FOLIA ENTOMOLOGICA HUNGARICA
ROVARTANI KÖZLEMÉNYEK
Volume 66 2005 pp. 23–33.

New and little-known thread-legged assassin bugs from Central and South Asia (Heteroptera, Reduviidae: Emesinae)

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Abstract – *Myiophanes (Myiophanes) zebrina* sp. n. (India) and *Myiophanes (Myiophanes) incompta* sp. n. (Pakistan) are described. The new species are related to *M. greeni* DISTANT, 1903. The apterous male and female of *Ploiaria turkestanica* P. V. PUTSHKOV, 1984 are described based on specimens from Azerbaijan and Armenia. With 21 figures.

Key words – Heteroptera, Reduviidae, Emesinae, *Myiophanes*, *Ploiaria*, new species, new records, pterygopolymorphism.

INTRODUCTION

Comprising approximately 90 genera and more than 900 described species, thread-legged bugs or Emesinae is one of the most species-rich subfamilies in the family Reduviidae (MALDONADO-CAPRILES 1990). Due to their peculiar body form, in the first place the strong tendency to the lengthening and narrowing of the body and appendages, the subfamily has attracted special attention for a long time, and numerous works have been produced on the group: a world monograph (DOHRN 1860, 1863) (now outdated), and surveys of the American (MCATEE & MALLOCH 1925), Philippine and Malayan (MCATEE & MALLOCH 1926), African (VILLIERS 1949) and Australian (WYGODZINSKY 1956) faunas. A modern comprehensive survey of the subfamily on worldwide basis was presented by WYGODZINSKY (1966). However, despite the extensive research, our knowledge on the real diversity of the subfamily is obviously far from satisfactory, and there is still much basic taxonomic work to be done. Also many known taxa in the subfamily still require further systematic study. Nevertheless, the number of spe-

cies collected only on a single occasion is relatively high. This also suggests that the distribution of a number of species is still poorly known.

While identifying Old World Emesinae from the material deposited in the Hemiptera Collection of the Hungarian Natural History Museum, Budapest, and The Natural History Museum, London, I found specimens from India and Pakistan belonging to the genus *Myiophanes* REUTER, 1881, which do not agree with any known species. In this paper, two species are described as new. Furthermore, new morphological data and new records of the little-known species *Ploiaria turkestanica* P. V. PUTSHKOV, 1984 are presented.

MATERIALS AND METHODS

External structures were examined under a stereoscopic microscope. Drawings were made by using a camera lucida. Male genitalia were dissected after a short boiling in 10% KOH solution. Measurements were taken using a micrometer eyepiece.

Abbreviations for depositories – BMNH = The Natural History Museum, London, Great Britain; HNHM = Hungarian Natural History Museum, Budapest, Hungary; NHMW = Natural History Museum, Vienna, Austria; ZMAS = Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia; ZMYA = Zoological Museum, Yerevan, Armenia.

TAXONOMIC PART

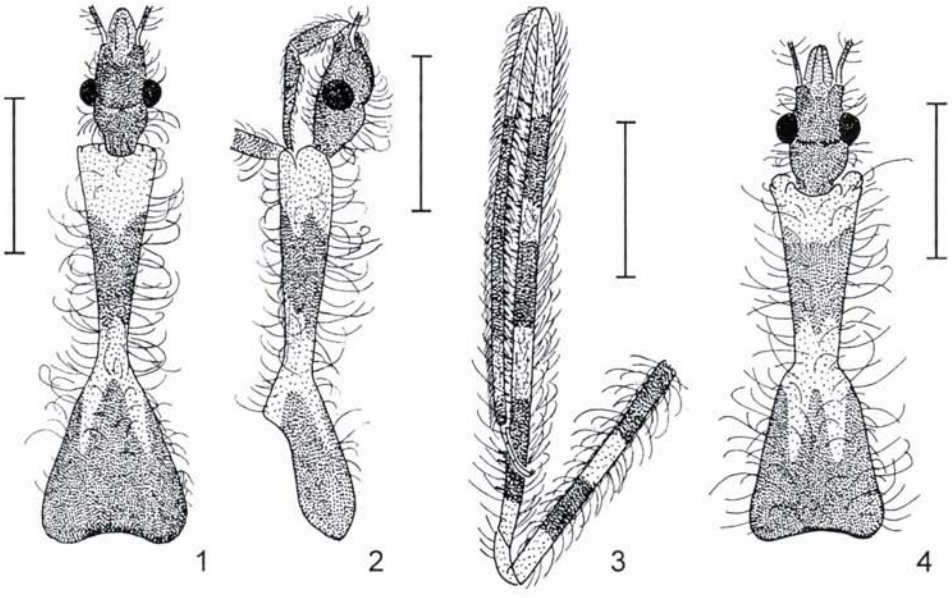
Description of new species of Myiophanes

Myiophanes REUTER, 1881 is a moderately species-rich genus widely distributed in the Oriental and Afrotropical Regions; a few species are also present in New Guinea, Australia and even in the Palaearctic. Seven species belonging to the subgenus *Myiophanes* s. str. are known, each distributed in the Oriental Region except *M. tipulina* REUTER, 1881, which is known to occur in China, Japan and Australia. From the continental part of South Asia, only *M. kempi* CHINA, 1924 and *M. karenia* DISTANT, 1903 have hitherto been described, both known only by the type material. Two further species from the area are described below. The holotypes of the new species were compared to the types of each known species of the subgenus (*M. annulifera* MCATEE et MALLOCH, 1926; *M. fluitaria* MCATEE et MALLOCH, 1926; *M. greeni* DISTANT, 1903; *M. karenia* DISTANT, 1903; *M. kempi* CHINA, 1924; *M. tipulina* REUTER, 1881) except *M. blotei* WYGODZINSKY, 1966.

Myiophanes (Myiophanes) zebrina sp. n.
(Figs 1–3, 5–11)

Type material – Holotype (♂): "Bangalore, S-India, 9.X.17, T.R.A. Coll." [T.R.A. = T. V. RAMAKRISHNA AYYAR], "at light"; deposited in the BMNH.

Description – Macropterous male. General colour stramineous with conspicuous dark pattern elements. Head dark brown except clypeus and apex of antenniferous tubercles; antennal segment I brown except its apex, segment II light brown. Labium dark brown, apex and basis of segment I as well as apex of segment II stramineous, segment III light brown. Fore pronotal lobe with a broad central annulus dark brown, posterior part of hind pronotal lobe dark brown with a pair of longitudinal stramineous stripes anteriorly. Colour pattern of fore legs as shown in Fig. 3; basal third and a wide subapical annulus on coxa, three wide annuli on femur as well as greatest part of tibia except a wide basal and a much thinner subapical ring dark brown. Meso- and metathoraces laterally dark brown; fore wings light stramineous, translucent, veins and their borders slightly darker. Mid and hind coxae dark brown, femora ochraceous with a brown subapical annulus, femoral-tibial articulation broadly light stramineous, tibiae ochraceous with a brown subbasal annulus, tarsi ochraceous. Abdomen with five conspicuous, broad, dark brown transverse annuli. Head, thorax, abdomen and legs with short, adpressed pubescence and numerous very long, erect, usually curved hairs. – Head as shown in Figs 1–2, about 1.5 times as long as wide across eyes. Anteocular part elongate, anteriorly declivent. Postocular part short, feebly globose, basally gradually converging in lateral view. Vertex with trans-



Figs 1–4. 1–3 = *Myiophanes zebrina* sp. n., 1 = head and pronotum, dorsal view; 2 = same, lateral view; 3 = right fore leg, inner view. 4 = *Myiophanes incompta* sp. n., head and pronotum, dorsal view. Scale = 2.0 mm

verse furrow between eyes. Eyes relatively small, prominent, globose, approaching ventral surface of head in lateral aspect. Diatone 1.75 times as wide as interocular space. Labial segment I cylindrical, atteining antenniferous tubercle, segment II apically narrowed, surpassing the middle of eye, segment III slender, passing the hind margin of head. Antennae long and very slender, segment I slightly shorter than segment II. – Pronotum as shown in Figs 1 and 2, elongate, about 2.45 times longer than its greatest width (across humeral angles), sharply separated into fore and hind lobes by a transverse constriction; fore lobe slender, about 1.5 times longer than hind lobe, lateral margins straight, diverging anteriorly; hind lobe strong, subtriangular, hind margin concave, humeral angles broadly rounded. – Fore leg as in Fig. 3, gracile. Coxa long, cylindrical, straight, about half as long as femur. Femur elongated, slender, with two rows of spiniferous tubercles; posteroventral series composed of 10 large and about 60–65 small spiniferous tubercles, anteroventral series of 12 large and about 70 small ones. Tibia about 0.8 times as long as femur, slender, slightly arched, its ventral surface with a row of inclined short spines of two different length. Tarsus small, its segments subequal in length. Mid and hind legs extremely elongate and delicate, apex of femora far surpassing apex of abdomen. Fore wing without subbasal cell (M and Cu not connected basad of discal cell). – Abdomen elongated, slender. Genital region of male as shown in Figs 5, 7 and 8, posterior border of pygophore with a long, stout, arched prolongation directed upward, its apical part narrowed and curved backward (Fig. 6). Parameres elongated, directed upward, strongly arched forward and medially (Figs 5, 7 and 8); chaetotaxy as on Fig. 9. Shape of phallus as shown in Figs 10–11; general structure similar to that of *M. tipulina*, but dorsal connective directed posteriorly. – Measurements (in mm). Total length of body (from apex of head to posterior end of abdomen) 19.8. Length of head 1.74, preocular part 0.83, postocular part 0.52; width across eyes 1.12, interocular distance 0.64. Length of antennal segments I : II = 9.69 : 9.85 (segments III–IV absent on holotype). Length of labial segments I : II : III = 0.95 : 0.74 : 0.86. Length of pronotum 4.91, fore lobe 2.97, hind lobe 1.94; width across humeral angles 2.00. Length of fore coxa 3.69, femur 7.27, tibia 5.76, tarsus 0.76; length of mid femur 12.46, tibia 23.08, tarsus 0.50; length of hind femur 16.92, tibia 27.85, tarsus 0.40.

Etymology – The name is from Latin *zebrina*, 'zebra-striped'; referring to the colouration of the species.

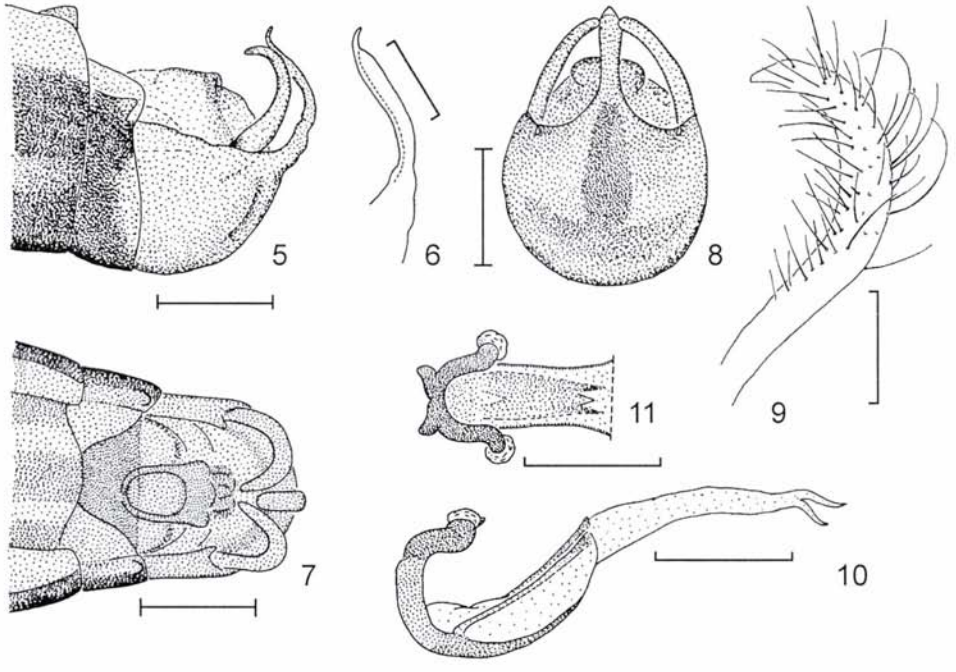
Diagnosis – The new species can easily be distinguished from the other known species of the subgenus by the combination of the following characters. (1) Pronotum elongate, its fore lobe about 1.5 times longer than hind lobe. In case of in *M. kempi*, *M. fluitaria*, *M. blotei* and *M. incompta* sp. n., the fore lobe is slightly (about 1.1–1.15 times) longer than hind lobe; in *Myiophanes karenia*, the fore and hind lobes are subequal in length and in *M. annulifera*, *M. greeni* and *M. tipulina*, the fore lobe is more or less shorter than hind lobe. (2) Apparent dark annulation is present on the fore legs in characteristic pattern; fore pronotal lobe with a broad central annulus dark brown, dark brown hind pronotal lobe with a pair of longitudinal stramineous stripes anteriorly; abdomen with five dark brown transverse annuli. The other species of the subgenus have only pale annuli on fore legs and the pronotum and abdomen are differently coloured, except *M. greeni* and *M. incompta* which have very similar colouration to *M. zebrina*.

Biology – Like many other Emesinae, species of *Myiophanes* are attracted to light (WYGODZINSKY 1966). Also the holotype of *M. zebrina* was collected at light, indicating that this species, like most other Emesinae, is nocturnal.

Myiophanes (Myiophanes) incompta sp. n.
(Fig. 4)

Type material – Holotype (♀): "Pakistan, Himalaya Mts., Valley of Indus, between Chilas and Dassu", "Hotel Barseen, 1100 m, 28. 08. 2001, leg. B. Benedek et G. Ronkay", deposited in the HNHM.

Description – Macropterous female. General colour light stramineous with dark pattern elements. Head dark brown, clypeus lighter; antennal segment I light brown with a wide apical annulus whitish, segment II dark brown, basally narrowly whitish. Labium brown, basis of segment I lighter, segment III ochraceous. Fore pronotal lobe with a broad central annulus dark brown, hind pronotal lobe dark brown with a pair of longitudinal stramineous stripes anteriorly. Fore legs as general body

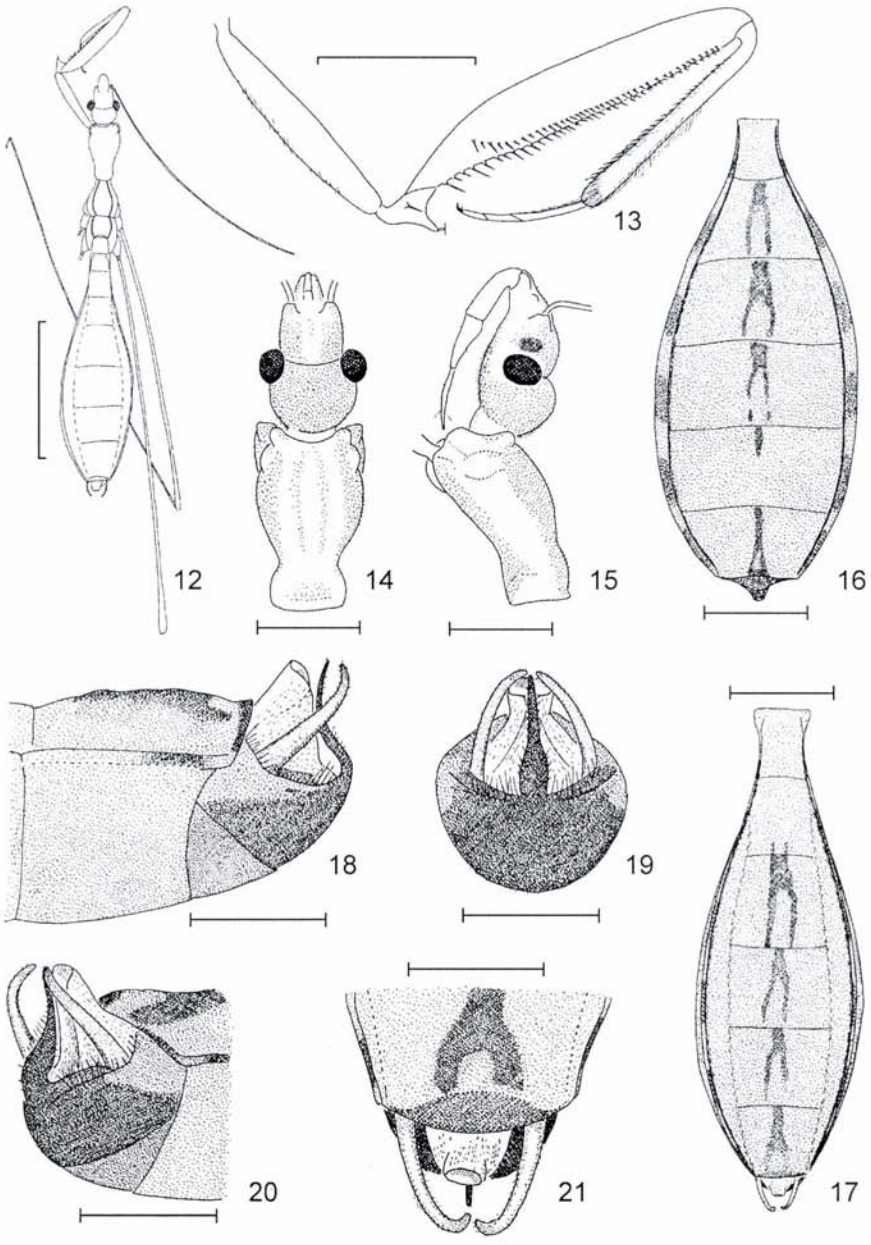


Figs 5–11. *Myiophanes zebrina* sp. n., 5 = genital region of male, lateral view; 6 = posterior prolongation of pygophore; 7 = genital region of male, dorsal view; 8 = same, posterior view (hairs omitted in Figs 5–8); 9 = left paramere; 10 = phallus, lateral view (endosoma everted); 11 = base of phallus, dorsal view. Scales = 0.2 mm for Figs 5, 7 and 8; 0.25 mm for Figs 6, 9–11

colour; coxa with a basal and a subapical annulus light and dark brown, respectively; femur with three wide annuli dark brown; greatest part of tibia ochraceous except a wide basal annulus whitish; tarsus ochraceous. Meso- and metathoraces laterally dark brown; fore wings whitish, translucent, veins and their borders darker. Mid and hind coxae dark brown, femora ochraceous with a brown subapical annulus, femoral-tibial articulation broadly whitish, tibiae ochraceous, apically slightly darkened, tarsi ochraceous. Abdomen with five conspicuous, broad, dark brown transverse annuli. Head, thorax, abdomen and legs with short, adpressed pubescence and numerous very long, erect, usually curved hairs. – Head as shown in Fig. 4, elongate, fusiform, about 1.55 times as long as wide across eyes. Anteocular part elongate, anteriorly declivent; postocular part shorter than anterior part, feebly globose. Vertex with deep transverse furrow between eyes. Eyes relatively small, prominent, globose, approaching ventral surface of head in lateral aspect. Diatone 1.7 times as wide as interocular space. Labial segment I cylindrical, atteining antenniferous tubercle, segment II apically narrowed, surpassing the middle of eye, segment III slender, passing the hind margin of head. Antennae long and very slender, segment I slightly longer than segment II. – Pronotum as shown in Fig. 4, elongate, about 2.3 times longer than its greatest width (across humeral angles), sharply separated into fore and hind lobes by a transverse constriction; fore lobe slender, about 1.05 times longer than hind lobe, lateral margins straight, diverging anteriorly; hind lobe subtriangular, hind margin concave, humeral angles broadly rounded. – Fore leg gracile. Coxa long, cylindrical, about half as long as femur. Femur long, slender, about 28 times longer than its maximum width, with two rows of spiniferous tubercles; posteroventral series composed of 10 large and about 75–80 small spiniferous tubercles, anteroventral series of 11–12 large and about 80–85 small ones. Tibia about 0.8 times as long as femur, slender, slightly arched, its ventral surface with a single row of about 20–25 stout and about 55–60 somewhat smaller spines. Tarsus small, its segments subequal in length. Mid and hind legs extremely elongate and delicate. Fore wing without subbasal cell. – Abdomen elongated, slender. – Measurements (in mm). Total length of body (from apex of head to posterior end of abdomen) 17.5. Length of head 1.68, preocular part 0.77, postocular part 0.53; width across eyes 1.08, interocular distance 0.64. Length of antennal segments I : II = 10.05 : 9.80 (segments III–IV absent on holotype). Length of labial segments I : II : III = 0.91 : 0.76 : 0.86. Length of pronotum 3.95, fore lobe 2.03, hind lobe 1.93; width across humeral angles 1.73. Length of fore coxa 3.75, femur 7.50, tibia 6.20, tarsus 0.71; length of mid femur 12.60, tibia 19.50, tarsus 0.29; length of hind femur 15.70, tibia 28.22, tarsus 0.63.

Etymology – The name is from Latin *incompta*, 'unkempt', 'tousled', referring to the long and curved hairs of the species.

Diagnosis – *Myiophanes incompta* sp. n. can be distinguished from the other known species of the subgenus by its characteristic colouration: apparent dark annulation on fore legs, fore pronotal lobe with a broad central annulus dark brown, hind pronotal lobe dark brown with a pair of longitudinal stramineous stripes anteriorly and abdomen with five dark brown transverse annuli. The new species bears similar colouration with *M. greeni* and *M. zebrina* sp. n., but it can be distinguished from these species by the shape of its pronotum, which is less elongate, and rather stout at the level of transverse constriction between the fore and hind lobes.



Figs 12–21. *Ploiaria turkestanica* P. V. PUTSHKOV, 1984, apterous morph, 12 = general aspect of male; 13 = left fore leg, medial view; 14 = head and pronotum, dorsal view; 15 = same, lateral view; 16 = abdomen of female; 17 = abdomen of male; 18 = genital region of male, lateral view; 19 = same, posterior view; 20 = same, posterolateral view; 21 = same, dorsal view. Scales = 2.5 mm for Fig. 12, 1.0 mm for Figs 13–17, 0.5 mm for Figs 18–21

Myiophanes zebrina and *M. incompta* will run to *M. greeni* (couplet 2) in the identification key presented by WYGODZINSKY (1966: 271). The changes to the key provided below will allow recognition of the species.

2. Anterior lobe of pronotum white, a central oblique spot on each side fuscous; abdomen white, with five broad, transverse, fuscous annulations 2a

– Colour different 3

2a. Fore lobe of pronotum 0.9 times length of hind lobe. Sri Lanka
Myiophanes greeni DISTANT, 1903

– Fore lobe of pronotum 1.05–1.5 times length of hind lobe 2b

2b. Pronotum more elongate, about 2.45 times longer than its greatest width, extremely narrow at the level of transverse constriction between the fore and hind lobes (fore lobe more than 6 times longer than width across constriction); fore lobe about 1.5 times longer than hind lobe. India
Myiophanes zebrina sp. n.

– Pronotum less elongate, about 2.3 times longer than its greatest width, rather stout at the level of transverse constriction between the fore and hind lobes (fore lobe about 4 times longer than width across constriction); fore lobe about 1.05 times longer than hind lobe. Pakistan
Myiophanes incompta sp. n.

Remarks – Myiophanes zebrina sp. n. and *M. incompta* sp. n. are closely related to but undoubtedly differ from *M. greeni*. Most of the morphological characters and the colouration of the two new species are very similar; however, the apparent differences between the shape of the pronotum, sharply distinguish the two species. As each species is known only from a single specimen, of different sex, there is a slight possibility that they represent the male and female of the same species. However, because no similar sexual dimorphism is known in the genus, they most likely belong to different species. The species group requires further systematic study based on further material.

Pterygopolymorphism in *Ploiaria turkestanica*

Although wing polymorphism is not rare in the family Reduviidae, it is exceptionally common in the subfamily Emesinae. In the cosmopolitan genus *Ploiaria* SCOPOLI, 1786, containing more than 120 described species, macropterous, brachypterous, micropterous and apterous specimens occur. However, de-

spite the great number of species described, it is only in very few species in which more than one morph appear is known. Among the Palaearctic fauna, only in *P. putoni* (NOUALHIER, 1895) and *P. mosconai* WYGODZINSKY, 1952 were macropterous and apterous specimens reported (RIBES *et al.* 1997, LINNAVUORI 1974).

Ploiaria turkestanica P. V. PUTSHKOV, 1984 was described based on a single macropterous male from the Asian part of Kazakhstan. Only the macropterous male holotype of this species has hitherto been known. In the course of my work on the reduviid material of the HNHM and NHMW, I have found some old specimens from Armenia and Azerbaijan, which represent the apterous form of this species. No further material could be found either in the ZMYA (M. MARJANYAN, pers. comm.) or in the ZMAS (I. M. KERZHNER, pers. comm.). To help recognize the species, the apterous specimens are briefly described below.

Ploiaria turkestanica P. V. PUTSHKOV, 1984

Ploiaria turkestanica P. V. PUTSHKOV, 1984: 17. HT: ♂, Kazakhstan; ZMAS.

Material examined – 1 ♂, "Armenia, Ordubat" (= Ordubad, Azerbaijan), "Coll. Horváth", in the HNHM; 1 ♀, "Caucasus. Armen. Geb. Leder. Reitter", "Ploiaria n. sp.", "Coll. Horváth", in the HNHM; 2 ♀♀, "Caucasus. Araxesthal. Leder. Reitter.", in the NHMW.

Description of apterous morph – Male and female. General aspect of male as shown in Fig. 12. General colour light ochraceous; each side of head before eye with pale brown spot, outer surface of fore femora apically very pale brown. Mid and hind femora with light apical annulus. Abdominal tergites III–VII with characteristic brown pattern submedially (Figs 16, 17), posterior half of connexival segments brown. Ventral and posterior parts of pygophore as well as its posterior prolongation dark brown (Figs 18–20). Dorsal surface of head and pronotum slightly granulated. – Head as shown in Figs 14–15, about 1.6 times as long as wide across eyes. Anteocular part elongate, produced forward between bases of antennae; tylus extending beyond jugae. Postocular part short, broadly rounded, basally gradually converging to form a short neck in lateral view. Vertex with transverse furrow between eyes. Eyes relatively small, prominent, globose, remote from level of dorsal and ventral surface of head in lateral aspect. Diatone 1.9 times as wide as interocular distance. – Pronotum as shown in Figs 14 and 15, 1.6 times as long as its greatest width, swollen anteriorly, conspicuously narrowing posteriorly. Fore lobe subglobular, sharply separated from hind lobe, latter very short, leaving mesonotum entirely exposed. Mesonotum considerably broadened, metanotum about half as long as mesonotum, meso- and metanota combined almost as long as pronotum. – Fore leg as in Fig. 13. Coxa elongated, 6.4 times as long as its greatest width, slightly shorter than tibia. Trochanter with a conspicuous ventral projection bearing a strong, spine-like seta and with another spine-like seta on its medial surface. Femur moderately incrassate, 6.3 times as long as its greatest width, with 2 rows of spiniferous tubercles. Tibia about 0.6 times as long as femur, its ventral surface with a row of inclined short spines. Tarsus about half as long as tibia, segment I 1.2 times longer than segments II and III together. – Abdomen constricted basally, compressed dorsoventrally. Male: as shown in Fig. 17, oblong elliptical, 2.2 times wider than greatest width of pronotum. Posterior border of pygophore with a long, curved prolongation directed upward, narrowing evenly to its end, bearing a basal widening;

anal tube short. Parameres elongated, attaining tip of the prolongation of pygophore, slightly arched, apical part sharply curved forward (Figs 18–21). Female: as shown in Fig. 16, wide elliptical, 2.8 times wider than greatest width of pronotum. – Measurements (in mm; 1 ♂, 1 ♀ in HNHM). Total length of body 7.8 (♂), 7.9 (♀); maximum width of body 1.4 (♂), 1.8 (♀). Length of head 1.00, width across eyes 0.64, interocular space 0.34. Length of antennal segment I 5.5 (segments II–IV absent). Length of pronotum 1.02; maximum width 0.64, width across humeral angles 0.42. Length of mesonotum 0.70, metanotum 0.32. Length of fore coxa 1.32, femur 2.14, tibia 1.40, tarsus 0.70, tarsal segments (I) 0.42, (II) 0.24, (III) 0.18; length of mid femur 2.08, tibia 8.17, tarsus 0.38; length of hind femur 7.33.

Remarks – As the figures of the male genital capsule presented by P. V. PUTSHKOV (1984: 18, Figs 2–3) are rather simplified, it seems useful to figure and briefly describe the capsule again. The dorsally directed process in PUTSHKOV's figure is the raised anal tube (I. M. KERZHNER, pers. comm.). Except the structure of the meso- and metathoraces, the apterous morph of *P. turkestanica* differs from macropterous specimens by its more rounded, subglobular fore pronotal lobe and much deeper transverse constriction separating the two pronotal lobes. Apterous specimens of this species are quite similar to *P. domestica* SCOPOLI, 1786, and the two species are undoubtedly closely related. Besides the male genitalia, apterous specimens of *P. turkestanica* also differs from the latter species in its smaller body size, less elongated and laterally more rounded pronotum and slightly different colour pattern on the dorsal surface of abdomen.

Ploiaria turkestanica, hitherto known only from Kazakhstan, is new to the fauna of Azerbaijan. The female specimens in the HNHM and NHMW are either from Armenia or rather from Azerbaijan since the border between the two countries was different in LEDER's time.

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Acknowledgements – I would like to express here my sincere gratitude to Dr T. VÁSÁRHELYI for the opportunity to work on the material deposited in the Hemiptera Collection of the HNHM; to Mr M. WEBB and Dr H. ZETTEL for their hospitality and kind help during my visit to the BMNH and NHMW, respectively; to Prof Dr I. M. KERZHNER for information and comments on the type specimen of *P. turkestanica*; to Dr M. MARJANYAN for information on the Hemiptera collection of ZMYA. My special thanks are due to Mr M. WEBB for constructive suggestions on the manuscript. I am also greatful to Dr B. PÉNZES, Head of the Department of Entomology at the Corvinus University of Budapest, who made my visit to London possible.

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