCTIC SPECIES OF *XENASTEIA* HARDY (DIPTERA:
XENASTEIIDAE)**

AMNON FREIDBERG

*Department of Zoology, The George S. Wise Faculty of Life Sciences,
Tel Aviv University, Tel Aviv 69978, Israel*

ABSTRACT

Xenasteia shalam n. sp., a second Palearctic species of Xenasteiidae, is described from Israel and compared with other species of the genus. A key to the Palearctic species of *Xenasteia* Hardy is given.

KEY WORDS: Xenasteiidae, *Xenasteia shalam* n. sp., Palearctic, Israel.

INTRODUCTION

Hardy (1980) established the family Xenasteiidae for *Xenasteia* and seven Pacific and Indian Ocean species, which he described in the same paper. Several months later, Papp (1980) established Tunisimyidae for *Tunisimyia excellens* Papp (1980), collected in Tunisia. Papp (1984) sank Tunisimyidae in favor of Xenasteiidae and supplied a concise diagnosis for the family. Freidberg (1988) recorded under *Tunisimyia* Papp (1980) two unidentified species from Israel. McAlpine (1989), in his discussion of the phylogeny and classification of the Muscomorpha, made *Tunisimyia* a junior synonym of *Xenasteia* Hardy (1980). These five publications comprise all the original work on the family Xenasteiidae.

The present work is based on 35 specimens of *Xenasteia* collected in various parts of Israel, mostly from the Dead Sea area. All but one of the specimens seem to represent an undescribed species, clearly differing from other congeners. The new species is the second representative of the family in the Palearctic region. A single specimen, a female, collected at the Mediterranean coast, is different from the new species and may belong to *X. excellens* (Papp). However, males of this second species are needed to unambiguously determine its identity.

The purpose of this paper is to make the new species' name available for a review of the Palearctic Xenasteiidae that will be published in the forthcoming Manual of Palearctic Diptera. The new species is described and a key to the two known Palearctic species is given.

Terminology follows McAlpine (1981). Costal index is defined as the straight distance between apices of veins R, and R_{2+3} divided by the straight distance between apices of veins R_{2+3} and R_{4+5} .

Xenasteia Hardy

Xenasteia Hardy (1980:211).

Type species: *Xenasteia sabroskyi* Hardy, by original designation.

Tunisimyia Papp (1980:417).

Type species: *Tunisimyia excellens* Papp, by original designation and monotypy. McAlpine (1989:1466, synonymy).

As understood now, this genus comprises 9 or 10 species, most of which occur on Pacific and Indian Ocean islands. The only hitherto known Palearctic species, *X. excellens* (Papp) from Tunisia, was the first of the genus recorded from a continent, albeit from a maritime habitat. The specimens reported below were collected in maritime habitats, habitats with saline soils, and deserts.

KEY TO THE PALEARCTIC SPECIES OF *XENASTEIA*

1. Costal index 0.86–1.04, usually below 1; gonopod of male terminalia less than half as long as surstylus (Figs. 3–4) (Israel) *shalam* n. sp.
- Costal index 1.15–1.43; gonopod about as long as surstylus (Tunisia, ?Israel)
 *excellens* (Papp)

Xenasteia shalam n. sp.

(Figs. 1–4)

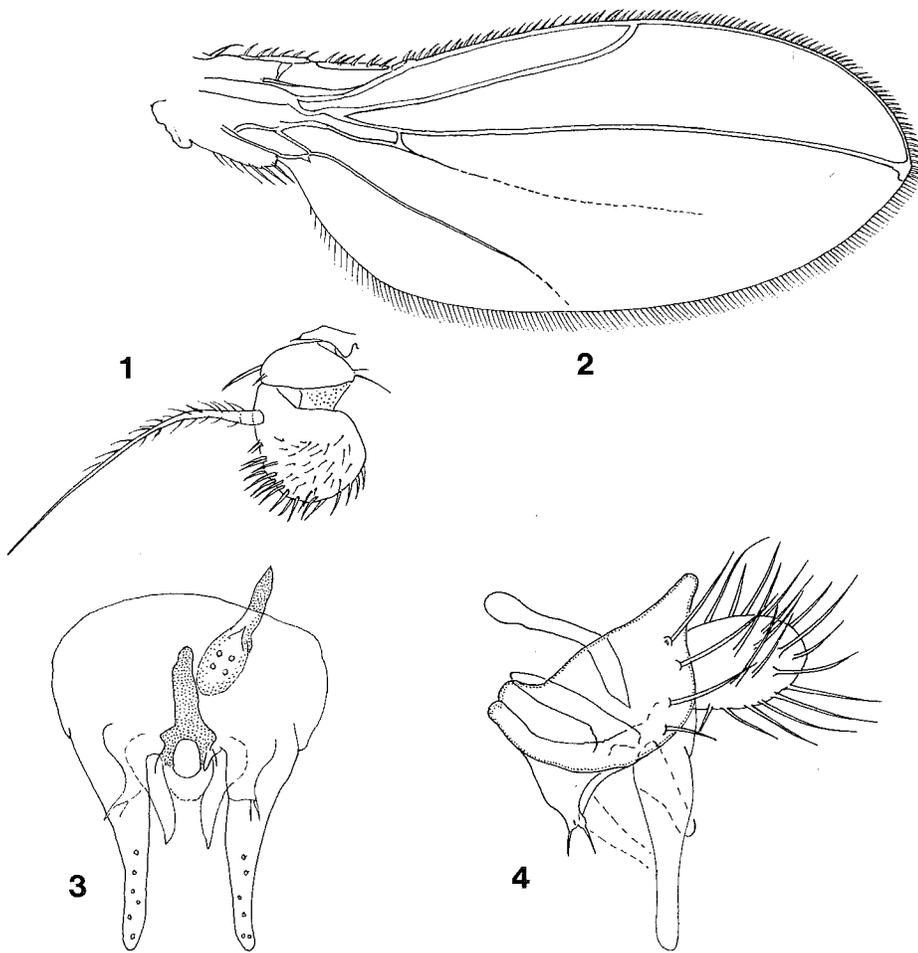
DIAGNOSIS. *X. shalam* is easily distinguished from all other congeners by the shape of the male terminalia, especially the short gonopod (anterior telomere of Papp, 1980), which is only about half as long as the surstylus. In all other congeners the gonopod is about as long as the surstylus. It also has a distinctive wing venation, with costal index 0.86–1.04, usually below 1. In all other congeners the costal index is distinctly higher than 1, except in *X. sabroskyi* Hardy (from Oahu, Hawaii), in which it is reported to be slightly above 1 (1.12 in the illustration; Hardy, 1980, Fig. 5a), and in *X. excellens*, in which it varies between 1.15–1.43 (Papp, 1980, Figs. 1 and 16). However, in *X. sabroskyi* crossvein r–m is placed much more basally, near the fork of veins R₂₊₃ and R₄₊₅, and vein R₄₊₅ is clearly undulate.

DESCRIPTION. Wing length 1–1.44 mm. Generally fitting Papp's (1980) description of *X. excellens*. Deviations from and additions to this description are given below.

Head: Mostly black, rather shiny, with face, gena, antenna, proboscis and palpus yellow to brownish; face and gena with greyish microtomentum; gena very narrow, almost invisible near vibrissal angle, in middle about 1/10 as high as eye (about 1/6 as high as eye in Papp's, 1980, Fig. 1 of *X. excellens*); arista (Fig. 1) with distinct hairs at basal 3/5, bare at distal 2/5 (stated to have short hairs and drawn bare by Papp, 1980, Fig. 1; stated to be bare in *Xenasteia* and so drawn by Hardy, 1980, Fig. 5d), indistinctly segmented.

Thorax: Color mostly brownish black; scutum strongly shiny, with slight microtomentum, especially laterally; scutellum and subscutellum matt, densely microtomentose; pleura slightly microtomentose, partly shiny; presutural supra-alar seta small but distinct; basal scutellar seta 1/4–1/3 as long as apical seta; acrostichal setulae in 3–4 not quite regular rows on either side.

Legs: Vary between entirely yellow to mostly yellow, with predominantly brownish to blackish femora and tibiae, except their yellow extremities. Leg coloration was not described



Figs. 1–4. *Xenasteia shalam* n. sp. 1. Left antenna. 2. Wing. 3. Male terminalia, posterior view. 4. Male terminalia, lateral view.

for *X. excellens*, but from the illustration it appears to fit the description of this species.

Wing (Fig. 2): Costal index 0.86–1.04 ($n = 5$) (1.15–1.43 in *X. excellens*); costa with uniformly fine setulae, without outstanding enlarged setulae; vein R_{2+3} bent near apex; distal section of vein M foldlike but distinct along 2/3 of distance to wing margin; microtrichia long, conspicuous.

Abdomen: Usually predominantly brownish black, with anterior tergites orange yellow to varying degree, shiny, especially on posterior tergites, where light grey microtomentum usually less conspicuous than on anterior tergites; spiracles minute, located at the margins of tergites 2–6. Male terminalia (Figs. 3–4): Epandrium saddle-shaped, less triangular than in *X. excellens*, with only 4 large posterolateral setae; surstyli slightly more elongate and, in posterior view, slightly divergent distally, whereas they are slightly convergent distally in

X. excellens; gonopod shorter, less than half as long as surstylus; it is elongate and nearly as long as surstylus in *X. excellens*; paramere in lateral view slightly longer and rounded apically, not pointed as in *X. excellens*; cercus more strongly setose in *X. shalam*, especially dorsally and apically.

MATERIAL EXAMINED. Holotype ♂, ISRAEL: 'Enot Zukim [labeled: En Feshkha], 11.viii.1986, A. FREIDBERG. Paratypes: Same locality data as holotype (7♂); same locality [Ein Feshkha], 22.xi.1976, A. FREIDBERG (3♂), [Enot Zukim], 22.iii.1993, A. FREIDBERG (2♂, 3♀), 29.iii.1990, A. FREIDBERG & FINI KAPLAN (4♂); 'Enot Kanne, 25.iii.1987, A. FREIDBERG (1♂); Mizpé Shalém Palms, East, 9.iv.1986, A. FREIDBERG (1♂); 'En Gedi, 30.iii.1987, I. NUSSBAUM (1♂); 'En Mor, 23–24.viii.1990, A. FREIDBERG (3♂); 'Akko [swamp], 20.iv.1974, A. FREIDBERG (1♂), 25.ix.1986, A. FREIDBERG (1♀), 25.x.1994, A. FREIDBERG (4♂, 2♀) (Most of the localities are in the Dead Sea area; 'En Mor is in the Central Negev, and 'Akko in the Northern Coastal Plain). The holotype is double-mounted on minute nadel and plastic block, is in good condition and is deposited, together with most paratype, in the entomological collection, Zoological Museum, Tel Aviv University (TAU). Paratypes were sent to the Hungarian Natural History Museum, Budapest, Museum of Natural History, London, and Smithsonian Institution, Washington, D.C.

NATURAL HISTORY. Most, if not all, of the specimens were swept from tamarisk trees (*Tamarix* sp., Tamaricaceae), which were often in bloom. Population density was always low, although some other dipteran taxa, such as Chyromyidae, Trixoscelididae and Ephydriidae, were swarming in large numbers around the same flowers.

ETYMOLOGY. The specific epithet is a combination of Salam (Arabic) and Shalom (Hebrew), both words meaning Peace, to denote the Middle-East peace process. It is a noun in apposition.

Xenasteia sp.

This species is represented in the TAU collection by a single female from Herzliyya Beach, Central Coastal Plain. It is very similar to *X. shalam* n. sp. but easily distinguished from it by its entirely microtomentose and matt scutum and larger size. Its wing is 1.68 mm long, whereas wings of *X. shalam* vary between 1–1.44 mm. The costal index is 1.27 (0.86–1.04 in *X. shalam*; 1.15–1.43 in the illustrations of *X. excellens*). It may be a representative of *X. excellens*, but the microtomentum was not explicitly described for that species, specimens being preserved in alcohol. Discovering males of this undetermined species may assist in its determination.

MATERIAL EXAMINED. ISRAEL: Herzliyya Beach, 24.x.[19]84, A. FREIDBERG (1♀; TAU).

ACKNOWLEDGMENTS

I am grateful to Fini Kaplan (Tel Aviv), Wayne N. Mathis (Smithsonian Institution, Washington, D.C.), David K. McAlpine (Australian Museum, Sydney), Peter H. Adler (Clemson University, South Carolina) and László Papp (Hungarian Natural History Museum, Budapest) for their useful suggestions.

REFERENCES

- Freidberg, A.** 1988. 10. Zoogeography of the Diptera of Israel. In: The Zoogeography of Israel. Edit. Y. Yom-Tov and E. Tchernov. Dr. W. Junk, Dordrecht. pp. 277–308.
- Hardy, D.E.** 1980. Xenasteiidae, a new family of Schizophora (Diptera) from the Pacific and Indian Oceans. *Proceedings of the Hawaiian Entomological Society* 23(2):205–225.
- McAlpine, J.F.** 1981. Morphology and terminology — adults. In: Manual of Nearctic Diptera. Volume 1. Edit. J.F. McAlpine et al. Agriculture Canada, Research Branch, Hull (Quebec). (Monograph; No. 27). pp. 9–63.
- McAlpine, J.F.** 1989. Phylogeny and classification of the Muscomorpha. In: Manual of Nearctic Diptera. Volume 3. Edit. J.F. McAlpine and D.M. Wood. Agriculture Canada, Research Branch, Hull (Quebec). (Monograph; No. 32). pp. 1397–1518.
- Papp, L.** 1980. New taxa of the acalyptrate flies (Diptera: Tunisimyidae fam. n., Risidae, Ephydriidae: Nannodastiinae subfam. n.). *Acta Zoologica Academiae Scientiarum Hungaricae* 26(4):415–431.
- Papp, L.** 1984. Family Xenasteiidae. In: Catalogue of Palaearctic Diptera. Edit. Á. Soós and L. Papp. Akadémiai Kiadó, Budapest. Vol. 10. pp. 176–177.