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Review of the genus *Elasmus* Westwood (Hymenoptera: Eulophidae) in Israel with description of a new species

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ABSTRACT

A review of the genus *Elasmus* Westwood (Eulophidae) in Israel is presented for the first time. Twelve species are included and keyed, 11 of which are newly recorded from Israel. *Elasmus aternalis* is described as new to science. The most common species are *E. flabellatus* (Fonscolombe), *E. nudus* (Nees), *E. viridiceps* Thomson and *E. westwoodi* Giraud. *Elasmus africanus* Ferriere is a rare species and Israel is the third country in which it was collected.

KEYWORDS: Eulophidae, *Elasmus*, Israel

INTRODUCTION

The genus *Elasmus* is the only member of the tribe Elasmini (Eulophidae, Eulophinae), formerly classified as a separate family, Elasmidae (Gauthier et al. 2002). The genus contains over 254 species worldwide (Noyes, 2012). They are mostly primary gregarious larval ectoparasitoids of lepidopteran larvae of families: Coleophoridae, Gracillariidae, Cosmopterigidae, Gelechiidae, Heliozelidae, Platellidae, Psychidae, Pyralidae and Tortricidae (Herting, 1975, 1977; Thompson, 1954; Trjapitzin, 1978). They are also considered as hyperparasitods of *Apanteles* (Hymenoptera: Braconidae) (Graham 1976, 1995) and as primary parasitoids of pupae of the genus *Polistes* (Hymenoptera, Vespidae) (Burks, 1971; Reed and Vinson, 1979; Macom and Landolt, 1995; Gumovsky et al. 2007). Species can potentially be used in the biological control of *Pectinophora gossypiella* (Saunders) (Lepidoptera, Gelechiidae) (Sands and Hills, 1982; Nauman and Sands, 1984) and *Polistes* (Vespidae) (Strassmann, 1981).

Israel is part of the Middle East that lies between the Palearctic, Oriental and Afrotropical regions and thus has elements of all three faunas (Furth, 1975). In contrast to the more uniform and monotonous landscapes of the Levant, Israel is geomorphologically diverse, with a wide variety of landscapes and habitats (Kosswig, 1955). Information about species of the genus *Elasmus* in this area is certainly not complete. To date, only one species of the genus *Elasmus* has been known to occur in Israel – *Elasmus steffani*

Viggiani (OILB, 1971; Noyes 2012). Eight species were recorded for Turkey: *E. cyprianus* Ferrière, *E. flabellatus* (Fonscolombe), *E. nudus* (Nees), *E. phthorimaeae* Ferrière, *E. platyedrae* Ferrière, *E. steffani*, *E. unicolor* Rondani and *E. westwoodi* Giraud (Öncüer, 1991; Askew, et al., 2001). *Elasmus phthorimaeae* was described by Ferrière (1947) from Cyprus. *Elasmus nudus* was recorded from Iran (Yefremova and Strakhova, 2010). *Elasmus flabellatus* is known from Lebanon (OILB, 1971). Only *E. platyedrae* is known from Egypt (Ferrière, 1935). Strakhova and Yefremova (2010) re-described the female and the male of *E. phthorimaeae* from Saudi Arabia. Six species were recorded from the United Arab Emirates: *E. flaviceps* Ferrière, *E. phthorimaeae*, *E. platyedrae*, *E. pulchellus* Verma, Hayat, *E. steffani* and *E. viridiceps* (Yefremova, 2008). Nine species, *E. africanus* Ferrière, *E. bistrigatus* Graham, *E. brevicornis* Gahan, *E. flaviceps*, *E. leucopterae* Ferrière, *E. nudus*, *E. phthorimaeae*, *E. platyedrae* and *E. viridiceps* Thomson, were recorded from Yemen (Yefremova, 2007). No information is available for this genus in Syria, Jordan, Iraq, Kuwait, Oman, and Qatar.

In this paper we report and key 12 species of *Elasmus* from Israel, one of which is described as new.

MATERIALS AND METHODS

This paper is based on 205 specimens collected in Israel by staff and students of the Department of Zoology, Tel Aviv University. The first author and V. Kravchenko collected 84 specimens in 2010–2011, W. Kuslitzky collected 95 specimens, and the remaining 26 specimens were collected by A. Freidberg, Y. Zvik, D. Gerling, A. Lupo, N. Meltzer and N. Dorchin in 1974–2010. Altogether, 184 specimens (90%) were collected by Malaise traps, 20 specimens (9.7%) by sweeping, and one specimen (0.3%) was reared. Photographs were taken using a Zeiss Discovery V20 stereomicroscope with a Canon PowerShot G9 digital camera attached.

Morphological terminology follows Graham (1995) and Noyes (2004) and the following acronyms are used in the descriptions. ***Head***: HW—head width in facial view; HH—head height in frontal view (excluding the mouth parts); EL—length of eye (maximum vertical diameter); EW—width of eye (minimum horizontal diameter in frontal view); POL—the minimum distance between the posterior ocelli; OOL—the minimum distance between the eye margin and the adjacent posterior ocellus; OD—the longest diameter of the anterior ocellus, AOL—the minimum distance between posterior ocellus and anterior ocellus; SL—length of scape; PL—length of pedicel, F1—F4 length of first, second, third, and fourth segment of antennal funicle; LC—length of clava. ***Thorax***: (including propodeum: Mesosoma): PL—length of propodeum; PW—width of propodeum; FL—length of forewing; FW—width of forewing; SMV—submarginal vein, MV—marginal vein, PMV—postmarginal vein and SV—stigmal vein. ***Gaster***: LG—length of gaster, WG—width of gaster. Absolute measurements in millimeters (mm) are used for body and forewing length of specimens. The holotype and paratypes of the new species are deposited in the National Collection of Insects, Zoological Museum, Department of Zoology, Tel Aviv University, Tel Aviv, Israel (TAUI).

TAXONOMY

Genus *Elasmus* Westwood, 1833

Elasmus Westwood, 1833: 343.
Eulophus flabellatus Fonscolombe, 1832: 298 [Type species by monotypy].

Diagnosis

Both female and male characterized by the wedge-shaped body and enlarged hind coxae. Fore wing with elongate marginal vein, short postmarginal vein, and slightly reduced stigmal vein. Female funicle 3-segmented, male funicle 4-segmented. Mesosoma densely setose, metasoma subsessile. Metanotum projecting as a flat, triangular, often translucent plate over propodeum. Dorsal metanotal lamella projecting posteriorly over propodeum with partial and complete lateroventral keels. Metacoxa greatly enlarged and plate-like, hind tibia with short bristles forming distinct diamond-shaped structure.

Distribution

Cosmopolitan.

Identification

The European species are keyed by Graham (1976, 1995) and Ferrière (1947), the Vietnamese species by Yefremova and Strakhova (2009). The North American species were reviewed by Burks (1965).

KEY TO THE SPECIES OF THE GENUS *ELASMUS* IN ISRAEL

(FEMALES)

1. Forewing with isolated subcubital line of hairs (Fig.3)..... **2**
-. Forewing without isolated subcubital line of hairs..... **9**
2. Antenna with funicle segments short, slightly transverse or quadrate **3**
-. Antenna with funicle segments more than 1.2 times longer than broad (Fig .10)..... **6**
3. F3 transverse, F2 quadrate, body black **4**
-. F3 quadrate, F2 slightly longer than broad, body black with yellow- or reddish-markings **5**
4. POL 1.5–2.0 times OOL, clava nearly as long as funicle (Fig. 9). Body, including dorsellum, black..... ***E. nudus* (Nees)**
-. POL 5.0–7.0 times OOL, clava 1.2 times as long as funicle (Fig. 1). Body black with greenish metallic tint..... ***E. aternalis* n. sp.**
5. Antennal clava as long as whole funicle; F3 quadrate (Fig. 7). Body shiny black, gaster with reddish band on T1 ..... ***E. longiclava* Graham**
-. Antennal clava 1.1 times as long as F2 and F3 combined (Fig. 12). Body black with yellow spots on lower part of face and sometimes on each side of vertex, gaster with reddish basal band ..... ***E. steffani* Viggiani**
6. Body entirely black..... **7**
-. Body with yellow markings..... **8**

7. POL 3.0–4.0 times OOL, penultimate tergite of gaster longer than its basal breadth. Body black with bluish metallic tint ..... ***E. platyedrae*** **Ferrière**
-. POL 2.0–2.9 times OOL, penultimate tergite of gaster not longer than its basal breadth. Body black with greenish metallic tint..... ***E. viridiceps*** **Thomson**
8. Body black with yellow spots on vertex and transverse yellow band along hind margin of mesoscutum and scutellum, gaster dark brown with reddish transverse stripes on posterior margins of T1–T5. Scape equal to combined length of pedicel, F1 and half of F2 (Fig. 5) .... ***E. africanus*** **Ferrière**
-. Body yellow with dark brown spots on vertex, scutellum and mesoscutum, gaster with brownish spots on T6–7. Scape (Fig. 10) shorter than combined length of pedicel and F1..... ..... ***E. phthorimaeae*** **Ferrière**
9. Antenna with F2 1.1–1.5 times as long as F3. Thorax wholly black. Gaster black or black with reddish band on basal tergite **10**
-. Antenna with F2 as long as F3 (Fig. 8). Thorax yellow with brown spots on both sides of tegulae and propodeum brown. Gaster brownish yellow at base and on T6..... ***E. lutens*** **Crawford**
10. Gaster with at least a reddish band across posterior part of basal tergite and extensively reddish ventrally. Hind tibiae testaceous, POL 2.0–2.6 times OOL..... ***E. flabellatus*** **(Fonscolombe)**
-. Gaster black. Hind tibiae infuscate, POL 2.8–3.0 times OOL..... **11**
11. OOL 1.0-1.2 times OD, hind margin of fore wing slightly concave. Body black, dorsellum yellow ..... ***E. westwoodi*** **Giraud**
-. OOL 1.3-1.4 times OD, hind margin of fore wing straight. Body black, dorsellum brown with yellow stripe at base ..... ***E. unicolor*** **(Rondani)**

SPECIES DESCRIPTIONS

Elasmus africanus Ferrière, 1929

(Fig. 5)

Elasmus africanus Ferrière, 1929: 419.

Material Examined

ISRAEL: 'Akko, 32º55′N; 35º04′E, swamp, sweeping, 23.x.1986, A. Freidberg (1♀); Nahal Zin, SE 40 km 'Avedat, 30º53′N; 35º10′E, sweeping, 29.v.2002, V. Kravchenko (1♀).

Diagnosis

Head as broad as thorax, black with greenish shine and with yellow stripe on vertex behind posterior ocelli and yellow tegulae. This species is well characterized by a yellow stripe along the hind margin of the mesonotum. Antenna yellow; antennal scape equal to the combined length of F1, F2, and half of F3 (Fig. 5); length of clava shorter than F2 and F3 combined (Ferrière, 1929). Gaster dark; the T1 white at base, posterior margin of T1-T5 with reddish transversal stripes.

Host

Unknown.

Distribution

Malawi, Yemen (Ferrière, 1929; Yefremova, 2007). New record for Israel.

Elasmus aternalis Strakhova and Yefremova n. sp.

(Figs. 1–4)

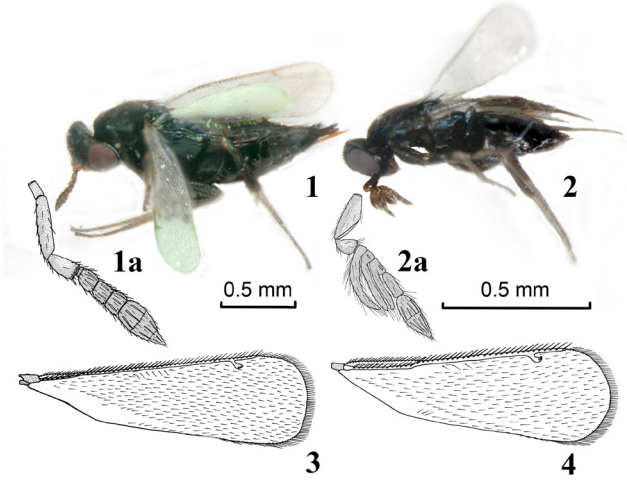
Diagnosis

Female

POL 5.0–7.0 times OOL. Antenna short with subquadrate F2 and transverse F3. Clava slightly shorter than funicle. Male: POL 4.5-6.0 times OOL. Antenna with three short dorsal branches, F1 slightly shorter than F2, F3 1.5 times as long as F4, clava 1.8 times as long as F4. Body black with green shine.

Female (Holotype) (Fig. 1): Length of body 1.7 mm, forewing 1.1 mm. Body black with a green metallic tint on head and thorax. Dorsellum black. Face black, mandibles brownish. Eye gray, ocelli brown; antenna yellow. Tegula dark brown. Forewing hyaline; venation yellow. Legs black, with yellow knees, hind femora yellow at the tip, tibia and tarsi yellow. Gaster dark brown.

Head almost quadrate. Face deep punctuated. Eye without setae. Malar space equal to mouth. POL 5.0–7.0 times OOL. OD 1.4 times OOL. POL 2.0 times AOL. Toruli placed at level of the ventral margin of eye. Antenna (Fig. 1a) with scape 2.3 times as long as pedicel, one discoid anellus with setae and one laminar anellus, funicle and clava 3-seg-



Figs. 1–4. *Elasmus aternalis* Strakhova and Yefremova, n. sp. antenna and wing. 1. Female (Holotype). 1a. Left antenna, female. 2. Male (Paratype). 2a. Left antenna, male. 3. Forewing, female. 4. Forewing, male.

mented. F1 1.3 times as long as pedicel, 1.4 times as long as broad. F1 as long as F2. F2 subquadrate, 1.3 times as long as F3. F3 transverse, clava 2.0 times as long as broad.

Relative measurements: HH 14.5, HW 15.0, EL 9.0, EW 6.2, POL 5.6, OOL 0.8, OD 1.1, AOL 2.8, SL 5.0, PL 2.2, F1 1.7, F2 1.7, F3 2.2, LC 4.5.

Mesosoma. Pronotum 2.1 times as long as broad, mesoscutum 1.2 times as long as broad, with numerous setae; scutellum 1.1 times as long as broad, smooth with 2 pairs of short setae. Dorsellum finely reticulate. Propodeum 3.0 times as long as broad, V-shaped, finely reticulate in middle and smooth on sides, without median carina. Spiracle round with strong paraspiracular carina. Callus with 2 short setae in single row. Forewing (Fig. 3) 2.9 times as long as broad, SV 1.7 times as long as PMV. Forewing with isolated subcubital line of setae and with 6 admarginal setae.

Relative measurements: PL 4.0, PW 12,3, FL 44.0, FW 15.0, SMV 10.0, MV 18.0, SV 2.8, PMV 4.7.

Metasoma. Petiole as long as wide. Gaster 2.7 times as long as broad.

Relative measurements: LG 35.0, WG 13.0.

Male (Paratype) (Fig. 2): Body length 0.8 mm, fore wing 0.6 mm. Body black with a greenish tint. Mandibles yellow. Tegulae brown. Dorsellum dark brown. Eyes gray, ocelli brown. Antenna with brown scape and yellow flagellum. Legs dark brown with brownish mid and hind tibia and tarsi, distal 0.25 of fore femur, tibiae and tarsi yellow.

Head 1.1 times as long as broad. Mouth 2.0 times as long as malar space. POL 4.5 times OOL. OD 1.3 times OOL. Antenna (Fig. 2a) with scape 2.3 times as long as pedicel, pedicel 2.0 times as long as F1, F1 almost equal to F2, F3 2.0 times as long as F2, F4 1.3 times as long as F3. Branches short and wide, clava 2.0 times as long as F4, clava 3.6 times as long as broad and 2.6 times as long as F3.

Relative measurements: HH 10.6, HW 11.7, EL 5.6, EW 3.9, POL 5.0, OOL 1.1, SL 3.0, PL 1.3, F1 0.7, F2 0.7, F3 1.3, F4 1.7, LC 3.4.

Forewing (Fig. 4) 3.0 times as long as broad. MV 1.2 times as long as SMV, SMV 4.8 times as long as PMV, PMV 2.0 times as long as SV. Fore wing with isolated subcubital line of setae and bare stripe under SV and 0.5 MV and with 3 admarginal setae. Gaster 2.3 times as long as broad.

Relative measurements: FL 32.4, FW 11.2, SMV 10.6, MV 13.0, SV 1.1, PMV 2.2, LG 11.8, WG 5.1.

Host

Unknown.

Distribution

Israel.

Etymology

The species name is derived from the Latin "*ater*" and refers to the color of the body.

Variation in female: Size of body varies from 1.5 mm to 1.7 mm. Color of fore tibia and tarsi vary from yellow to brownish. POL 5.0–7.0 times OOL. Forewings 2.9–3.3 times as long as broad. F3 1.1–1.3 times as long as broad.

Holotype: ♀, ISRAEL: Tel Aviv, Tel Aviv University botanical garden, 32º03′N; 34º46′E, Malaise trap, 24.ix–1.xi.2010, Z. Yefremova, V. Kravchenko (TAUI). Paratypes: 10♀, 23♂ with the same label (TAUI).

Comments

The new species is close to *Elasmus nudus* (Nees), but differs in the following characters of the female: POL 5.0-7.0 times OOL (POL 1.5–2.0 times OOL in *E. nudus*), OD 1.4 times OOL (OOL 1.5 times OD in *E. nudus*), PMV 1.7 times as long as SV (PMV 2.5–3.0 times SV in *E. nudus*), scape 4.5 times as long as broad (3.0 times as long as broad in *E. nudus*).

Elasmus flabellatus (Fonscolombe, 1832)

(Fig. 6)

Eulophus flabellatus Fonscolombe, 1832: 298.
Elasmus flabellatus: Westwood, 1833: 343; Graham, 1995: 18.

Material Examined

ISRAEL: Almagor, 32º54′N; 35º36′E, Malaise trap, 9.xii.2010, W. Kuslitzky (1♂); Ma'agan Mikha`el, 32º33′N; 34º54′E, Malaise trap, 1.ix.2008, W. Kuslitsky (8♀, 7♂); Ma'agan Mikha`el, 32º33′N; 34º54′E, *Malaise trap*, 5.iii.2009, W. Kuslitzky (1♂); Ma'agan Mikha`el, 32º33′N; 34º54′E, Malaise trap, 26.iii.2009, W. Kuslitzky (3♂); Ma'agan Mikha`el, 32º33′N; 34º54′E, Malaise trap, 22.iv.–29.iv.2009, W. Kuslitsky (4♀, 42♂); Ma'agan Mikha`el, 32º33′N; 34º54′E, Malaise trap, 19.vi.2009, W. Kuslitsky (5♀, 5♂); Tel Aviv, Malaise trap, 23.vi.2007, W. Kuslitsky (1♂); Tel Aviv, Tel Aviv University botanical garden, 32º03′N; 34º46′E, Malaise trap, 17.vii.2011, Z. Yefremova, V. Kravchenko (1♀, 2♂); Tel Aviv, Tel Aviv University botanical garden, 32º03′N; 34º46′E, Malaise trap, viii.2011, Z. Yefremova, V. Kravchenko (1♂).

Diagnosis

Female: POL 2.0-2.6 times OOL, each antennal (Fig. 6) funicle segment 1.3 times as long as broad, pedicel slightly shorter than or as long as F1, F3 2.0 times as long as broad; forewing slightly infumate and without isolate cubital and subcubital lines, PMV 3.0 times as long as SV. Male: POL 2.4–2.6 times OOL, body black, dorsellum with yellow lamella.

Host

Larval-pupal parasitoid of *Lobesia botrana* Denis et Schiffermueller (Tortricidae), *Preys oleellus* F. and *Yponomeuta malinellus* Zeller (Yponomeutidae), *Pachythelia unicolor* (Hufnagel.) and *Apterona* sp. (Psychidae) (Yefremova and Strakhova, 2010).

Distribution

Palearctic: Western Europe, Russia, Georgia, Armenia, Mongolia, Azerbaijan, Turkmenistan, Tajikistan (Thompson, 1954; Herting, 1975; Trjapitzin, 1978; Graham, 1995; Yefremova and Strakhova, 2010). New record for Israel.

Elasmus longiclava Graham, 1995

(Fig. 7)

Elasmus longiclava Graham, 1995: 11.

Material Examined

ISRAEL: Almagor, 32º54′N; 35º36′E, Malaise trap, 18.x.2010, W. Kuslitzky (1♀); Nizzanim Park, 31º43′N; 34º35′E, sweeping, 21.iv.2008, A. Freidberg (1♀).

Diagnosis

Female: POL 1.9 times OOL; OOL 1.3 times OD. Pedicel (Fig. 7) slightly longer than F1, F3 quadrate, clava nearly as long as whole funicle. Forewing with isolated subcubital line of setae. Body shiny black. Male: POL 2.5–3.5 times OOL; OOL 1.3–1.5 times OD.

Host

Larval-pupal parasitoid of *Yponomeuta malinellus* (Zeller) (Yponomeutidae) and *Etiella* sp. (Phycitidae) (Lepidoptera) (Yefremova and Strakhova, 2010).

Distribution

Palearctic: France, Bulgaria, Russia, and Kazakhstan (Graham, 1995; Yefremova and Strakhova, 2010). New record for Israel.

Elasmus lutens Crawford, 1915

(Fig. 8)

Elasmus lutens Crawford, 1915: 461.

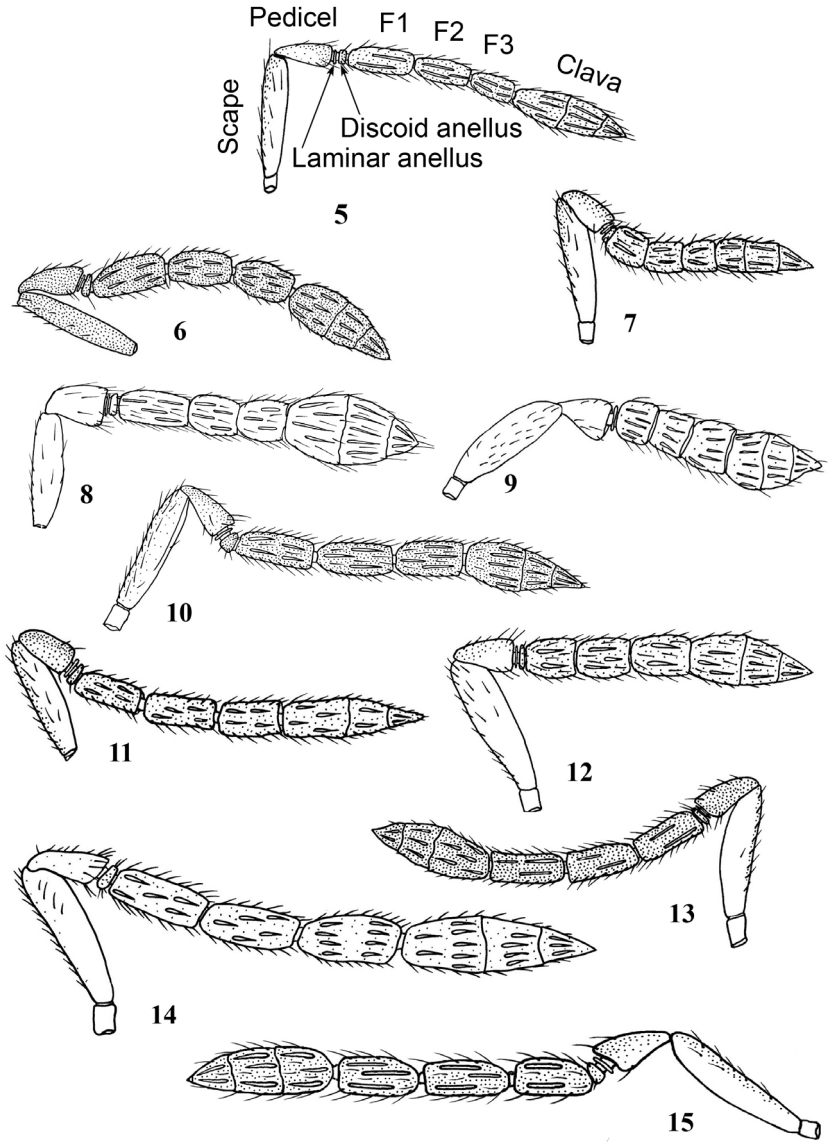
Material Examined

Type material studied: PHILIPPINES: 1♀ female, Luzon, Laguna, Los Baños, C.F. Baker. Type No. 18409, United States National Museum of Natural History, Washington, D.C., USA (USNM).

ISRAEL: ‘Akko, 32º55′N; 35º04′E, 1.viii.1998, reared from *Arthrocnemum macrostachyum* (Moric.) Chenopodiaceae, N. Dorchin (1♀) (TAUI).

Diagnosis

Body yellow with brown spots on vertex, neck, axillae, both sides of propodeum; gaster dark at base and on T6. Antenna (Fig. 8) with F1 longer than pedicel and F2 as



Figs. 5–15. *Elasmus* spp., antenna. 5. *Elasmus africanus* Ferrière, left antenna, female. 6. *Elasmus flabellatus* (Fonscolombe), right antenna, female. 7. *Elasmus longiclava* Graham, left antenna, female. 8. *Elasmus lutens* Crawford, left antenna, female. 9. *Elasmus nudus* (Nees), right antenna, female. 10. *Elasmus phthorimaeae* Ferrière, right antenna, female. 11. *Elasmus platyedrae* Ferrière, left antenna, female. 12. *Elasmus steffani* Viggiani, left antenna, female. 13. *Elasmus unicolor* (Rondani), left antenna, female. 14. *Elasmus viridiceps* Thomson, left antenna, female. 15. *Elasmus westwoodi* Giraud, left antenna, female.

long as F3, LC 1.8–2.0 times as long as F3. Forewing without isolated subcubital line of setae.

Host

Apparently emerged from Cecidomyiidae (*Stefaniola crispa* Dorchin and Freidberg or *Houardiella gracilis* Dorchin and Freidberg) or from Asteiidae (*Asteia* sp.) that develop inside the fleshy stems of *Arthrocnemum macrostachyum* (Chenopodiaceae).

Distribution

India, Philippines (Crawford, 1915; Verma, et al., 2002). New record for Israel.

Elasmus nudus (Nees 1834)

(Fig. 9)

Aneure nuda Nees, 1834: 195.
Elasmus albipennis Thomson, 1878: 206.
Elasmus nudus Graham, 1995: 9.

Material Examined

ISRAEL: Almagor, 32º54′N; 35º36′E, Malaise trap, 29.ix.2010, W. Kuslitzky (1♀); Tel Aviv, Tel Aviv University botanical garden, 32º03′N; 34º46′E, Malaise trap, 24.ix.–1.xi.2010, Z. Yefremova, V. Kravchenko (1♀, 1♂); Tel Aviv, Tel Aviv University botanical garden, 32º03′N; 34º46′E, Malaise trap, 17.vii.2011, Z. Yefremova, V. Kravchenko (1♀, 3♂); 'Enot Zuqim, 31º43′N; 35º27′E, on *Tamarix nilotica* 10.xi.1998, V. Kravchenko, N. Meltzer (1♀, 3♂); 'Enot Zuqim Nature Reserve, 31º43′N; 35º27′E, [Dead Sea Area, En Fesqua Nat. Res], 17.iii.2011, Z. Yefremova, V. Kravchenko (3♀).

Diagnosis

Female: POL 1.5–2.0 times OOL. Antenna (Fig. 9) with funicle as long as clava. F3 transverse. Scape 3.0 times as long as broad. Forewing with isolated subcubital line of setae. Body black, dorsellum wholly black. Male: POL 3.0 times OOL; OOL 1.5 times OD. Body black.

Host

Larval-pupal parasitoid of *Etiella* sp. (Phycitidae), *Yponomeuta malinellus* (Zeller) (Yponomeutidae), *Porthesia chrysorrhoea* L. (Lymantriidae), *Leucospis* sp. (Leucospidae) and *Cydia pomonella* (L.) (Tortricidae) (Yefremova and Strakhova, 2010).

Distribution

Palearctic: Western Europe, Russia, Georgia, Azerbaijan, Iran, Kazakhstan, Turkmenistan, Uzbekistan, Tajikistan (Graham, 1995; Yefremova and Strakhova, 2010). New record for Israel.

Elasmus phthorimaeae Ferrière, 1947
(Fig. 10)

Elasmus phthorimaeae Ferrière, 1947: 572.

Material Examined

ISRAEL: Almagor, 32º54′N; 35º36′E, Malaise trap, 22.ix.2010, W. Kuslitzky (1♀); Biq'at Bet Zayda [Bteicha], 32º52′N; 35º38′E, sweeping, 5.viii.1986, A. Freidberg (1♀,); Latrun, 31º50′N; 34º58′E, sweeping, 3.x.1974, A. Freidberg (2♀, 1♂).

Diagnosis

Female: POL 1.6–2.0 times OOL. OOL 1.5 times OD. Antenna (Fig. 10) with F1 slightly longer than PL. Forewing with isolated subcubital line of setae. Body yellow with brown spots on neck, axilla, scutellum, propodeum, and mesoscutum. Male: POL 1.5–2.0 times OOL, OOL 1.9 times OD. Color of body darker than in female.

Host

larval parasitoid of *Phthorimaea operculella* (Zeller) (Lepidoptera, Gelechiidae) (Ferrière, 1947).

Distribution

Palearctic: south-eastern Europe, Yemen, UAE, Saudi Arabia (Graham, 1995; Yefremova, 2007; Strakhova and Yefremova, 2010). New record for Israel.

Elasmus platyedrae Ferrière, 1935
(Fig. 11)

Elasmus platyedrae Ferrière, 1935: 368; Graham, 1995: 14.
Elasmus elongatus Ferrière, 1947: 579.

Material Examined

ISRAEL: Tel Aviv, Tel Aviv University botanical garden, 32º03′N; 34º46′E, Malaise trap, iii.2011, Z. Yefremova, V. Kravchenko (1♂); Tel Aviv, Tel Aviv University botanical garden, 32º03′N; 34º46′E, Malaise trap, 17.vii.2011, Z. Yefremova, V. Kravchenko (1♀); Nizzanim Park, 31º43′N; 34º35′E, sweeping, 21.iv.2008, A. Freidberg (4♀); Yeroham [Yeruham], 31º03′N; 35º03′E, 200 m from the lake, 11.xii.2006, Y. Zvik (2♀).

Diagnosis

Female: Forewing with a long wedge-shaped bare strip extending from the base, and with isolated subcubital line of setae. Head and thorax black, sometimes with bluish tinge. Metacoxae with short hairs. Gaster long and narrow, reddish ventrally in some specimens. Antenna (Fig. 11) with F1 longer than pedicel. Penultimate tergite about 2.0 times as long as its basal width. Male: POL 3.0 times OOL. Body black except for a narrow yellowish lamella on dorsellum.

Host

Larval parasitoid of *Pectinophora gossypiella* Saunders and *Perixopia malvella* (Hübner) (Lepidoptera, Gelechiidae) (Ferrière, 1947; Graham, 1995; Yefremova and Strakhova, 2010).

Distribution

Nearctic, Afrotropical, Oriental, and Palearctic (Ferrière, 1947; Verma, Hayat, 1986; Graham, 1995; Yefremova, 2007). New record for Israel.

Elasmus steffani Viggiani, 1967

(Fig. 12)

Elasmus steffani Viggiani, 1967: 158; Bouček, 1977: 121.

Material Examined

ISRAEL: Ma'agan Mikha`el, 32º33′N; 34º54′E, Malaise trap, 29.iv.2009, W. Kuslitzky (1♀); Ma'agan Mikha`el, 32º33′N; 34º54′E, Malaise trap, 19.vi.2009, W. Kuslitzky (1♀); Tel Aviv, Tel Aviv University botanical garden, 32º03′N; 34º46′E, Malaise trap, viii.2011, Z. Yefremova, V. Kravchenko (1 ♀); Nizzanim Park, 31º43′N; 34º35′E, sweeping, 21.iv.2008, A. Freidberg (1♀).

Diagnosis

Female: POL 2.0 OOL. Antenna short (Fig. 12), segments slightly longer than wide, F3 1.2-1.5 times as long as broad. Body black with weak luster. Gaster ventrally reddish, yellow spots above toruli, on vertex and on both sides of scutellum. Forewing with isolated subcubital line of setae. Femora yelow with dark brown spots in middle part, head brown, mandibles dark yellow, antenna pale yellow. Male: POL 2.0–3.0 times OOL. Body black with yellow stripe on metanotum.

Host

Larval-pupa parasitoid of *Yponomeuta malinellus* (Zeller) (Yponomeutidae), *Tachyptilia disquei* Mess (Gelechiidae) and hyperparasitoid of *Apanteles* sp. (Braconidae) (Yefremova and Strakhova, 2010).

Distribution

Palearctic: Western Europe, Russia, Ukraine, Kazakhstan, Tajikistan, Uzbekistan (Viggiani, LaSalle, 1992; Graham, 1995; Yefremova and Strakhova, 2010).

Elasmus unicolor (Rondani, 1877)
(Fig. 13)

Heptocondyla unicolor Rondani, 1877: 182.
Elasmus unicolor: Bouček, 1974: 271; Graham, 1976: 297.

Material Examined

ISRAEL: Tel Aviv, 32º03′N; 34º46′E, Malaise trap, 22.vi.2007, W. Kuslitzky (1♀).

Diagnosis

Female: POL 2.7–3.2 times OOL; OOL 1.3–1.4 times OD. F1 1.8–2.3 times as long as broad, slightly longer than pedicellus; F2 as long as F1, F2 and F3 1.7–2.3 times as long as broad, clava 1.9 times as long as F3 (Fig. 13). Forewings without isolated subcubital line of setae, hind margin straight. PMV 3.0 times as long as SV. Body black.

Distribution

Palearctic: Western Europe, Russia (Trjapitzin, 1978; Graham, 1995; Yefremova and Strakhova, 2009). New record for Israel.

Elasmus viridiceps Thomson, 1878
(Fig. 14)

Elasmus viridiceps Thomson, 1878: 205.

Material Examined

ISRAEL: Ma'agan Mikha`el, 32º33′N; 34º54′E, Malaise trap, 1.ix.2008, W. Kuslitzky (1♀, 2♂); Ma'agan Mikha`el, 32º33′N; 34º54′E, Malaise trap, 19.iv.2009, W. Kuslitzky (1♂); Ramat haSharon, 32º08′N; 34º51′E, Malaise trap, 3.x.2006, D. Gerling (1♀); Tel Aviv University, 32º03′N; 34º46′E, Malaise trap, 15.viii.2006, W. Kuslitzky (1♀); Tel Aviv University, 32º03′N; 34º46′E, Malaise trap, 1.ix.2006, W. Kuslitzky (1♂); Tel Aviv University, 32º03′N; 34º46′E, Malaise trap, 3.x.2006, W. Kuslitzky (1♂); Tel Aviv, Tel Aviv University botanical garden, 32º03′N; 34º46′E, Malaise trap, iii.2011, Z. Yefremova, V. Kravchenko (3♂); Tel Aviv, Tel Aviv University botanical garden, 32º03′N; 34º46′E, Malaise trap, 17.vii.2011 , Z. Yefremova, V. Kravchenko (1 ♂); 'Enot Zuqim, 31º43′N; 35º27′E, on *Tamarix nilotica* 10.xi.1998, V. Kravchenko, N. Meltzer (1♂); Yeroham [Yeroham], 31º03′N; 35º03′E, 200 m from the lake, 11.xii.2006, Y. Zvik (1♀, 3♂).

Diagnosis

Female: POL 2.0–2.9 times OOL. OOL 1.3–1.6 times OD. Antenna (Fig. 14) with scape 2.0 times as long as F1, F2 equal to F1 and 1.1 times as long as F3, LC 1.7 times as long as F3. Head and thorax with strong bluish or greenish-blue metallic tint. Forewing with short irregular bare area at base, PMV 2.8–3.0 times as long as SV. Penultimate tergite not longer than its basal breadth. Male: POL 3.0 times OOL; OOL 1.5 times OD. Body black with bluish metallic tint.

Distribution

Palearctic: Europe, Kazakhstan, Turkmenistan, Tajikistan, Afghanistan, China, Mongolia, South Korea (Graham, 1995; Yefremova and Strakhova, 2010). New record for Israel.

Elasmus westwoodi Giraud, 1856

(Fig.15)

Elasmus westwoodi Giraud, 1856: 185; Graham, 1976: 295.

Material Examined

ISRAEL: Ma'agan Mikha`el, 32º33′N; 34º54′E, Malaise trap, 5.iii. and 26.iii.2009, W. Kuslitsky (2♀); Ma'agan Mikha`el, 32º33′N; 34º54′E, Malaise trap, 29.iv.2009, W. Kuslitsky (1♀, 3♂); 'Adanim, 32º08′N; 34º54′E, 15.vi.2007, A. Lupo (1♀); Tel Aviv, 32º03′N; 34º46′E, Malaise trap, 23.vi.2007, W. Kuslitzky (1 ♀); Tel Aviv, Tel Aviv University botanical garden, 32º03′N; 34º46′E, Malaise trap, ii.2011, Z. Yefremova, V. Kravchenko (2 ♂).

Diagnosis

Female: POL 2.7–2.9 times OOL, OOL 1.0–1.2 times OD. F1 as long as pedicel and 2.0–2.2 times as long as broad, F3 1.7–2.0 times as long as broad. Clava hardly broader than F3 and 3.3–3.5 times as long as broad (Fig. 15). Hind margin of forewing slightly concave. Body black, gaster reddish ventrally at base. Male: POL 2.7 times OOL, OOL as long as OD. Dorsellum with yellow lamella.

Host

Larval-pupal parasitoid of *Pseudoterna pruinata* Hufnagel (Geometridae) and hyperparasitoid of *Apanteles* sp. (Braconidae) (Yefremova and Strakhova, 2010).

Distribution

Palearctic: Europe, Russia (Herting, 1975; Graham, 1976, 1995; Yefremova and Strakhova, 2010). New record for Israel.

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