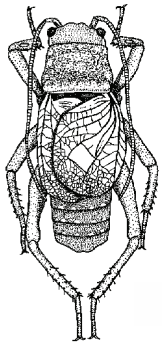


Far Eastern Entomologist

Дальневосточный энтомолог

Journal published by Far East Branch of the Russian Entomological Society and Laboratory of Entomology, Federal Scientific Center of the East Asia Terrestrial Biodiversity, Vladivostok

Number 515: 1-15 | ISSN 1026-051X (print edition) ISSN 2713-2196 (online edition) | January 2025

https://doi.org/10.25221/fee.515.1
https://elibrary.ru/jevsfg
https://zoobank.org/References/44DE2E99-9B16-4E4D-9353-6D8C981E0497

EULOPHID WASPS OF THE SUBFAMILY TETRASTICHINAE (HYMENOPTERA, CHALCIDOIDEA) FROM THE KHINGAN RESERVE (AMUR PROVINCE, RUSSIA), WITH DESCRIPTIONS OF NEW SPECIES OF THE GENUS *APROSTOCETUS* (SUBGENUS *OOTETRASTICHUS*)

O.V. Kosheleva

All-Russian Institute of Plant Protection, *Podbelskiy Shosse*, *3*, *St Petersburg*, *Pushkin*, *196608 Russia. E-mail: koscheleva_o@mail.ru*

Summary. Three new species, *Aprostocetus* (*Ootetrastichus*) *kostjukovi* **sp. n.**, *A.* (*O.*) *vasilisae* **sp. n.**, and *A.* (*O.*) *walkeri* **sp. n.**, are described from south-east of Amur Province. Seven species of tetrastichine wasps from the genera *Anaprostocetus* Graham, 1987, *Aprostocetus* (*Ootetrastichus*) Perkins, 1906, *Baryscapus* Foerster, 1856, *Minotetrastichus* Kostjukov, 1977, *Mischotetrastichus* Graham, 1987, *Neotrichoporoides* Girault, 1913, and *Sigmophora* Rondani, 1867 are recorded from the fauna of Amur Province for the first time. *Neotrichoporoides basiflavus* Li et Li, 2021 previously known only from China (Shandong, Hainan) is new for the Russian Far East. A key to the Amurian species of *Aprostocetus* (*Ootetrastichus*) is given also.

Key words: Tetrastichinae, Eulophidae, parasitoids, new species, new records, key, Russian Far East.

О. В. Кошелева. Наездники эвлофиды подсемейства Tetrastichinae (Hymenoptera: Chalcidoidea) Хинганского заповедника, Амурская область, Россия с описанием новых видов рода *Aprostocetus* (подрод *Ootetrastichus*) // Дальневосточный энтомолог. 2025. N 515. С. 1-15.

Резюме. Из юго-восточной части Амурской области описано три новых вида: *Aprostocetus* (*Ootetrastichus*) *kostjukovi* **sp. n.**, *A.* (*O.*) *vasilisae* **sp. n.** и *A.* (*O.*) *walkeri* **sp. n.** Впервые для Амурской области указываются семь видов тетрастихин из родов *Anaprostocetus* Graham, 1987, *Aprostocetus* (*Ootetrastichus*) Perkins, 1906, *Baryscapus* Foerster, 1856, *Minotetrastichus* Kostjukov, 1977, *Mischotetrastichus* Graham, 1987, *Neotrichoporoides* Girault, 1913 и *Sigmophora* Rondani, 1867. Для Дальнего Востока России впервые отмечен *Neotrichoporoides basiflavus* Li et Li, 2021, вид, ранее известный только из Китая (Шаньдун, Хайнань). Приведена определительная таблица амурских видов подрода *Ootetrastichus* рода *Aprostocetus*.

INTRODUCTION

Almost one thousand extant species of Tetrastichinae (Hymenoptera: Eulophidae) are recognized from the Palaearctic region (Noyes, 2019). The Russian Tetrastichinae fauna is still poorly known and includes just over 450 species, of which 265 are recorded from the Russian Far East (Kosheleva *et al*., 2019). Most of the Far Eastern species were described by V.V. Kostjukov (1977, 1990, 1995, 1997, 2000), mainly from the southern part of the Primorsky Territory, less from the Khabarovsk Territory and Sakhalin Island. However, the fauna of eulophid wasps of Amur Province remained unknown.

The first record of tetrastichine wasps from the territory adjacent to the Amur River was published by Walker (1874) in his work "Descriptions of Amurland Chalcidiae", in which he listed seven species of Eulophidae, including three species of Tetrastichinae, namely *Tetrastichus lepidus* Walker, 1874, *T. amurensis* Walker, 1874, and *Aprostocetus roesellae* (Nees, 1834). Since then, no information has been added to the Eulophid fauna of Amur Province.

In order to increase our knowledge, we collected material in the Khingan Reserve in the extreme south-east of the Amur Province over a twenty-day period in August 2022. The first data on eulophid wasps of the subfamilies Entedoninae and Eulophinae from this study have recently been published (Kosheleva, 2023a, 2024), and a new species of tetrastichine wasp, *Kostjukovius arkharensis* Kosheleva, 2023 has also been described (Kosheleva, 2023b).

In addition to the species listed here, about two hundred specimens of subfamily Tetrastichinae from the genera *Aprostocetus* Westwood, 1833, *Tetrastichus* Haliday, 1844, *Quadrastichus* Girault, 1913, *Oomyzus* Rondani, 1870, and *Tamarixia* Mercet, 1924 are currently being analyzed and the results will be published later.

MATERIAL AND METHODS

The material for this study was collected in the Khingan Reserve, mainly by net sweeping. Type specimens of the new species are deposited in the collection of the Zoological Institute of the Russian Academy of Sciences, St Petersburg, Russia (ZISP).

Morphological terms and abbreviations used in the text follow Graham (1987) and Gibson (1997). 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; OD diameter of lateral ocelli; F1–F4 – funicular segments; SM – submarginal vein; M – marginal vein; and ST – stigmal vein.

Data on the distribution parasitoids and their hosts are cited mainly after Graham (1987, 1991), 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 slide-mounts in Canada balsam were photographed with a ZEISS SteREO Discovery.V12 modular stereo microscope and an AxioCam MRc3 camera.

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

LIST OF THE SPECIES

Subfamily Tetrastichinae

***Anaprostocetus acuminatus* (Ratzeburg, 1848)**

MATERIAL EXAMINED. **Russia.** Amur Prov.: KhR, 7 km SE Uril, Dyrovatka River, Calamagrostis, swamp, 7.VIII 2022, 1♀ (OK).

DISTRIBUTION. Russia: Leningradskaya and *Amur Provinces. Europe, Turkey, India, Japan, North America.

HOSTS. Parasitoid of *Euura atra* (Jurine, 1807) and *E. laeta* (Brischke, 1883) (Hymenoptera: Tenthredinidae).

***Baryscapus evonymellae* (Bouche, 1834)**

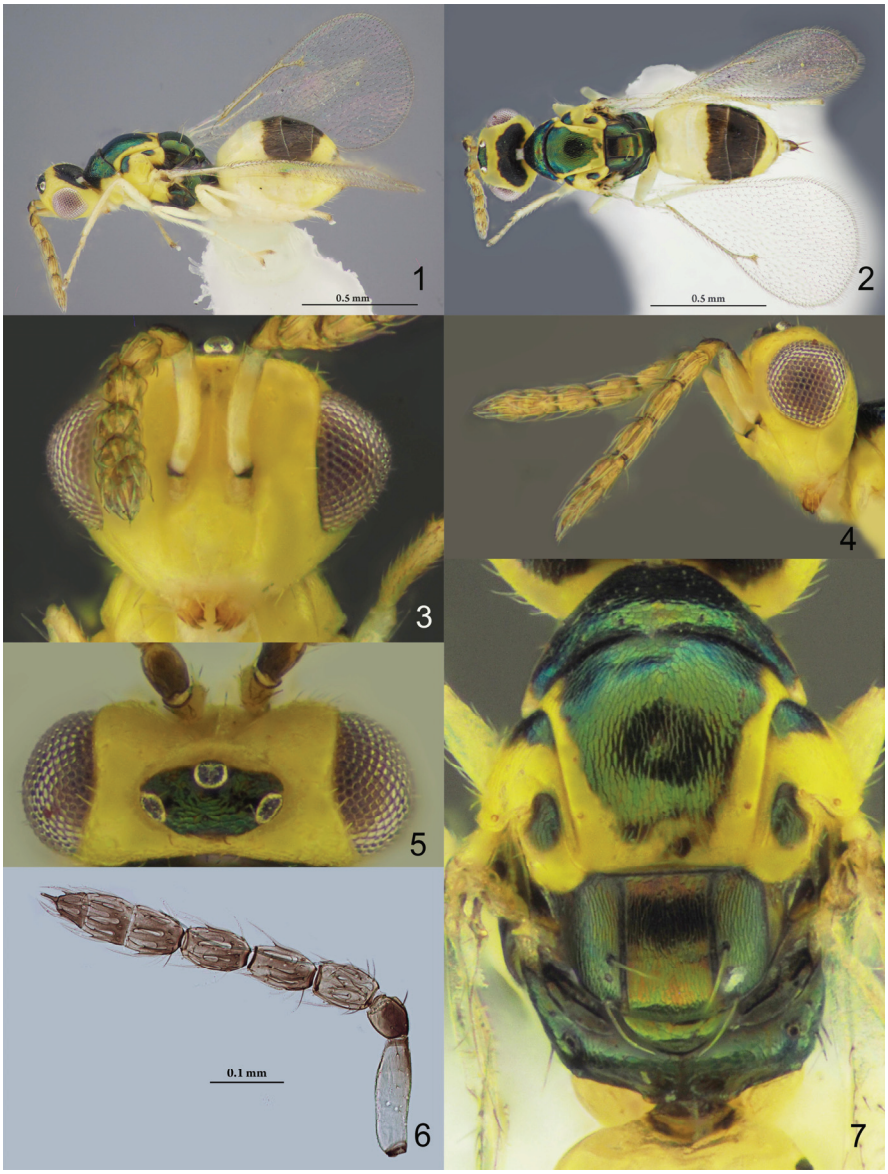
MATERIAL EXAMINED. **Russia.** Amur Prov.: KhR, 3 km E Uril, Tarmanchukan River, 4.VIII.2022, 3 ♀ (OK); 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 12–14.VIII 2022, 1♀ (OK).

DISTRIBUTION. Russia: Leningradskaya, Moscow, Ulyanovsk Provinces, Krasnodar and Stavropol Territories, Crimea Republic, Ural, *Amur Province, Khabarovsk Territory.

HOSTS. Parasitoid of lepidopterans, *Yponomeuta* spp. (Yponomeutidae) and its hymenopterous parasitoids, *Diadegma armillatum* Gravenhorst and *Mesochorus semirufus* Holmgren (Ichneumonidae).

REMARKS. The females of *B. evonymellae* from Amur Province tend to have antennal scape blackish, metallic green dorsally, pedicel and flagellum pale brown with the articulations darker (one specimen has a yellowish antennae); propodeum medially a little longer than dorsellum (shorter in one specimen); callus with 5 setae

(one specimen has 2 setae) [3–6 setae in European specimens (Graham, 1991: 114)]; mid lobe of mesoscutum with two incomplete rows of 5–8 adnotaular setae on each side [2–4 irregular rows of 9–20 setae on each side in European specimens, see ibid].



Figs 1–7. *Minotetrastichus frontalis* (Nees, 1834), female: 1, 2 – habitus: 1 – lateral, 2 – dorsal view; 3–5 – head: 3 – frontal, 4 – lateral, and 5 – dorsal view; 6 – antennae, lateral view; 7 – thoracic dorsum, dorsal view.

***Minotetrastichus frontalis* (Nees, 1834)**
Figs 1–7

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

DISTRIBUTION. Russia: Nizhegorodskaya, Moscow and Ulyanovsk Provinces, Stavropol Territory, Crimea Republic, Ural, Altai Territory, Novosibisk Province, *Amur Province, Khabarovsk and Primorskiy Territories. Europe, Pakistan, United Arab Emirates, and North America.

HOSTS. Parasitoid of many species of leaf-mining Lepidoptera (especially *Phyllonorycter* spp.), Coleoptera (*Rhynchaenus* spp.), and Hymenoptera (Tenthredinidae), as gregarious ectoparasite of their larvae; sometimes as a facultative secondary or tertiary parasite of Braconidae and Chalcidoidea.

REMARKS. The Amurian specimen differs from the European ones in having a pedicel relatively shorter, flagellum with sparser and shorter longitudinal sensilla (Figs 4–6); mid lobe of mesoscutum with one row of 3 adnotaular setae on each side (Fig. 7) [European specimens often have 3–4 or more adnotaular setae with a second row of 1–2 setae (Graham, 1987: P. 52–53)]. Also, the Amurian specimen is similar in colour to the European specimens (a very variable in colour), but differs from the later in having the posterior tergites of the gaster yellow, and the third, fourth and fifth tergites with blackish bands (Figs 1–2).

***Mischotetrastichus nadezhdae* (Kostjukov, 1977)**

MATERIAL EXAMINED. **Russia.** Amur Prov.: KhR, 24 km W Arkhara, cordon Juzhnyi, oakery, 13.VIII 2022, 1♀, 1♂ (OK). Holotype ♀ in ZISP, examined.

DISTRIBUTION. Russian: *Amur and Sakhalin Provinces, Primorskiy Territory.

HOSTS. *Phyllonorycter issikii* (Kumata) (Kosheleva *et al*., 2022).

***Neotrichoporoides basiflavus* Li et Li, 2021**
Figs 8–11

MATERIAL EXAMINED. **Russia.** Amur Prov.: KhR, 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 12–14.VIII 2022, 1♀ (OK); Arkhara, forest, 17.VIII 2022, 1♀ (VCh).

DISTRIBUTION. *Russia: Amur Province. China (Shandong, Hainan) (Li & Li, 2021).

HOSTS. Unknown.

REMARKS. The above female specimens quite agree with the original description of *Neotrichoporoides basiflavus* given by Li & Li (2021), except the head with more yellow areas (Figs 8–9) [the lower half of face yellow in Chinese specimens (Li & Li, 2021: 65)]; part of pronotum and prepectus yellow (see Figs 8–9) (mesosoma dark green in Chinese specimens, see ibid); mid lobe of mesoscutum with

1 rows of 5 adnotaular setae on each side (Fig. 8) (2 rows, 4 or 5 setae in outer row, and 2 or 3 setae in inner row in Chinese specimens, see ibid); basal half of gaster dorsally and ventrally bright yellow (Figs 9–10) [a gaster mainly dark green with metallic reflections, with ca. basal 1/3 yellowish in Chinese specimens, (Li & Li, 2021: 75, Fig. 31)].

Figs 8–11. *Neotrichoporoides basiflavus* Li et Li, 2021, female: 8 – head with thoracic dorsum, dorsal view; 9, 10 – habitus, 9 – lateral, and 10 – dorsal view; 11 – fore wing.

***Sigmophora brevicornis* (Panzer, 1804)**

MATERIAL EXAMINED. **Russia.** Amur Prov.: KhR, 3 km E Uril, Tarmanchukan River, hill, 3–4.VIII 2022, 2♀(OK); 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 12–13.VIII 2022, 12♀ (DK, OK).

DISTRIBUTION. Russia: Leningradskaya, Moscow, Ulyanovsk Provinces, Krasnodar and Stavropol Territories, *Amur Province, Khabarovsk and Primorskiy Territory, Sakhalin Island. Europe, Turkey, Israel, Iran, Pakistan, China, Korean Peninsula, Japan, Canada, India, Vietnam.

HOSTS. Parasitoid of coleopterans from the families Anobiidae and Apionidae, dipterans from the families Cecidomyiidae and Tephritidae, hymenopterans from the families Cynipidae, Eurytomidae and Tenthredinidae, and lepidopterans from the families Tortricidae and Yponomeutidae.

***Aprostocetus* (*Ootetrastichus*) *mycerinus* (Walker, 1839)**

MATERIAL EXAMINED. **Russia.** Amur Prov.: KhR, 3 km E Uril, Tarmanchukan River, 3–4.VIII.2022, 8♀ (OK); 7 km SE Uril, Dyrovatka River, 7–8.VIII 2022, 1♀ (OK); 24 km W Arkhara, cordon Kleshinskoe ozero, forest, meadow, 12–14.VIII 2022, 15♀ (ChV, DK, OK); cordon Juzhnyi, meadow, 13.VIII.2022, 3♀ (OK).

DISTRIBUTION. Russia: Moscow Province, Stavropol Territory, *Amur Province, Primorskiy Territory. Europe, China.

HOSTS. Unknown.The parasitoid associated with *Salix* spp.

REMARKS. The Amurian specimens is similar to the European specimens, as in redescription by Graham (1987), but differs in having a shorter clava, 3.20–3.43 times as long as broad [4.0–5.5 times as long as broad in European specimens (Graham, 1987: 103)] and fore wing usually longer, up to 2.42 times as long as broad [2.05–2.20 times as long as broad in European specimens [(Graham, 1987: 96, Fig. 121)], legs with fore coxae yellowish [testaceous in European specimens, see ibid], gaster, including ovipositor sheaths, slightly longer, 1.48–1.67 times as long as broad [1.3–1.5 times as long as broad in European specimens, see ibid].

***Aprostocetus* (*Ootetrastichus*) *kostjukovi* Kosheleva, sp. n.**

https://zoobank.org/NomenclaturalActs/F200DA13-7F8F-41E2-B487-D1E61DE1C445

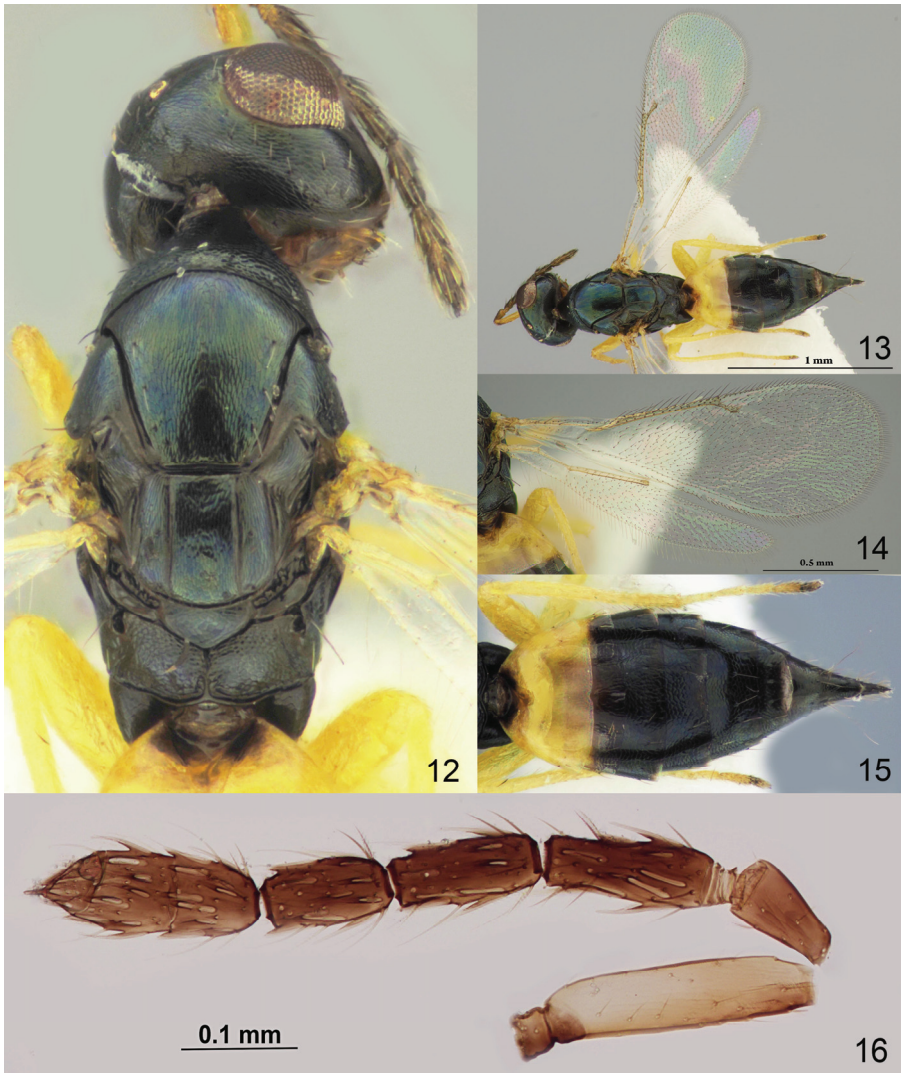
Figs 12–16

TYPE MATERIAL. Holotype – ♀, **Russia**: Amur Prov.: KhR, 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 12–14.VIII.2022, OK (antenna, permanent slide, no. 158) [ZISP]. Paratype: same locality as holotype, 1♀ (VCh) [ZISP].

DESCRIPTION. FEMALE. Body length 2.07–2.09 mm. Body dark green-blue with dull metallic luster; base of gaster pale yellow; mouth-edge testaceous. Scape and pedicel yellow, flagellum brown. Legs yellow, except mid coxae brownish at base, hind coxae concolorous with mesosoma. Tegulae yellow. Wings hyaline, venation pale yellowish.

Head 1.18–1.22 times as broad as mesoscutum, 2.00–2.22 times as broad as long (in dorsal view); 1.30–1.34 times as broad as height; temples about 0.22–0.24 length of eyes (dorsal view); POL 1.10 OOL; OOL 2.30–2.50 OD. Frons with median line. Eyes 1.80–1.84 times as long as broad (in dorsal view), 1.13–1.16 times as height as broad (in lateral view), separated by 1.46–1.55 times their own height (in frontal view). Malar space 0.63–0.70 height of eye, malar sulcus very slightly curved. Mouth 1.40–1.43 times malar space. Antenna (Fig. 16) with scape 1.04–1.10 height of eye, reaching vertex, 4.0–4.4 as long as broad; pedicel plus flagellum 1.46–1.66 times breadth of mesoscutum; pedicel twice as long as broad and 0.83 as long as F1; funicle proximally about as stout as pedicel, its segments decreasing in length, F1 2.5–2.6 times, F2 2.43 times, F3 1.79 times as long as broad, clava slightly broader than F3, 0.9–1.05 times as long as F2 plus F3, 2.89–3.93 times as long as broad.

Mesosoma 1.77–1.86 times as long as broad. Pronotum subconical, 0.50 as long as mesoscutum. Mid lobe of mesoscutum 1.05–1.11 as long as broad, with superficial reticulation; median line absent; 3 adnotaular setae on each side. Scutellum 0.67–0.71 times as long as mesoscutum, 1.30–1.33 times as broad as long; submedian lines



Figs 12–16. *Aprostocetus* (*Ootetrastichus*) *kostjukovi* sp. n., female, holotype: 12 – head with thoracic dorsum, dorsal view; 13 – habitus, dorsal view; 14 – wings; 15 – gaster, dorsal view; 16 – antenna, lateral view.

distinctly nearer to sublateral lines than to each other, enclosing a space 2.00 times as long as broad, anterior pair of setae slightly before the middle. Dorsellum 2.00–2.14 times as broad as long, shiny, with superficial reticulation. Lateral lobes of metanotum with a row of foveae along anterior margin (Fig. 12). Propodeum medially 1.20 times as long as dorsellum; with weak, superficially reticulate sculpture; anterior part of median carina in groove, posterior part, near propodeal foramen, raised, spiracles circular, separated by their diameter from metanotum, their outer rim covered by a raised flap of the callus; callus with 2 setae. Fore wing (Fig. 14) 2.75–2.80 times as long as broad; reaching well beyond tip of gaster, with apical margin rounded; costal cell 0.80–0.94 times as long as M, 14 times as long as broad; SM with 3 dorsal seta; M 5.10–6.25 times length of ST, its front with 14 setae; speculum small, closed below; cilia of apical margin about 0.63–0.71 length of ST. Hindwing slightly pointed, 5.56–6.07 times as long as broad, cilia 0.33–0.35 breadth of wing.

Metasoma. Gaster (Fig. 15) longitudinal-oval, acuminate, 2.02–2.30 times as long as broad, 1.40–1.44 times as long as mesosoma; last tergite as long as broad; longest seta of each cercus about 2.22–2.25 length of next longest seta, curved; ovipositor sheaths slightly projecting; tip of hypopygium at 0.5 length of gaster.

MALE. Unknown.

COMPARATIVE DIAGNOSIS. In addition to the features mentioned in the key below, *A*. *kostjukovi* sp. n. is differs from *A*. (*O*.) *vasilisae* sp. n. and *A*. (*O*.) *walkeri* sp. n. in having a face with median line on the frons, mid lobe of mesoscutum with 3 adnotaular setae on each side, and propodeum with anterior part of median carina in groove, posterior part, near propodeal foramen, raised; the outer rim of spiracles covered by a raised flap of the callus. In addition, *A*. *kostjukovi* sp. n. has a unique structure of the metanotum, its lateral lobes with a row of foveae along the anterior margin (Fig. 12).

HOSTS. Unknown.

ETYMOLOGY. Named after Victor V. Kostjukov, who contributed greatly to the study of the subfamily Tetrastichinae in the Russian Far East.

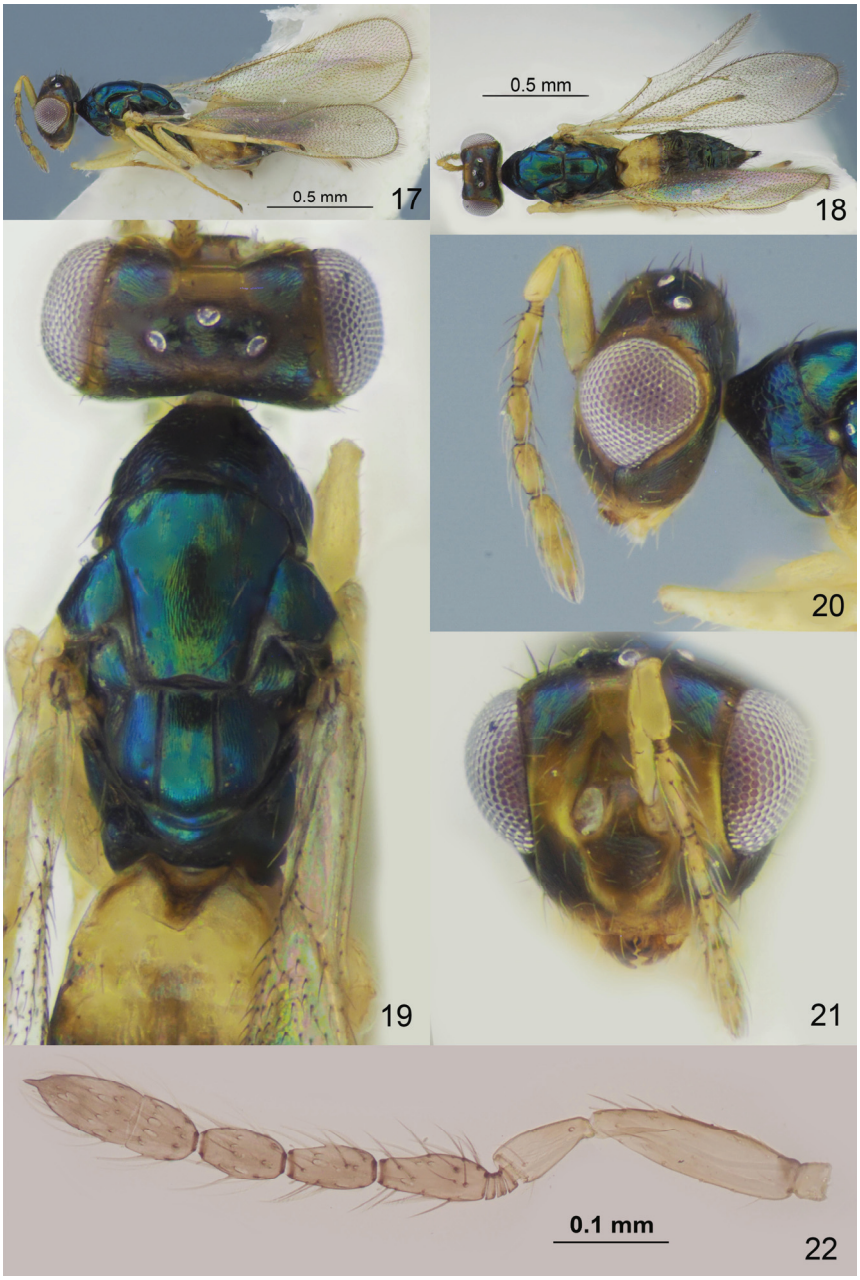
Aprostocetus (*Ootetrastichus*) *vasilisae* Kosheleva, sp. n.

https://zoobank.org/NomenclaturalActs/412C5F27-6AF4-4385-910B-278B5551CE32

Figs 17–22

TYPE MATERIAL. Holotype, female: **Russia**: Amur Prov., KhR, 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 12–13.VIII 2022 (VCh) (antenna, permanent slide, no. 151) (ZISP).

DESCRIPTION. FEMALE (holotype). Body length 1.39 mm. Mesosoma bright green-blue; head with yellow-brownish regions. Prepectus brownish with weak metallic tinge. Base of gaster pale yellow, rest of the gaster brownish with green metallic luster. Antennae pale yellow. Legs pale yellow, except hind coxae concolorous with mesosoma. Tegulae yellow. Wings hyaline, venation pale yellowish.



Figs 17–22. *Aprostocetus* (*Ootetrastichus*) *vasilisae* sp. n., female: holotype, 17, 18 – habitus, 17 – lateral, and 18 – dorsal view; 19 – head with thoracic dorsum, dorsal view; 20, 21 – head, 20 – lateral, and 21 – frontal view; 22 – antenna, lateral view.

Head 1.23 times as broad as mesoscutum, twice as broad as long (in dorsal view); 1.19 times as broad as height; temples about 0.19 length of eyes; POL 1.29 OOL, OOL 2.33 OD. Frons without median line. Vertex with sparse long setae. Eyes 2.29 times as long as broad (in dorsal view), 1.06 times as height as broad (in lateral view), separated by 1.22 times their own height (in frontal view). Malar space 0.56 height of eye, malar sulcus straight. Mouth 1.63 times malar space. Antenna (Fig. 22) with scape, 4.00 times as long as broad, as height as eye, reaching well above vertex; pedicel plus flagellum 1.61 times breadth of mesoscutum; pedicel 2.40 times as long as broad and 0.94 as long as F1; funicle proximally about as stout as pedicel, its segments decreasing in length, F1 2.29 times, F2 2.04 times, F3 1.79 times as long as broad, clava 2-segmented, slightly broader than F3, 0.98 times as long as F2 plus F3; 3.20 times as long as broad.

Mesosoma 1.73 times as long as broad. Pronotum (Fig.19) subconical, 0.40 as long as mesoscutum. Mid lobe of mesoscutum 1.10 times as long as broad, shiny, with superficial engraved reticulation; median line absent; 2 long adnotaular setae on each side. Scutellum, moderately convex, 0.73 times as long as mesoscutum, 1.21 times as broad as long; submedian lines about equidistant from each other and from sublateral lines, enclosing a space 2.50 times as long as broad, anterior pair of setae behind the middle of scutellum. Dorsellum 1.83 times as broad as long, shiny, almost smooth. Propodeum medially as long as dorsellum; surface shiny, smooth; median carina expanded in posterior part; spiracles small, circular, separated by their diameter from metanotum; callus with 2 setae. Forewing 2.67 times as long as broad; costal cell 0.83 times as M; SM with 2 dorsal setae; M 4.37 times length of ST; its front with 10 setae; speculum absent, cilia of apical margin about 0.67 length of ST. Hindwing pointed, 8.00 times as long as broad; cilia 0.80 breadth of wing.

Metasoma. Gaster longitudinal-oval, 1.35 times as long as thorax, 2.32 times as long as broad; last tergite 1.17 times as long as broad; longest setae of each cercus 2.0 times length of next longest, curved; ovipositor sheaths only slightly projecting; tip of hypopygium at 0.5 length of gaster.

MALE. Unknown.

COMPARATIVE DIAGNOSIS. In addition to the features mentioned in the diagnosis of *A*. (*O*.) *kostjukovi* sp. n. and the key below, *A*. (*O*.) *vasilisae* sp. n. is similar to *A. (O.) mycerinus* by the scutellum, moderately convex, with submedian lines about equidistant from each other and from sublateral lines, and anterior pair of setae behind the middle of scutellum. *A*. (*O*.) *vasilisae* sp. n. and *A*. (*O*.) *kostjukovi* sp. n. are also similar to *A*. (*O*.) *microocellus* Kostjukov, 1995 by the pale yellow base of the gaster, propodeum medially as long as dorsellum, callus with 2 setae and yellow legs. Both new species differ from *A*. (*O*.) *microocellus* in having a longer clava and a shorter female gaster.

HOSTS. Unknown.

ETYMOLOGY. Named after collector of type specimen, Vasilisa G. Chemyreva (ZIN RAS, St. Petersburg).

***Aprostocetus* (*Ootetrastichus*) *walkeri* Kosheleva, sp. n.**

https://zoobank.org/NomenclaturalActs/FB7A71ED-FE41-4394-996D-CEC62CA012D6

Figs 23–27

TYPE MATERIAL. Holotype, female: **Russia**: Amur Prov.: KhR, 24 km W Arkhara, cordon Kleshinskoe ozero, forest, 12–14.VIII 2022 (OK) (antenna, permanent slide, no. 161) (ZISP).

DESCRIPTION. Female (holotype). Body length 1.50 mm. Body dark green with golden reflections. Antennae brown. Legs brownish, except coxae concolorous with body. Tegulae dark brown. Wings hyaline, venation yellowish.

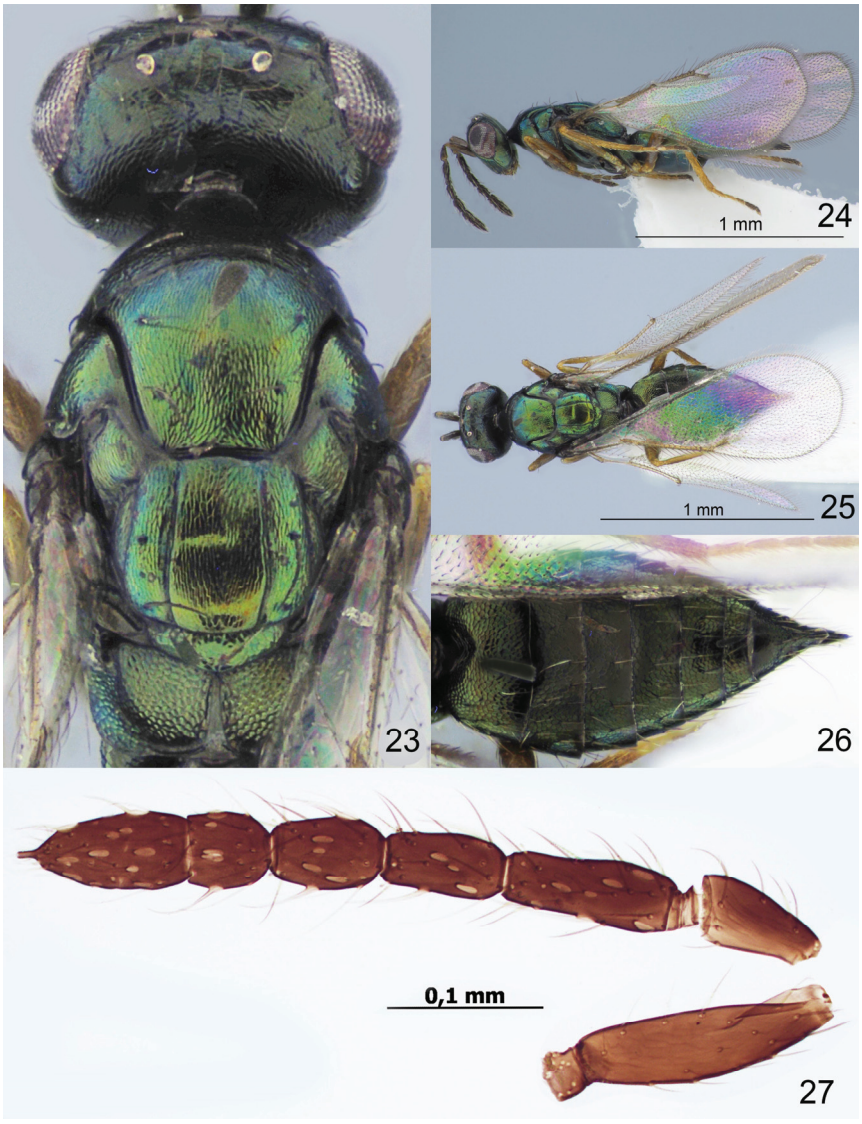
Head 1.10 times as broad as mesoscutum, 2.13 times as broad as long (in dorsal view); 1.31 times as broad as height (in frontal view); temples 0.15 length of eyes; POL 1.67 OOL, OOL 2.00 OD. Frons without median line. Eyes 1.86 times as long as broad (in dorsal view), 1.31 times as height as broad (in lateral view), separated by 1.27 times their own height (in frontal view). Malar space 0.63 height of eye, malar sulcus straight. Mouth 1.09 times as malar space. Antenna (Fig. 27) with scape, 3.59 times as long as broad, its front edge with three setae; 0.93 as height as eye, reaching above vertex; pedicel plus flagellum 1.46 times breadth of mesoscutum; pedicel twice times as long as broad and 0.80 as long as F1; funicle proximally about as stout as pedicel, its segments decreasing in length, F1 2.50 times, F2 1.94 times, F3 1.59 times as long as broad, clava 2-segmented, slightly broader than F3, 3.26 times as long as broad, 0.91 times as long as F2 plus F3; apical claval segment with spine short.

Mesosoma 1.71 times as long as broad. Pronotum (Fig. 23) subconical, 0.42 times as long as mesoscutum. Mid lobe of mesoscutum 1.15 times as broad as long, shiny, with engraved longitudinal reticulation; median line absent; two long adnotaular setae on each side. Scutellum 0.94 times as long as mesoscutum, 1.19 times as broad as long; moderately flat, sculptured like mid lobe of mesoscutum, submedian lines nearer to sublateral lines than to each other, enclosing a space 1.80 times as long as broad, anterior pair of setae slightly before the middle. Dorsellum 3.75 times as broad as long, shiny. Propodeum (Fig. 23) strongly punctate-reticulate, medially 2.5 times as long as dorsellum; median carina expanded posteriorly; spiracles very small, circular, separated by their diameter from metanotum; callus with 4 setae. Forewing 2.62 times as long as broad; SM with 2 dorsal setae; costal cell 0.86 times as M; M 5.00 times length of ST; speculum rudimentary, cilia of apical margin about 0.86 length of ST. Hindwing narrow, acute, 8.00 as long as broad; cilia 0.71 breadth of wing.

Metasoma. Gaster (Fig. 26) longitudinal-oval, acuminate, 1.29 times as long as thorax, 2.03 times as long as broad, dorsal surface finely sculptured than propodeum; last tergite as long as broad; longest setae of each cercus 2.58 times length of next longest, curved; ovipositor sheaths very slightly projecting; tip of hypopygium at 0.44 length of gaster.

MALE. Unknown.

COMPARATIVE DIAGNOSIS. In addition to the features mentioned in the diagnosis of *A*. (*O*.) *kostjukovi* sp. n. and the key below, *A*. (*O*.) *walkeri* sp. n. is also distinguished by its strongly punctate-reticulate propodeum (Fig. 23), medially 2.5 times as long as dorsellum, and gaster is also clearly reticulated (Fig. 26).



Figs 23–27. *Aprostocetus* (*Ootetrastichus*) *walkeri* sp. n., female: holotype, 23 –head with thoracic dorsum, dorsal view; 24, 25 habitus, 24 – lateral and 25 – dorsal view; 26 – gaster, dorsal view; 27 – antenna, lateral view.

ETYMOLOGY. The new species is named in honour of the world-famous entomologist Francis Walker, who was the first to describe new species of tetrastichine wasps from the Amur River ("Amurland").

Key to females of *A.* (*Ootetrastichus*) from the Amur Province

1. Antennae with funicular segments much longer than broad, at least 3 times as long as broad (F1 up tu 5 times); gaster lanceolate, including ovipositor sheaths 1.3–1.5 times as long as head plus thorax; fore wing 2.05–2.42 times as long as broad ……. ***A.* (*O.*) *mycerinus*** (Walker, 1839)
– Antennae with funicular segments shorter, at most 2.5 times as long as broad; gaster longitudinal-oval, including ovipositor sheaths slightly shorter or as long as head plus thorax; fore wing narrower …… 2
2. Body dark green without yellow-marked; propodeal callus with 4 setae …… ***A.* (*O.*) *walkeri*** sp. n.
– Base of gaster pale yellow; propodeal callus with 2 setae …… 3
3. Mesosoma dark green with a dull bluish metallic luster (Fig. 1, *1*) …… ***A.* (*O.*) *kostjukovi*** sp. n.
– Mesosoma bright green or green-blue with a metallic luster …… 4
4. Head with yellow-brownish regions (Fig. 2, *1–5*); frons without median line …… ***A.* (*O.*) *vasilisae*** sp. n.
– Head without yellow-brownish regions, except mouth-edge testaceous ; frons with median line …… ***A.* (*O.*) *microocellus*** Kostjukov, 1995

CONCLUSION

Ten species from seven genera of the subfamily Terastichinae are recorded from the fauna of Amur Province for the first time. Three new species, *Aprostocetus* (*Ootetrastichus*) *kostjukovi* **sp. n.**, *A.* (*O.*) *vasilisae* **sp. n.**, and *A.* (*O.*) *walkeri* **sp. n.**, are described and illustrated. *Neotrichoporoides basiflavus* is recorded for the first time for the fauna of the Russian Far East. According to our study and published data (Walker, 1874; Kosheleva, 2023a, 2023b, 2024), the fauna of the Amur Province currently comprises 14 species from 9 genera of the subfamily Tetrastichinae.

The results for other genera of tetrastichine wasps from Amur Province are also being analysed and the results will be published later.

ACKNOWLEDGEMENTS

I am grateful to my colleagues Vasilisa G. Chemyreva (ZIN RAS, St. Petersburg) and Denis N. Kochetkov (Khinganskii State Nature Reserve, Amur Province, Arkhara) for help in collecting chalcidoid parasitoids.

The work was funded by All-Russian Institute of Plant Protection, Project No. FGEU-2022-0002.

REFERENCES

Gibson, G.A.P. 1997. Morphology and Terminology. P. 16–44. *In*: Gibson, G.A.P., Huber, J.T. & Woolley, J.B. (Eds.), *Annotated Keys to the Genera of Nearctic Chalcidoidea (Hymenoptera)*. National Research Council Research Press. Ottawa, Ontario, Canada.

Graham, M.W.R. de V. 1987. A reclassification of the European Tetrastichinae (Hymenoptera: Eulophidae), with a revision of certain genera. *Bulletin of the British Museum*, 55(1): 1–392.

Graham, M.W.R. de V. 1991. A reclassification of the European Tetrastichinae (Hymenoptera: Eulophidae): revision of the remaining genera. *Memoirs of the American Entomological Institute*, 49: 205–272.

Kosheleva, O.V. 2023a. Eulophid wasps of the subfamily Entedoninae (Hymenoptera: Chalcidoidea) from the Khingan Reserve, Amur Province, Russia. *Far Eastern Entomologist*, 479: 13–24. DOI: 10.25221/fee.479.3

Kosheleva O.V. 2023b. First record of the genus *Kostjukovius* Graham, 1991 (Hymenoptera: Eulophidae) in Russia, with description of a new species from the Russian Far East. *Russian Entomological Journal*, 32(4): 383–386. DOI: 10.15298/rusentj.32.4.03

Kosheleva, O.V. 2024. Eulophid wasps of the subfamily Eulophinae (Hymenoptera: Chalcidoidea) from the Khingan Reserve (Amur Province, Russia), with descriptions of new species. *Far Eastern Entomologist*, 493: 14–31. DOI: 10.25221/fee.493.2

Kosheleva, O.V., Belokobylskij, S.A., Kirichenko, N.I. 2022. The Hymenopterous Parasitoids of the Lime Leaf Miner *Phyllonorycter issikii* (Kumata) (Lepidoptera: Gracillariidae) from Its Native and Invaded Regions in Asian Russia. *Diversity*, 14: 707 p. 21. DOI: 10.3390/d14090707

Kosheleva, O.V., Egorenkova, E.N., Kostjukov, V.V. & Trjapitzin, V.A. 2019. Family Eulophidae. P. 152–182. *In*: Belokobylskij, S.A., Samartsev, K.G., Il'inskaya, A.S. (Eds.), *Annotated catalogue of the Hymenoptera of Russia*. *Volume II. Apocrita: Parasitica*. Zoological Institute RAS, St Petersburg. DOI: 10.31610/ trudyzin/2019.supl.8.5

Kostjukov, V.V. 1977. A new chalcid species of the genus *Ceratoneura* Ashmead (Hymenoptera, Eulophidae, Tetrastichinae) from the Primorye Territory. *Trudy Zoologicheskogo Instituta. AN SSSR*, 70: 125–127. [In Russian]

Kostjukov, V.V. 1990. New species of the genus *Tetrastichus* Haliday (Hymenoptera, Chalcidoidea, Eulophidae) from Far East of the USSR. P. 46–63. *In*: Lelej A.S. (Ed.). *News of the Insect Systematic of Soviet Far East*. Vladivostok. [In Russian]

Kostjukov, V.V. 1995. Subfam. Tetrastichinae. P. 346–505. *In*: Lehr P.A. (Ed.). *Key to the Insects of the Russian Far East. Neuropteroidea, Mecoptera, Hymenoptera. Vol. IV, pt 2*. Dalnauka, Vladivostok. [In Russian]

Kostjukov, V.V. 1997. Species of the genus *Cecidotetrastichus* (Hymenoptera, Eulophidae) from Khabarovsk and Primorye territories of Russia, *Zoologicheskiy Zhurnal*, 76(7): 797–805. [In Russian]

Kostjukov, V.V. 2000. Subfam. Tetrastichinae. P. 598–601. *In*: Lehr P.A. (Ed.). *Key to the Insects of the Russian Far East. Neuropteroidea, Mecoptera, Hymenoptera. Vol. IV, pt 4*. Dalnauka, Vladivostok. [In Russian]

Li, W.-J. & Li, C.-D. 2021. Two new species of *Neotrichoporoides* Girault (Hymenoptera, Eulophidae) from China and a key to Chinese species. *ZooKeys*, 1023: 61–79. DOI: 10.3897/zookeys.1023.61580

Noyes, J.S. 2019. *Universal Chalcidoidea Database – World Wide Web Electronic Publication*. http://www.nhm.ac.uk/chalcidoids (Accessed on 12 December 2023).