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EULOPHID WASPS OF THE SUBFAMILY EULOPHINAE (HYMENOPTERA: CHALCIDOIDEA) FROM THE KHINGAN RESERVE (AMUR PROVINCE, RUSSIA), WITH DESCRIPTIONS OF NEW SPECIES

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Summary. Four eulophinae species, *Cirrospilus kochetkovi* **sp. n.**, *Elachertus khingansis* **sp. n.**, *Elachertus uriliensis* **sp. n.** and *Sympiesis bimaculae* **sp. n.** are described from south-eastern part of Amur Province. Seventeen species from the nine genera, *Cirrospilus* Westwood, 1832 (1 species), *Diglyphus* Walker, 1844 (1), *Dimmockia* Ashmead, 1904 (1), *Elachertus* Spinola, 1811 (5), *Eulophus* Geoffroy, 1762 (1), *Euplectrus* Westwood, 1832 (2), *Hemiptarsenus* Westwood, 1833 (2), *Pnigalio* Schrank, 1802 (1), and *Sympiesis* Foerster, 1856 (3 species), are new for the fauna of Amur Province. *Cirrospilus isonoi* Kamijo, 1987, *Elachertus longipetiolus* Bouček, 1971, and *Euplectrus maculiventris* Westwood are recorded from the fauna of Russia for the first time.

Key words: Eulophidae, parasitoid wasps, new species, new records, Russian Far East.

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Резюме. Из юго-восточной части Амурской области описано четыре новых вида – *Cirrospilus kochetkovi* **sp. n.**, *Elachertus khingansis* **sp. n.**, *Elachertus uriliensis* **sp. n.** и *Sympiesis bimaculae* **sp. n.** Впервые для Амурской области указываются семнадцать видов из девяти родов: *Cirrospilus* Westwood, 1832 (1 вид), *Diglyphus* Walker, 1844 (1), *Dimmockia* Ashmead, 1904 (1), *Elachertus* Spinola, 1811 (5), *Eulophus* Geoffroy, 1762 (1), *Euplectrus* Westwood, 1832 (2), *Hemiptarsenus* Westwood, 1833 (2), *Pnigalio* Schrank, 1802 (1) и *Sympiesis* Foerster, 1856 (3 вида). Для фауны России впервые отмечаются *Cirrospilus isonoi* Kamijo, 1987, *Elachertus longipetiolus* Bouček, 1971 и *Euplectrus maculiventris* Westwood, 1832.

INTRODUCTION

The Eulophinae relatively large subfamily of Eulophidae with about 1700 described species (Noyes, 2019). The Russian fauna of this subfamily is still poorly known and includes about 160 species (Kosheleva *et al*., 2019). The Russian Far East fauna of subfamily Eulophinae has been studied very fragmentary; of the 98 species known in this region, 88 species are recorded

only from the Primorskiy Territory. An annotated list of the subfamily Entedoninae of the Khingan Reserve has been published recently (Kosheleva, 2023).

Before our research, only *Necremnus purpurascens* (Walker, 1874) was known from the Amur Province (Walker, 1874; Kosheleva *et al*., 2019).

The aim of this work is to study the new material of chalcidoid wasps of the subfamily Eulophinae, to provide an annotated list, and to describe and illustrate new species.

MATERIAL AND METHODS

The type material of the new species is deposited in the collection of the Zoological Institute of the Russian Academy of Sciences, St Petersburg, Russia (ZISP).

Eulophinae wasps were identified based on their morphological characteristics using the taxonomic and faunistic publications by: Kamijo (1965, 1978, 1987, 1992), Bouček (1959a, 1959b, 1971, 1988), Bouček & Askew (1968), Trjapitzin (1978), Storozheva (1981, 1982, 1990), Storozheva *et al*. (1995), Yoshimoto (1983), Kurashev (1991), Efremova (1995), Ikeda & Huber (1996), Zhu & Huang (2001), Zhu *et al*. (2002), Hansson & Navone (2017), Hansson & Schmidt (2018). Data on the distribution and hosts are cited mainly after Bouček & Askew (1968), Trjapitzin (1978), Yefremova (2002), Noyes (2019), and Kosheleva *et al*. (2019).

Photographs of adult parasitoids were taken with a Canon EOS 70D digital camera mounted on an Olympus SZX10 microscope. Antennae and wings slide-mounts in Canada balsam were photographed with a ZEISS SteREO Discovery.V12 modular stereo microscope and an AxioCam MRc3 camera.

Morphological terminology follows Bouček (1959a, 1959b, 1988), Kamijo (1965, 1987), Gibson (1997), and Zhu & Huang (2001).

Following abbreviations are used in the text: POL – posterior ocellar line, shortest distance between the posterior ocelli; OOL – ocello-ocular line, minimum distance between one posterior ocellus and eye margin; F1–F3 – funicular segments; C1–C3 – claval segments; *SM* – submarginal vein; *PST* – parastigma; *M* – marginal vein; *ST* – stigmal vein and *PM* – postmarginal vein. Eye height is measured in frontal view of head, eye length is measured in dorsal view of head.

Abbreviations for collectors and collection point are as follows: VCh – Vasilisa Chemyreva; DK – Denis Kochetkov; OK – Oksana Kosheleva; KhR – Khingan Rezerve.

LIST OF THE SPECIES

Subfamily Eulophinae Westwood, 1829

***Cirrospilus isonoi* Kamijo, 1987**
Figs 1A–G

MATERIAL EXAMINED. **Amur Province:** KhR, 7 km SE Uril, river Dyrovatka, forest, 6–7.VIII.2022, 1 ♀ (OK).

DISTRIBUTION. Russia (new record): Amur Province. Japan.

HOSTS. *Rhynchaenus galloisi* H. Kôno, 1930 (Coleoptera: Curculionidae) on *Quercus serrata* Murray.

REMARKS. The Amurian specimen agrees well with the original description given by Kamijo (1987), except markings and stripes of the body brown (Figs 1 A–D, G) (markings on posterior of head, pronotum, mesoscutum, scutellum, and dorsellum dark green in *Cirrospilus isonoi* [see Kamijo, 1987: P. 49, P 44, Fig. 2]), fore wing without dark bands, except infuscate

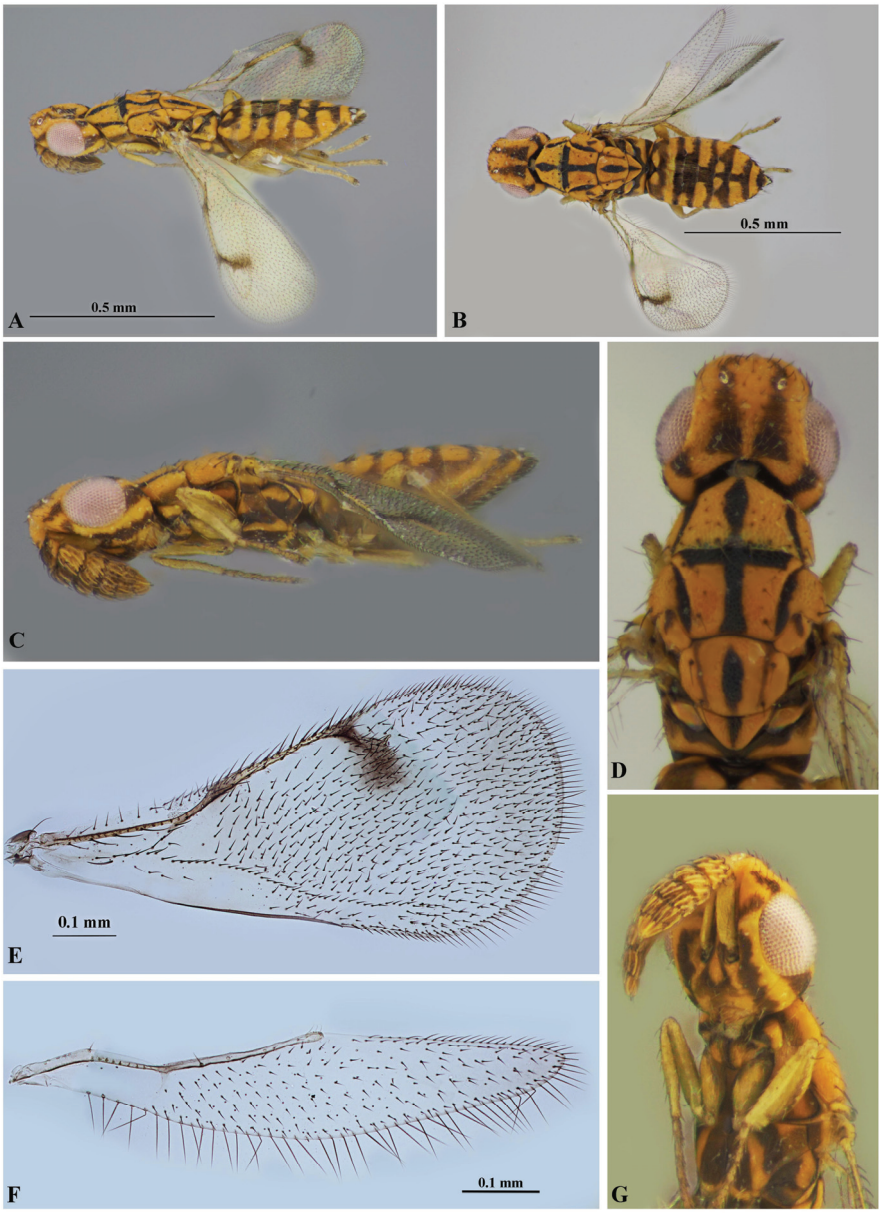

Fig. 1. *Cirrospilus isonoi* Kamijo, 1987, female. A – habitus, dorso-lateral view; B – habitus, dorsal view; C – habitus, lateral view; D – head with mesosoma, dorsal view; E – fore wing; F – hind wing; G – head with anterior part of mesosoma, latero-ventral view.

area bellow *ST* and apex of *PST* (Fig. 1E) (with three dark bands in *C. isonoi* [Kamijo, 1987: 44, Fig. 2]). Also, the Amurian specimen is similar to *Cirrospilus variegatus* (Masi, 1907), but differs from its in having mid lobe of mesoscutum more transverse, as long as scutellum (Fig. 1B, D) and fore wing twice as long as broad (Fig. 1E) (mesoscutum 1.2 × as long as scutellum and fore wing 2.4 × as long as broad in *C. variegatus* [Comparative material: ♀, Kishinev, ex. *Nepticula* sp., coll. V.I. Talitskiy, det. Z. Bouček]).

***Cirrospilus kochetkovi* sp. n.**

https://zoobank.org/NomenclaturalActs/9EE33CE2-013A-4D57-AA72-7D395F48DEA0

Figs 2A–H

TYPE MATERIAL. Holotype: ♀, **Russia**: Amur Province, KhR, 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 12–14.VIII.2022 (OK) (ZISP).

DESCRIPTION. Female (holotype). Length 1.77 mm.

Colour. Body orange-yellow with areas around ocellus, occiput, pronotum anteriorly, spot on anterior margin of mid lobe of mesoscutum, spot on the middle of scutellum, median area of propodeum, the middle of gaster and ovipositor sheaths brownish black. Antenna yellowish brown. Legs pale yellow, all tarsi with last segments dark brown.

Sculpture. Mesosoma reticulate to reticulate-imbricate anteriorly; head, pronotum and axillae finely reticulate, dorsellum almost smooth; propodeum weakly reticulate to partly smooth (Fig. 2 F).

Head. 2.25 × as broad as long in dorsal view. POL 1.57 × OOL, OOL 1.75 × OD. Malar space 0.67 × height of eye. Antenna inserted near lower level of eyes; scape reaching lower margin of median ocellus; pedicel plus flagellum about 1.10 × as breadth of head; F1 1.80 × as long as pedicel, 1.25 × as long as broad; F2 thicker than F1, 1.15 × as long as broad; clava about as long as F1 plus F2, 2.43 × as long as broad.

Mesosoma. 1.65 × as long as broad (dorsal view). Pronotum medially 0.33 × as long as mesoscutum. Mesoscutum transverse, 1.83 × as broad as long, as long as scutellum. Scutellum flat, obvious rounded, sublateral lines absent; second pairs of setae situated near posterior margin of scutellum. Dorsellum 2.67 × as long as broad. Propodeum medially 1.60 × as long as dorsellum, with distinct median carina, plicae absent; callus with eight hairs. Legs slender, hind tibia spur about half length of basitarsus. Fore wing 2.19 × as long as broad; costal cell about as long as *M*; *SM* dorsally with 5 setae; *M* 4 ×length of *ST*; *PM* 0.89 ×length of *ST* and 0.24 × length of *M*; basal cell apically with 6 setae; speculum narrow, reaching to base of *M*, closed below (Fig. 2H). Hind wing 5.0 × as long as broad, almost rounded at apex.

Metasoma. Gaster ovate, slightly pointed, 1.88 × as long as broad, 1.30 × as long as mesosoma, 0.96 × as long as head plus mesosoma. Ovipositor sheath projecting beyond apex of last tergite.

Male. Unknown.

DIFFERENTIAL DIAGNOSIS. *Cirrospilus kochetkovi* **sp. n.** is similar to *C. tischeriae* Kamijo, 1992 by the scutellum without sublateral grooves lines (Fig. 2E), propodeum with median carina, plicae absent (Fig. 2F), antenna inserted near the lower eye orbit; scape reaching lower edge of median ocellus (Fig. 2C). The new species differs from *C. tischeriae* in having sculpture of mesoscutum not strongly raised-reticulate (Figs 2D, E) (strongly raised reticulate in *C. tischeriae* [Kamijo, 1992: P. 392]); mid lobe mesoscutum with two pairs of pale bristles (Fig. 2E) (blackish bristles in *C. tischeriae* [Kamijo, 1992: P. 392]), F1 1.8 × as long as pedicel and F2 1.3 × as long as broad (Fig. 2G) (F1 slightly to distinctly longer than pedicel, F2 almost quadrate in *C. tischeriae* [Kamijo, 1992: P. 391–392]), speculum narrow (Fig. 2H) (speculum large in *C. tischeriae* [Kamijo, 1992: P. 392]).

Fig. 2. *Cirrospilus kochetkovi* sp. n. (♀, holotype). A – habitus, lateral view; B – habitus, dorsal view; C – head, frontal view; D – head, dorsal view; E – mesosoma, dorsal view; F – dorsellum with propodeum, dorsal view; G – antenna; H – fore wing.

DISTRIBUTION. Amur Province.

HOSTS. Unknown

ETYMOLOGY. This species is named in honor to Denis N. Kochetkov (Khingan State Nature Reserve, Arkhara), a Russian hymenopterologist and expert for the Vespomorpha, who kindly organized our work in the Khingan Reserve.

***Diglyphus albiscapus* Erdös, 1951**

MATERIAL EXAMINED. **Amur Province:** KhR, 7 km SE Uril, river Dyrovatka, forest, 6–7.VIII.2022, 3 ♀ (VCh); Arkhara, 8.VIII.2022, 2 ♀ (VCh, DK); same locality 15.VIII.2022, 1 ♀ (OK); 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 9, 12–14. VIII.2022, 7 ♀ (VCh, OK), 24 km W Arkhara, cordon Juzhnyi, oakery, 13.VIII.2022, 1 ♂ (OK).

DISTRIBUTION. Russia: Leningradskaya, Ulyanovsk Province, Krasnodar, Stavropol Territories, Amur Province, Primorskiy Territory. Europe, Korean Peninsula, Japan.

HOSTS. Primary ectoparasitoid of dipterans from the family Agromyzidae and Ephydridae.

REMARKS. The Amurian specimens agree well with the diagnosis and figures of European and Japanese specimens, given by Hansson & Schmidt (2018) and Kamijo (1978), but differs in having a darker scape.

***Dimmockia secunda* Crawford, 1910**

MATERIAL EXAMINED. **Amur Province:** KhR, 3 km E Uril, r.Tarmanchukan, hill, 3–4.VIII.2022, 5 ♀ (VCh, OK); Arkhara 8.VIII.2022, 1 ♀ (VCh, DK); 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 9–13.VIII.2022, 1 ♂, 8♀ (VCh, OK); cordon Juzhnyi, oakery,13.VIII.2022, 1 ♂; Arkhara, Quercus, 15.VIII.2022, 1 ♂, 1 ♀ (OK).

DISTRIBUTION. Russia: Voronezh and Amur Provinces, Khabarovsk, Primorskiy Territory. Europe, China, Korea, Japan.

HOSTS. Pupal hyperparasitoid of *Protapanteles liparidis* (Bouche, 1834) on lepidopterans from the families Hesperiidae, Lasiocampidae and Tortricidae.

***Elachertus charondas* (Walker , 1839)**

MATERIAL EXAMINED. **Amur Province:** KhR, 7 km SE Uril, river Dyrovatka, forest, 6–7.VIII.2022, 1 ♂, 1 ♀ (VCh); same locality and date, Calamagrostis, swamp, 3 ♀ (OK).

DISTRIBUTION. Russia: Ulyanovsk Province, Stavropol and Krasnodar Territories, Amur Province, Khabarovsk and Kamchatka Territories, Sakhalin and Kuril Islands. Europe, Israel, Yemen, Turkmenistan, China, Japan, southeast Asia, South America.

HOSTS. Primary ectoparasitoid of *Lymantria dispar* (Linnaeus, 1758) (Lymantriidae) and *Pseudoips prasinana* (Linnaeus, 1758) (Noctuidae).

***Elachertus fenestratus* Nees, 1834**

MATERIAL EXAMINED. **Amur Province:** KhR, 3 km E Uril, r.Tarmanchukan, hill, 3–4.VIII.2022, 3 ♂, 2 ♀; 7 km SE Uril, river Dyrovatka, forest, 6–7.VIII.2022, 2 ♀; 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 12–14.VIII.2022, 1 ♀ (OK).

DISTRIBUTION. Russia: Bryansk and Ulyanovsk Province, Krasnodar Territory, Amur Province , Khabarovsk, Primorskiy, Kamchatka Territories, Sakhalin and Kuril Islands. Europe, Turkey, Israel, Iran, Turkmenistan, Tajikistan, China, Korean Peninsula, Japan, North and South America.

HOSTS. Primary ectoparasitoid of lepidopterans from the families Gelechiidae, Coleophoridae, Gracillariidae and Tortricidae.

***Elachertus inunctus* Nees, 1834**

MATERIAL EXAMINED. **Amur Province:** KhR, 3 km E Uril, r.Tarmanchukan, hill, 3–4.VIII.2022, 2 ♀; 7 km SE Uril, river Dyrovatka, 6–7.VIII.2022, 2 ♀, (VCh, OK); 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 9–11.VIII.2022, 2♀ (VCh, OK).

DISTRIBUTION. Russia: Leningradskaya, Moscow and Ulyanovsk Province, Stavropol and Krasnodar Territories, Siberia, Amur Province, Khabarovsk and Kamchatka Territories, Sakhalin and Kuril Islands. Europe, Turkey, Turkmenistan, China, Korean Peninsula, Japan, southeast Asia.

HOSTS. Primary ectoparasitoid of lepidopterans from the family Gracillariidae, and some Tortricidae, Leucopteridae, Oecophoridae and Elachistidae.

***Elachertus isadas* (Walker, 1839)**

MATERIAL EXAMINED. **Amur Province**: Arkhara 8.VIII.2022, 1 ♀ (VCh, DK); KhR, 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 12–14.VIII.2022, 4 ♀ (VCh, OK).

DISTRIBUTION. Russia: Krasnodar Territory, Amur Province. Europe, Yemen, China, Southeast Asia.

HOSTS. Primary ectoparasitoid of lepidopterans from the families Gracillariidae, Oecophoridae and Tortricidae.

***Elachertus longipetiolus* Bouček, 1971**

MATERIAL EXAMINED. **Amur Province:** KhR, 7 km SE Uril, river Dyrovatka, forest, 6–7.VIII.2022, 6 ♀ (ChV, OK); 3 km E Uril, r.Tarmanchukan, hill, 3–4.VIII.2022, 2 ♀ (OK); cordon Kleshinskoe ozero, forest, 12–13.VIII.2022, 1 ♂, 1 ♀ (OK).

DISTRIBUTION. Russia (new record): Amur Province. Czechoslovakia, France, Sweden, Korea.

HOSTS. Unknown, but the species seems to be associated with trees or with forest habitats.

REMARKS. The Amurian specimens agree well with the original description by Bouček (1971), except for the pale brown antenna with yellowish scape (black and testaceous in European specimens [Bouček, 1971: P. 527]), the first funicle segment 1.5 × as long as wide (1.8 × as long as wide in European specimens [Bouček, 1971: P. 527]). Also some small Amurian specimens have smoother scutellum and pale hind coxae.

***Elachertus khingansis* sp. n.**

https://zoobank.org/NomenclaturalActs/D6C34890-0494-4259-A190-BE25DD7CDD04

Figs 3A–F

TYPE MATERIAL. Holotype: ♀, **Russia**: Amur Province, KhR, 7 km SE Uril, river Dyrovatka, forest, 3–4.VIII.2022 (OK) (ZISP).

DESCRIPTION. Female (holotype). Body length 1.95 mm; fore wing length 1.40 mm.

Colour. Body metallic dark green; face and vertex with coppery luster, scape pale yellow; pedicel and flagellum yellowish brown; legs yellowish, except base of coxae infuscate; gaster mainly brown, greenish laterally. The pubescens of body whitish; wings hyaline, veins pale yellow.

Sculpture. Head, pronotum and mesoscutum reticulate-rugulose, densely setose; lower face and malar space finely reticulate, clypeal margin with transverse rugae; occipital carina sharp; pronotum with transverse carinae or rugae; scutellum with isodiametric, engraved reticulations; axillae very finely and dense coriaceous; metanotum, propodeum and metasoma smooth.

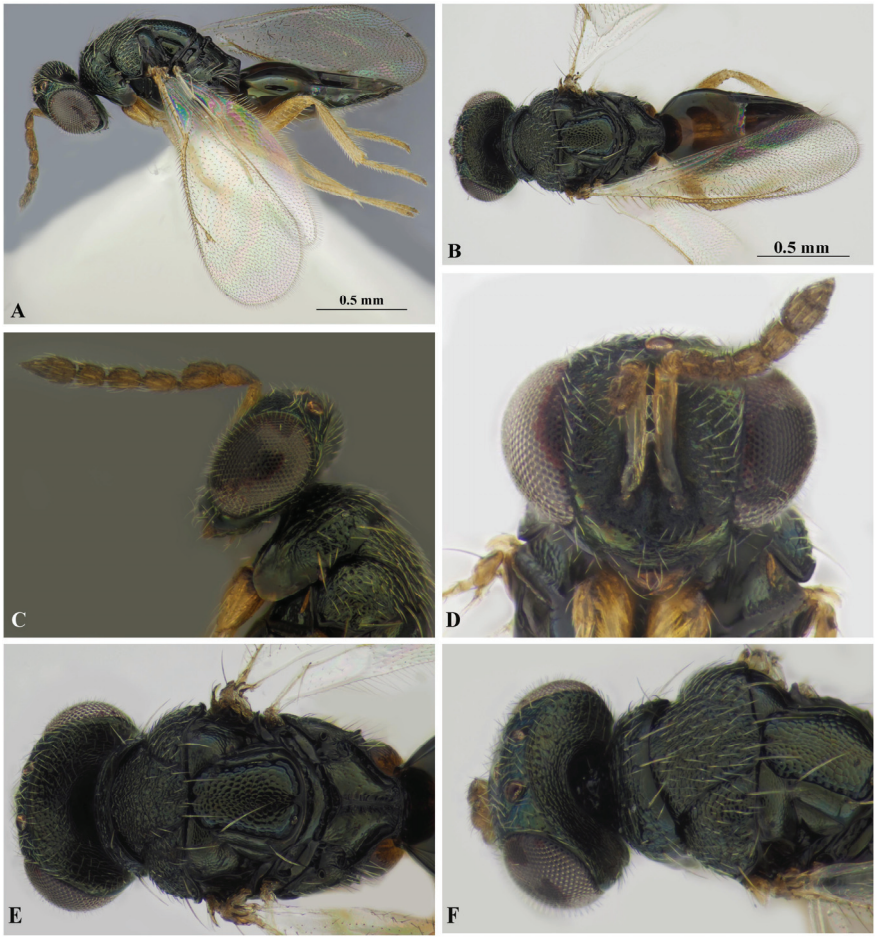

Fig. 3. *Elachertus khingansis* sp. n. (♀, holotype). A – habitus, lateral view; B – habitus, dorsal view; C – head with pronotum, lateral view; D – head, frontal view; E – head with mesosoma, dorsal view; F – head, pronotum and mesonotum, dorso-lateral view.

Head. 1.09 × as broad as mesoscutum in dorsal view, 2.20 × as broad as long; transverse-oval, 1.28 × wider than high, in frontal view. POL 1.71 × OOL, OOL 1.16 × OD. Eyes separated by distance their high, densely setose. Malar space 0.27 × height of eye. Mouth opening 2.0 × as broad as malar space. Clypeus with marginal lamina bilobed. Antennal scape not reaching median ocellus; scape slender, 5.0 × as long as broad; pedicel dorsally

2.0 × as long as broad; funicle with one anellus and four funicular segments, decrease in length; F1 1.20 × as long as pedicel; F1–F4: 2.20, 1.80, 1.60 and 1.30 × as long as broad, respectively; clava two segmented, 1.45 × as log as F1. Funicular segments with numerous decumbent setae.

Mesosoma. 1.60 × as long as broad (dorsal view). Pronotum with indistinct transverse carina medially (Fig 3C), 0.25 × as long as mesoscutum, 0.75 × as broad as mesoscutum. Mesoscutum 1.91 × as broad as long, 0.92 × as long as scutellum, with 4 long seta along its posterior margin (Fig. 3F). Scutellum 1.19 × as long as broad with two pairs of long setae, sublateral grooves smoothly incurved, but not united each other posteriorly; the part between sublateral grooves broader posteriorly, on the whole 1.39 × as long as broad. Dorsellum smooth, rectangular on posterior margin. Propodeum medially 0.53 × as long as scutellum, median carina with distinct short rami all its along, anterior margin in the middle elevated, forming a slot between the marginal and the dorsellum; callus with 13 long setae in two rows. Fore wing 2.23 × as long as broad; costal cell as long as *M* and 8.0 × as long as broad; ventrally with a complete row of setae; *SM* dorsally with 7 setae; *M* 3.08 × as long as *SM*; *PM* 1.38 × as long as *ST* and 0.45 × as long as *M*; basal cell delineated by complete rows of setae and with one seta mesally near *SM*; speculum small, not reaching to base of *M*, closed below. Hind wing 4.29 × as long as broad, rounded at apex.

Metasoma. Petiole transverse, smooth and conical. Gaster long-ovate, pointed, 2.0 × as long as broad, 1.05 × as long as mesosoma, 0.83 × as long as head plus mesosoma, and 0.80 × as broad as mesosoma; first gastral tergite occupying more than half length of gaster. (Fig. 3A, B).

Male. Unknown.

DIFFERENTIAL DIAGNOSIS. *Elachertus khingansis* **sp. n.** is close to *E. ramosus* Zhu et Huang, 2001 by the clypeal margin bilobed, the sublateral grooves on scutellum not united posteriorly, median carina on propodeum with short rami, F1 longer than broad, speculum narrow or absent, also body dark green. The new species differs from *E. ramosus* in having the gaster long-ovate, pointed apically (Fig. 3 B) (gaster subrotund with apex not acute in *E. ramosus* [Zhu & Huang, 2001: P 333]), first gastral tergite brownish, occupying more than half length of gaster (Fig. 3A, B) (first gastral tergite dark green with sub-basal pale patch, less than 1/3 length of gaster in *E. ramosus* [Zhu & Huang, 2001: P. 333]), clava two segmented, 1.45 × as long as F1 (Fig. 3 C, D) (three segmented, as long as F1 in *E. ramosus* [Zhu & Huang, 2001: P 342, Fig. 159]), POL 1.71 × OOL (1.33 in *E. ramosus* [Zhu & Huang, 2001: P 333]), *PM* 0.45 × as long as *M* (0.79 in *E. ramosus* [see ibid]); setae scattered all over surface of mesoscutum (3 A, B, F) (only on mid lobe mesoscutum in *E. ramosus* [see ibid]), axillae without additional setae (Fig. 3E) (with indistinct setae in *E. ramosus* [Zhu & Huang, 2001: P 323]).

The new species is also similar to *E. oligiramus* Zhu et Huang, 2001 by the clypeal margin bilobed, but differs by the absence of setae on axilla [3 F] (present in *E. oligiramus* [Zhu & Huang, 2001: P. 329]), median carina with distinct short rami all its along (Fig. 3 B, E) (rami of propodeal median carina present only medially in *E. oligiramus* [Zhu & Huang, 2001: P. 323, P 342, Fig. 147]) and dark metallic green (Figs 3 A–F) (bright metallic green in *E. oligiramus* [Zhu & Huang, 2001: P. 323, 329])

DISTRIBUTION. Amur Province

HOSTS. Unknown

ETYMOLOGY. The name of this species is an adjective referring to the area where the holotype was collected, the area of the Khingan Reserve.

***Elachertus uriliensis* sp. n.**

https://zoobank.org/NomenclaturalActs/BB21F288-8D66-431E-A6B5-9C060D6EFDFA

Figs 4A–F

TYPE MATERIAL. Holotype: ♀, **Amur Province:** KhR, 7 km SE Uril, river Dyrovatka, forest, 3–4.VIII.2022, 1 ♀ (OK) (ZISP).

DESCRIPTION. Female (holotype). Body length 2.35 mm; fore wing length 1.75 mm.

Colour. Body dark green with bright metallic luster; antenna with scape and pedicel yellow, flagellum dark brown; legs yellow, base of hind coxae green with metallic luster; gaster brownish medially. Wings hyaline, veins pale yellow.

Sculpture. Head, pronotum and mesoscutum rugulose and densely setose. Eyes densely pubescent. Clypeus transversely rugose, occipital margin with weak carina behind posterior ocellus; scutellum and axillae almost smooth with weakly engraved; sides of scutellum, metanotum, propodeum and metasoma smooth.

Head. 1.16 × as broad as mesoscutum, 2.20 × as broad as long; transverse-oval in frontal view, 1.45 × wider than high. POL 2.17 × OOL, OOL as OD. Eyes separated by 0.75 their high. Malar space 0.30 × height of eye. Mouth opening 2.0 × as broad as malar space. Clypeal margin entire. Antennal scape not reaching median ocellus; scape slender, 5.0 × as long as broad; pedicel dorsally 2.0 × as long as broad. Funicle with one anellus and four funicular segments, decrease in length; F1 1.88 × as long as pedicel; F1–F4: 2.50, 2.20, 2.20 and 1.60 × as long as broad, respectively; clava two segmented, 1.13 × as log as F1. Funicular segments with numerous decumbent setae.

Mesosoma. 1.80 × as long as broad. Pronotum 0.74 × as broad as mesoscutum, 0.26 × as long as mesoscutum. Mesoscutum transverse, 1.72 × as broad as long, 0.84 × as long as scutellum, with 4 long seta along its posterior margin . Axillae with 7 setae in posterior part (Fig. 4 E). Scutellum 1.26 × as long as broad with two pairs of strong, long setae, sublateral grooves smoothly incurved, but not united each other posteriorly; the part between sublateral grooves broader posteriorly, on the whole 1.60 × as long as broad. Dorsellum 0.19 × as long as scutellum, triangular on posterior margin. Propodeum medially 0.68 × as long as scutellum, 3.57 × as long as dorsellum, median carina with distinct short rami, and only a last one reaching posterolateral corner of propodeum, median carina at the anterior margin of propodeum elevated, forming a slot (Fig.4 E); callus with many long white setae in several rows. Fore wing 2.29 × as long as broad; costal cell 1.10 × as long as *M* and 10.0 × as long as broad; ventrally with a two rows of setae; *SM* dorsally with 8 setae; *M* 2.33 × as long as *ST*; *PM* 1.27 × as long as *ST*, and 0.54 × as long as *M*; basal cell delineated by complete rows of setae and with 4 seta mesally near *SM*; speculum very narrow almost absent (Fig. 4B). Hind wing 3.80 × as long as broad, rounded at apex.

Metasoma. Petiole 1.50 × as broad as long with parallel sides, broadly expanded posteriorly with irregular transverse ridge or carina. Gaster long ovate, pointed, 2.40 × as long as broad, 1.06 ×as long as mesosoma, 0.83 × as long as head plus mesosoma, and 0.80 × as broad as mesosoma.

Male. Unknown.

DIFFERENTIAL DIAGNOSIS. *Elachertus uriliensis* **sp. n.** is similar to *E. sobrinus* Zhu et Huang, 2001 by the clypeal margin entire, pronotum without transverse anterior carina (Fig. 4 C), rami of propodeal carina distinct and only a last one reaching posterolateral corner of propodeum. The new species differs from *E. sobrinus* in having the sublateral grooves on scutellum, with distance between each other more than width of grooves (Fig. 4 E) (distance

between grooves on scutellum around width of grooves in *E. sobrinus* [Zhu & Huang, 2001: P. 333]), setae on thorax whitish (Figs 4 A–F) (yellowish brown in *E. sobrinus* [see ibid]), scutellum weakly engraved (Fig. 4 E) (reticulate all over in *E. sobrinus* [see ibid]). The new species is also similar to *E. oligiramus* by the unique features in having several setae on the axilla (Zhu & Huang, 2001: P. 329).

DISTRIBUTION. Amur Province.

HOSTS. Unknown.

ETYMOLOGY. The name of this species is an adjective referring to the area where the holotype was collected, the area of the village of Uril.

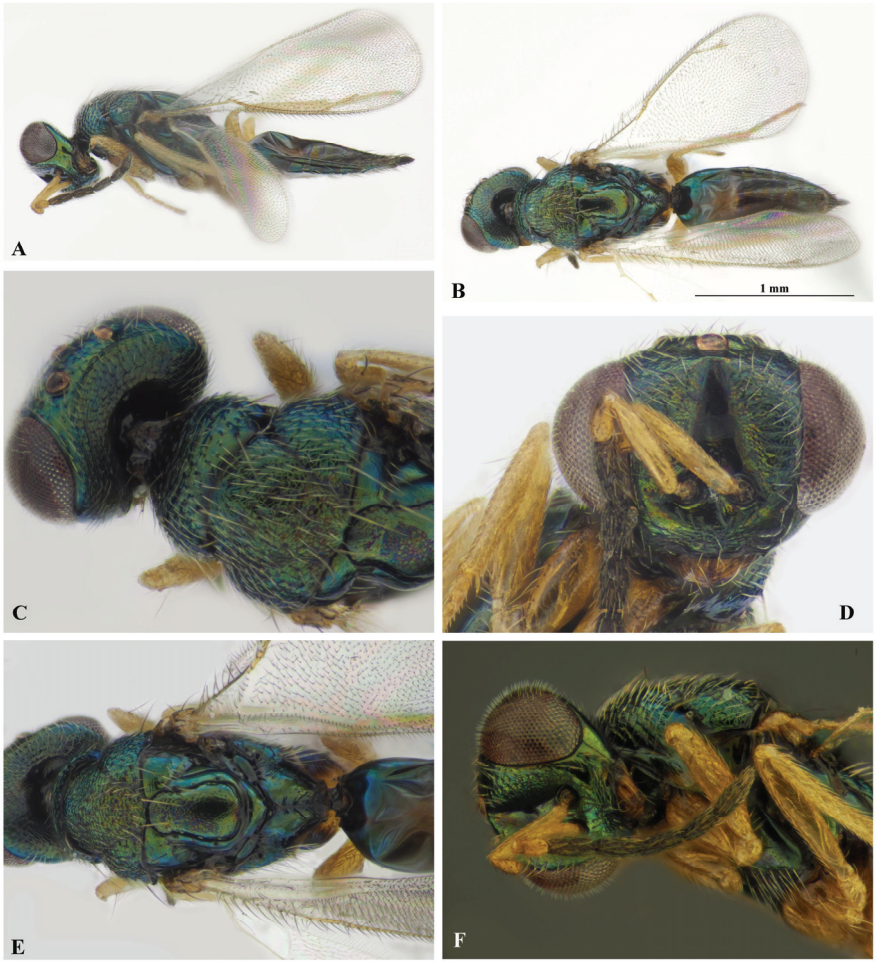

Fig. 4. *Elachertus uriliensis* sp. n. (♀, holotype). A – habitus, lateral view; B – habitus, dorsal view; C – head, pronotum and mesoscutum, dorsal view; D – head, frontal view; E – mesosoma, dorsal view; F – head with mesosoma, latero-ventral view.

REMARKS. *Elachertus khingansis* **sp. n.** and *E. uriliensis* **sp. n.** can be attributed to the *australis* species group, designated by Bouček (1988), by the clypeus below abruptly receding into a narrow marginal lamina which is often incised in middle, mesoscutum with numerous setae and axilla not advanced. Also, according to Zhu & Huang (2001), species of the *australis* species group are characterized by sublateral grooves on scutellum incurved, but never united posteriorly; propodeal median carina branched, with distinct rami.

***Eulophus abdominalis* Nees, 1834**

MATERIAL EXAMINED. **Amur Province:** KhR, 3 km E Uril, r.Tarmanchukan, hill, 3–4.VIII.2022, 1 ♀ (VCh); same locality and data 3–4.VIII.2022, 1 ♀ (OK); 7 km SE Uril, river Dyrovatka, forest, 6–7.VIII.2022, 2 ♀ (VCh, OK); same locality and date, but Calamagrostis swamp, 1 ♂, 1 ♀ (OK); 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 9–11. VIII.2022, 1 ♀ (VCh); same locality, forest, 12–13.VIII.2022, 1 ♂, 5 ♀ (VCh); Arkhara 17.VIII.2022, 1 ♂ (VCh).

DISTRIBUTION. Russia: Karelia Republic, Moscow Province, Dagestan Republic, Amur Province, Primorskiy Territory. Europe, Azerbaijan, China, Southeast Asia.

HOSTS. Primary parasitoid of lepidopterans from the families Geometridae, Lasiocampidae, Lymantriidae, Noctuidae, Notodontidae and Tortricidae.

***Euplectrus bicolor* (Swederus, 1795)**

MATERIAL EXAMINED. **Amur Province:** KhR, 3 km E Uril, r.Tarmanchukan, hill, 3–4.VIII.2022, 1 ♂, 1 ♀ (VCh, OK); 7 km SE Uril, river Dyrovatka, 6–7.VIII.2022, 1 ♀ (VCh); 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 9–11.VIII.2022, 1 ♀ (VCh); same locality, but 12–14.VIII.2022, 2 ♂,1 ♀ (OK).

DISTRIBUTION. Russia: European part, Ural, Amur Province, Primorskiy Territory. Europe, North Africa, Turkey, Israel, Turkmenistan, China, Korean Peninsula, Japan, North America, southeast Asia, Australia.

HOSTS. Primary gregarious ectoparasitoid of lepidopterans from the family Noctuidae.

***Euplectrus maculiventris* Westwood, 1832**

MATERIAL EXAMINED. **Amur Province:** Arkhara 17.VIII.2022, 1 ♂ (VCh, DK); KhR, 24 km W Arkhara, cordon Kleshinskoe ozero, 13.VIII.2022, 1 ♂ (OK).

DISTRIBUTION. Russia (new record): Amur Province. Europe, China, Japan, North America, Southeast Asia.

HOSTS. Primary gregarious ectoparasitoid of lepidopterans from the family Noctuidae.

***Hemiptarsenus ornatus* (Nees, 1834)**

MATERIAL EXAMINED. **Amur Province:** KhR, 3 km E Uril, r.Tarmanchukan, 3–4. VIII.2022, 1 ♀(OK).

DISTRIBUTION. Russia: Moscow, Ulyanovsk Province, Stavropol Territory, Dagestan and Crimea Republics, Amur Province, Khabarovsk and Primorskiy Territories. Europe, North Africa, Turkey, Syria, Jordan, United Arab Emirates, Yemen, Turkmenistan, China, Korean Peninsula, Japan, North America, southeast Asia, Afrotropics.

HOSTS. Primary parasitoid of insects from the orders Diptera (Agromyzidae), Coleoptera (Curculionidae), Hymenoptera (Tenthredinidae), Lepidoptera (Gracillariidae and Nepticulidae).

***Hemiptarsenus unguicellus* (Zetterstedt, 1838)**

MATERIAL EXAMINED. **Amur Province:** KhR, 3 km E Uril, r.Tarmanchukan, 4.VIII.2022, 1 ♂, 1 ♀; 7 km SE Uril, river Dyrovatka, forest, 6–7.VIII.2022, 6 ♂, 4 ♀; 24 km W Arkhara, cordon Kleshinskoe ozero, 9, 12–14.VIII.2022, 2 ♂, 5 ♀; cordon Juzhnyi, oakery,13.VIII.2022, 1 ♂, 1 ♀; Arkhara 15.VIII.2022, Quercus, 1 ♀ (OK); same locality, 17.VIII.2022, 1 ♂, 1 ♀ (VCh).

DISTRIBUTION. Russia: Leningradskaya and Moscow Provinces, Stavropol and Krasnodar Territories, Sverdlovskaya and Chelyabinsk Provinces, Amur Province, Khabarovsk, Primorskiy and Kamchatka Territories, Sakhalin Island. Europe, North Africa, Azerbaijan, Turkey, Turkey, Iran, Afghanistan, Mongolia, China, Korean Peninsula, Japan, North America, India, southeast Asia.

HOSTS. Primary ectoparasitoid of dipterans from the family Agromyzidae and Chamaemyiidae, lepidopterans from the family Elachistidae, Noctuidae and Pyralidae.

***Pnigalio soemius* (Walker, 1839)**

MATERIAL EXAMINED. **Amur Province:** KhR, 3 km E Uril, r.Tarmanchukan, hill, 3–4.VIII.2022, 9 ♀ (OK, VCh); 7 km SE Uril, river Dyrovatka, forest, 6–7.VIII.2022, 4 ♀ (VCh, OK); 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 9–11.VIII.2022, 1 ♀ (VCh).

DISTRIBUTION. Russia: Leningradskaya, Moscow, Vladimir, Voronezh and Ulyanovsk Provinces, Krasnodar and Stavropol Territories, Crimea Republic, Novosibirsk, Amur Province, Khabarovsk and Primorskiy Territories. Europe, Turkey, Syria, Iraq, Israel, Iran, Pakistan, China, Korean Peninsula, southeast Asia.

HOSTS. Solitary ectoparasitoid leaf miner larvae belonging to the orders Lepidoptera (Gracillariidae, Lyonetiidae, Nepticulidae, Yponomeutidae), Coleoptera (Curculionidae) and Diptera (Agromyzidae, Cecidomyiidae).

***Sympiesis ornatula* Storozheva, 1981**

MATERIAL EXAMINED. **Amur Province:** KhR, 24 km W Arkhara, cordon Kleshinskoe ozero, 12–13.VIII.2022, 1 ♀ (VCh).

DISTRIBUTION. Russia: Amur Province and Primorskiy Territory.

HOSTS. Unknown.

***Sympiesis sericeicornis* (Nees, 1834)**

MATERIAL EXAMINED. **Amur Province:** Arkhara 8.VIII.2022, 1 ♀ (VCh and DK).

DISTRIBUTION. Russia: European part, Ural, Eastern Siberia, Amur Province, Khabarovsk, Primorskiy, Kamchatka Territories. Europe, Georgia, Armenia, Azerbaijan, Turkey, Israel, Iran, Tajikistan, Uzbekistan, Kazakhstan, Mongolia, China, Korean Peninsula, Japan, North America, southeast Asia.

HOSTS. Primary parasitoid of numerous species from the families Gracillariidae, Coleophoridae, Tisheriidae and Tortricidae (Lepidoptera), Curculionidae (Coleoptera), some Tenthredinidae (Hymenoptera); secondary parasitoid of Braconidae and Eulophidae (Hymenoptera).

***Sympiesis viridula* (Thomson, 1878)**

MATERIAL EXAMINED. **Amur Province:** KhR, 3 km E Uril, r.Tarmanchukan, hill, 3–4.VIII.2022, 1 ♀ (VCh); 7 km SE Uril, river Dyrovatka, forest, 6–7.VIII.2022, 8 ♀ (VCh, OK); 24 km W Arkhara, cordon Kleshinskoe ozero, 12–14.VIII.2022, 4 ♀ (VCh, OK).

DISTRIBUTION. Russia: Moscow, Lipetsk, Penza, Voronezh, Ulyanovsk Provinces, Krasnodar, Stavropol Territories, Amur Province and Primorskiy Territory. Europe, Turkey, Israel, North America (introduction).

HOSTS. Primary gregarious ectoparasitoid of lepidopterans from the families Gelechiidae, Gracillariidae, Noctuidae, Pyralidae and Tortricidae.

***Sympiesis bimaculae* sp. n.**

https://zoobank.org/NomenclaturalActs/304D9EF2-FA46-4D56-8E2F-26897BF3B09B

Figs 5A–F, 6A–B

TYPE MATERIAL. Holotype: ♀, **Russia**: Amur Province, KhR, 24 km W Arkhara, cordon Kleshinskoe ozero, 12–13.VIII.2022 (ChV) (antenna and fore wing – permanent slide, no. 81) (ZISP). Paratype: same locality, 12−14.VIII.2022 (antenna and fore wing – permanent slide, no. 82), 1♀, 7 km SE Uril, river Dyrovatka, forest, 6–7.VIII.2022, 2 ♀ (VCh, OK) (ZISP).

DESCRIPTION. Female. Body length 2.2–3.4 mm.

Colour. Head mainly purple with a greenish tinge to the lower face and genae, scape pale yellow, dark brown dorso-apically; remaining antenna brown; mesosoma dark green with coppery luster; tegula brown; legs pale yellow, coxae whitish, except basal half of fore coxae and small area on ventral surface of middle coxae dark brown; fore femur with brown longitudinal stripe on posterolateral surface; gaster dark brown, dorsally with green to violet reflections, ventrally yellow-brownish, first tergite with bluish purple luster, third and fourth tergites with large yellow spots and small spots on sixth tergite; fore wing with infuscate area bellow *ST* (in small specimens infuscate area reduced to almost absent); venation pale brownish.

Sculpture. Head finely coriaceous-reticulate; pronotum, mesonotum and dorsellum strongly reticulate with isodiametric cells; propodeum rugulose; gaster smooth, sixth and seventh tergites weakly alutaceous.

Head. 1.10–1.24 × as broad as mesoscutum in dorsal view, 2.20–2.60 × as broad as long; transverse-oval, 1.30–1.40 × wider than high in frontal view; temple 0.10 × as long as eye. POL 1.55–1.87 × OOL, OOL 1.10–1.30 × OD. Eyes separated by 1.10 their high, with very short, sparse setae. Malar space 0.20–0.30 × height of eye. Mouth opening 1.67–1.90 × as broad as malar space. Antenna inserted at above ventral margins of eyes, at distance about equal distance between inner mesal margins of toruli; scape 4.0–4.3 × as long as broad, 0.8–0.9 × as long as height of eye, reaching lower edge of median ocellus; pedicel plus flagellum 1.40–1.50 × as long as breadth of head and 1.57–1.75 × as long as breadth of mesoscutum; pedicel in profile 1.60 × as long as broad, funicle with one anellus and four funicular segments, F1 1.80–2.20 × as long as pedicel; F1–F3 about equal in length and about 1.30 × longer F4; F1–F4: 2.50–2.70, 2.46–2.53, 2.29–2.50 and 1.86–1.88 × as long as broad, respectively; clava two segmented, 2.20 × as long as broad, C1 1.20–1.30 × as long as broad, more than half length of clava. Funicular segments with numerous setae.

Mesosoma. 1.77–1.89 × as long as broad in dorsal view, weakly convex in lateral view, 1.89–1.96 × as long as high with propodeum sloping at about 45°. Pronotum 0.25–0.35 × as long as mesoscutum. Mesoscutum transverse, 1.55–1.60 × as broad as long, and 1.00–1.20 × as long as scutellum. Scutellum about as long as broad, with two pairs of strong, white setae; sculpture of scutellum and axillae as strong as mesoscutum. Dorsellum reticulate. Propodeum medially 2.20 × as long as dorsellum and 0.52–0.55 × as long as scutellum; with irregular median carina (5E); callus with several long white setae; spiracles of medium size, rounded, separated from metanotum by 0.50 × its diameter. Fore wing 2.35–2.40 × as long as broad;

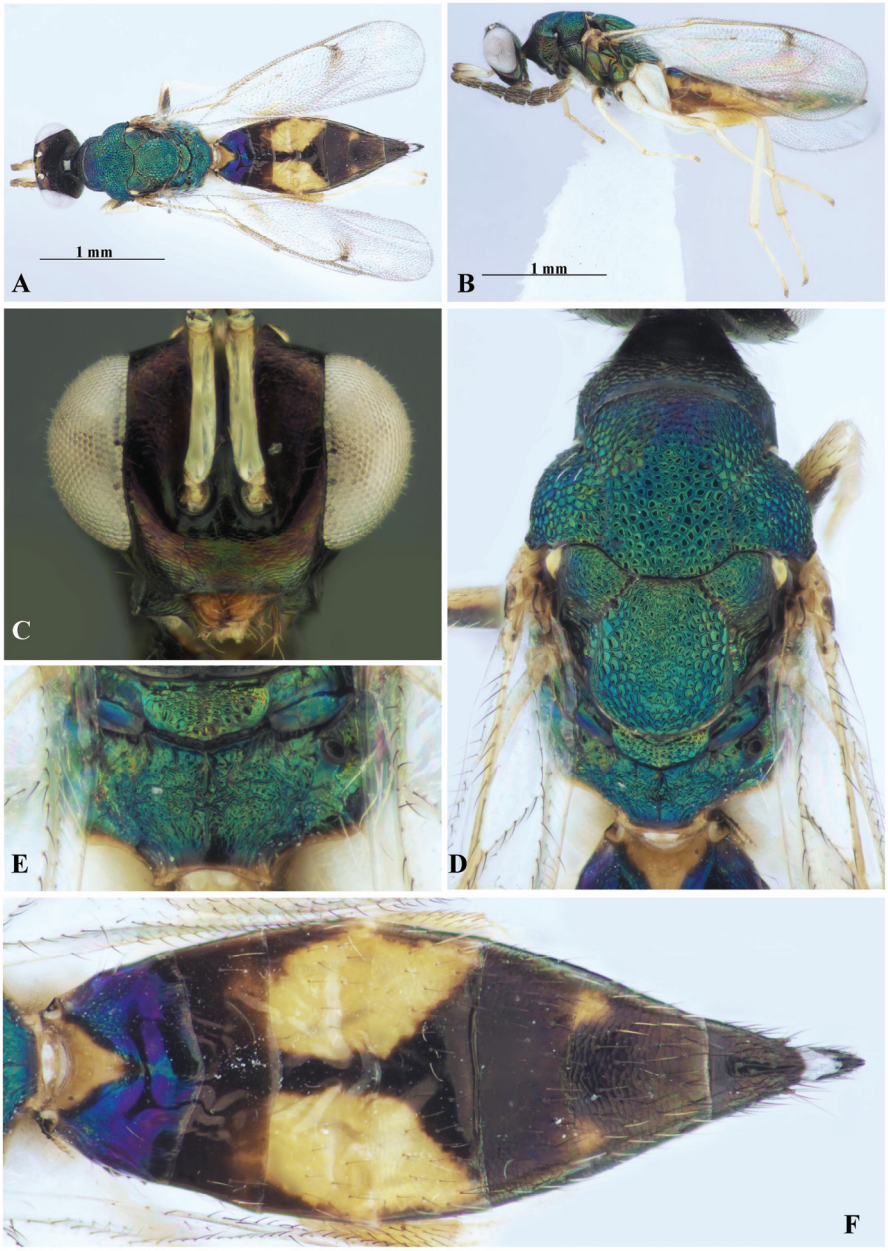

Fig. 5. *Sympiesis bimaculae* sp. n. (♀, holotype). A – habitus, dorsal view; B – habitus, lateral view; C – head, frontal view; D – mesosoma, dorsal view; E – dorsellum with propodeum, dorsal view; G – metasoma, dorsal view.

costal cell 0.83–0.88 as long as *M* and 7.0–8.0 × as long as broad; ventrally with a complete row of setae and dorsally a partial row of 9 setae apically; *SM* dorsally with 7–9 setae; *M* 5.70–6.60 × as long as *ST*; *ST* at an angle of 46° to the costal wing margin, moderately thin basally; stigma elongate, hardly thickened; *PM* 2.60–2.65 × as long as *ST*, 0.30–0.50 × as long as *M*; basal cell open posteriorly, with three to four setae; speculum of moderate size, reaching to base of *M*, closed below. Fore wing with moderately dense; marginal fringe short. Hind wing 4.0 × as long as broad, rounded at apex.

Metasoma. Gaster long ovate, 2.35–2.79 × as long as broad, 1.36–1.61 × as long as mesosoma, 1.08–1.25 × as long as head plus mesosoma, and 0.95–1.00 × as broad as mesosoma; acute apically; last tergite a little longer than broad (Fig 5 F).

Male. Unknown.

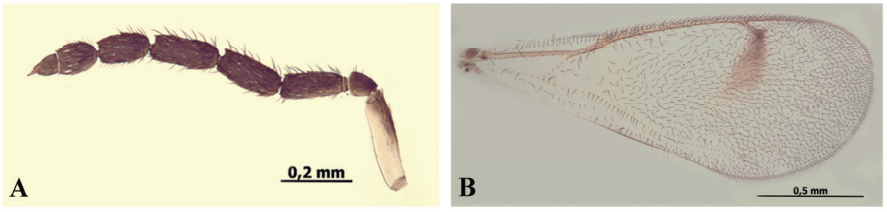

Fig. 6. *Sympiesis bimaculae* sp. n. A – antenna (♀, paratype); B – fore wing (♀, holotype).

DIFFERENTIAL DIAGNOSIS. The new species is similar to *S. derogatae* Kamijo, 1965 (Comparative material: 2♀, Primorskiy Territory, Chernigovskiy distr., Dmitrievka ex. *Loxostege sticticalis*, soya, 9.IX.1980 (coll.) 6.IV.1981 (par. em.) V. Arephin) and *S. smaragdina* Storozheva, 1990 (Comparative material: holotype: ♀, Primorskiy Territory, Rjazanovka, ex. caterpillar on Lespedeza, 13.VIII.1983, coll. N.A. Storozheva), by the elongate gaster (longer than head plus thorax), reticulate or rugulose propodeum and complete nataular furrows of mesoscutum. The new species differs from the both latter species by the with infuscate area bellow stigma (wings hyaline in *S. derogatae* and *S. smaragdina* [Kamijo, 1965: P. 74; Storozheva, 1990: P. 41]), hind coxae completely white (infuscate extreme base in *S. derogatae* and yellow in *S. smaragdina* [see ibid], gaster with two large yellow spots (one brownish yellow spot in *S. derogatae*, and with yellow pattern on second to fourth tergites in *S. smaragdina* [see ibid]), mesoscutum with strong reticulation, the reticulations moderately large, isodiametric (with relatively small reticulations in *S. derogatae* and *S. smaragdina* [comparative material]).

DISTRIBUTION. Amur Province

HOSTS. Unknown

ETYMOLOGY. Named for the colouration of the gaster, from the Latin prefix *bi-* (two) and maculae (spots).

CONCLUSION

This research has expanded knowledge of the fauna of Eulophidae on the territory of Russian Far East. Seventeen species from the nine genera from the subfamily Eulophinae are recorded from the fauna of Amur Province for the first time. Four new species – *Cirrospilus kochetkovi* sp. n., *Elachertus khingansis* sp. n., *Elachertus uriliensis* sp. n. and *Sympiesis bimaculae* sp. n., are described and illustrated. Three species – *Cirrospilus isonoi* Kamijo, *Elachertus longipetiolus* Bouček and *Euplectrus maculiventris* Westwood, are recorded for

the first time for the fauna of Russia. According to our study and published data (Walker, 1874) currently, the fauna of the Amur Province comprises 22 species from 10 genera of the subfamily Eulophinae.

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