

Revision of *Neorthostigma* Belokobylskij, 1998 (Hymenoptera, Braconidae, Alysiinae) with description of a new species from Papua New Guinea

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Abstract

The status of the genus *Neorthostigma* Belokobylskij, 1998 is re-established as a result of additional morphological studies. A new species, *N. braeti* **sp. nov.**, from Papua New Guinea is described and illustrated. *Aspilota brachychypeata* Fischer 1978 is transferred to *Neorthostigma*, hence *N. brachychypeata* (Fischer, 1978), **comb. nov.** A new synonym is suggested, *Aspilota macrops* Stelfox & Graham, 1951 = *Neorthostigma eoum* Belokobylskij, 1998, **syn. nov.**; *A. macrops* is transferred to *Neorthostigma*. This genus is additionally recorded in the Western Palearctic (Norway) and Australasian (Papua New Guinea) regions for the first time. A key for the determination of the three known species of *Neorthostigma* is provided.

Keywords

Australasia, Braconidae, endoparasitoid of Diptera, key, new species, new synonym, redescription, Western Palearctic

Introduction

Neorthostigma Belokobylskij, 1998 is a rare genus, previously known exclusively from the Eastern Palaearctic, based only on its type species, *N. eoum* Belokobylskij, 1998. It belongs to the *Aspilota* genus group of the subfamily Alysiinae (Hymenoptera, Bracnidae). *Neorthostigma* appears to be closely related with *Orthostigma* Ratzeburg, 1844 because its peculiar mandible structure with a distinct transverse, curved carina and an enlarged lobe-shaped lower (third) tooth. *Neorthostigma* was synonymised with *Orthostigma* by Wharton (2002) but retained it here as a subgenus. However, the combination of its particular diagnostic characters widely used and generally considered important in the subfamily Alysiinae, leads us to reinstate *Neorthostigma* as a genus in its own right. Notable among these are absence of an oblique sulcus between eye and antennal socket, enlarged anterior tentorial area almost reaching margin of eye and lack of medio-posterior mesoscutal pit (Belokobylskij 1998; Belokobylskij and Tobias 2007; Belokobylskij et al. 2019).

After study of the photos and description of the holotype of *Aspilota macrops* Stelfox & Graham as well as additional material from the Russia (Far East and north-west of the European part), a new synonymisation is here suggested, *Aspilota macrops* Stelfox & Graham, 1951 = *Neorthostigma eoum* Belokobylskij, 1998, syn. nov. As result of this synonymy the known geographic distribution of *Neorthostigma* is greatly extended here from Eastern [Japan (Kyushu Island), Russia (Primorskiy Territory and Sakhalin Island)] till Western Palaearctic [Ireland, Netherlands, Norway (new record), Russia (Leningrad Province), Slovakia and United Kingdom]. From the Australasian region a new species, *N. braeti* sp. nov., from Papua New Guinea is here described, and additionally *Aspilota brachychypeata* Fischer, 1978 from Papua New Guinea is also transferred to *Neorthostigma*. This genus now comprises three species all of which are here described or re-described and illustrated.

Materials and methods

New Australasian specimens were collected with Malaise traps during the expedition “Our Planet Reviewed – Papua New Guinea” carried out from 25 October to 10 November 2012 at eight sampling sites at 500 m altitudinal intervals. The sampling transect was located on the north-eastern face of Mt Wilhelm and at Wanang (Swire) Research Station (175 m asl) terminating in lowland forest 63 km north of Mt Wilhelm. Four Malaise traps were set up at each elevation at intervals of 100 m following the same contour line. Catches were preserved with 90% ethyl alcohol (Robillard et al. 2016).

For morphological terminology, sculpture and measurements see Peris-Felipo et al (2014); for wing venation nomenclature see van Achterberg (1993); for measurements of the marginal cell see Peris-Felipo and Belokobylskij (2017).

For molecular methods, DNA from the specimens was extracted from five ethanol-preserved specimens using the Thermo Labsystems KingFischer extraction robot at the

Swedish Museum Natural History (NHRS) laboratory facility. A 658-bp fragment from the 5' region of CO1 was amplified using the LCO and HCO primers (Folmer et al. 1994) using Ready-To-Go PCR beads (Amersham Pharmacia Biotech, Amersham, UK) on the following program: 5 min 94 °C hot-start; 40 cycles: denature 94 °C for 15 s, anneal 46 °C for 15 s, extend 72 °C for 15 s; final extension 72 °C for 10 min. This gene has been used in previous studies of braconid phylogenetics (Belshaw et al. 2000; Belshaw and Quicke 2002; Dowton et al. 2002; Zaldivar-Riverón et al. 2006; Sharanowski et al. 2011; Stigenberg et al. 2015). PCR products were purified with EXO1 and FastAP. The product was sequenced using both the forward and reverse primers and were assembled and edited using Geneious Pro v.9.1.8. The Voseq v.1.7.3 (Peña and Malm 2012) database was used for storing voucher and DNA sequence data. All sequences obtained as part of this study were deposited in GenBank under accession numbers: [MW191729–MW191733](#).

Material was imaged using a Digital Microscope Keyence VHX-2000 and Adobe Photoshop imaging system. The studied material including the types of described species are deposited in the collection of the Bishop Museum (Honolulu, USA; BPBM), Muséum national d'Histoire naturelle (Paris, France; MNHN), the Natural History Museum (Oslo, Norway; NHMO), the Zoological Institute of the Russian Academy of Sciences (St Petersburg, Russia; ZISP), and the F.J. Peris-Felipo Entomological Collection (Basel, Switzerland; PFEC)

Taxonomic part

Class Hexapoda Blainville, 1816

Order Hymenoptera Linnaeus, 1758

Family Braconidae Nees, 1811

Subfamily Alysiinae Leach, 1815

Tribe Alysiini Leach, 1815

Genus *Neorthostigma* Belokobylskij, 1998

Belokobylskij 1998: 9; Fischer 2001: 65; Wharton 2002: 91 (as subgenus); Belokobylskij and Tobias 2007: 10 (as valid genus); Yu et al. 2016; Belokobylskij et al. 2019: 215.

Type species. *Neorthostigma eoum* Belokobylskij, 1998 (= *Aspilota macrops* Stelfox & Graham, 1951).

Diagnosis. Mandibles small, tridentate, with distinct complete transverse and curved submedian carina. Upper tooth very small; median tooth narrow and rather short; lower tooth more or less wide, lobe-shaped, rounded or with distinct angle ventro-distally, with several long outstanding curved setae. Paraclypeal fovea oval, long, almost reaching inner margin of eyes. Oblique sulci between margins of

antennal socket and eye always absent. Antenna thickened; first flagellar segment distinctly longer than second segment. Mesoscutum without medio-posterior pit; notauli present only on anterior (vertical) part of mesoscutum; precoxal sulcus present, oblique and sculptured; propodeum variable, with distinctly delineated large areola and with different types of sculpture and longitudinal or transverse carinae. Fore wing: marginal cell not shortened; vein 2-SR always present and rather distinctly sclerotized; veins m-cu and cu-a strongly postfurcal; first subdiscal cell closed postero-apically by vein CU1b; vein CU1a arising from vein 3-CU1 before its middle. Metasoma more or less distinctly compressed laterally. Ovipositor sheath much shorter than metasoma.

Hosts. Unknown.

Remarks. Wharton (2002) treated this genus only as a subgenus of *Orthostigma* on the basis of similarity of mandibular characteristics. However, re-evaluation of the morphological diagnostic features widely applied for separation and diagnosis of genera within the Alysiinae (see also: Zhu et al. 2017), provides additional evidence of the distinction between *Neorthostigma* and closed genera (see above).

***Neorthostigma brachyclypeata* (Fischer, 1978), comb. nov.**

Figs 1, 2

Aspilota brachyclypeata Fischer 1978: 487; Wharton 1982: 294; Yu et al. 2016.

Type material. *Holotype*: female, Papua New Guinea, NE. Swart Val.: Karubaka, 1400 m, 21.xi.1958, Coll. by J. L. Gressitt [12233] (BPBM).

Re-description. *Female* (holotype).

Length. Body 1.8 mm, fore wing 2.0 mm, hind wing 1.4 mm.

Head. In dorsal view, 1.9 times as wide as long, 1.3 times as wide as mesoscutum, smooth, with temple rounded behind eyes. Antenna 22-segmented, 1.2 times as long as body. Scape 2.0 times as long as pedicel. First flagellar segment 2.2 times as long as its apical width, 1.3 times as long as second segment. Second flagellar segment 1.8 times, third to 20th (apical) segments 1.6–1.8 times as long as their maximum width. Eye in lateral view 1.6 times as high as wide and 1.8 times as wide as temple medially. POL 0.9 times OD; OOL 2.6 times OD. Face 1.4 times as wide as high, with sparse setae medially, punctate-rugulose medially and smooth laterally; inner margins of eyes subparallel. Clypeus 2.9 times as wide as high, slightly concave ventrally. Mandible almost parallel-sided, 1.2 times as long as its maximum width. Upper tooth very small and obtuse; middle tooth rather narrow and longer than lower tooth, weakly directed upwards; lower tooth narrow, round, with several long outstanding curved setae.

Mesosoma. In lateral view 1.4 times as long as high. Mesoscutum (dorsal view) 0.7 times as long as its maximum width, smooth, sparsely setose. Notauli mainly absent

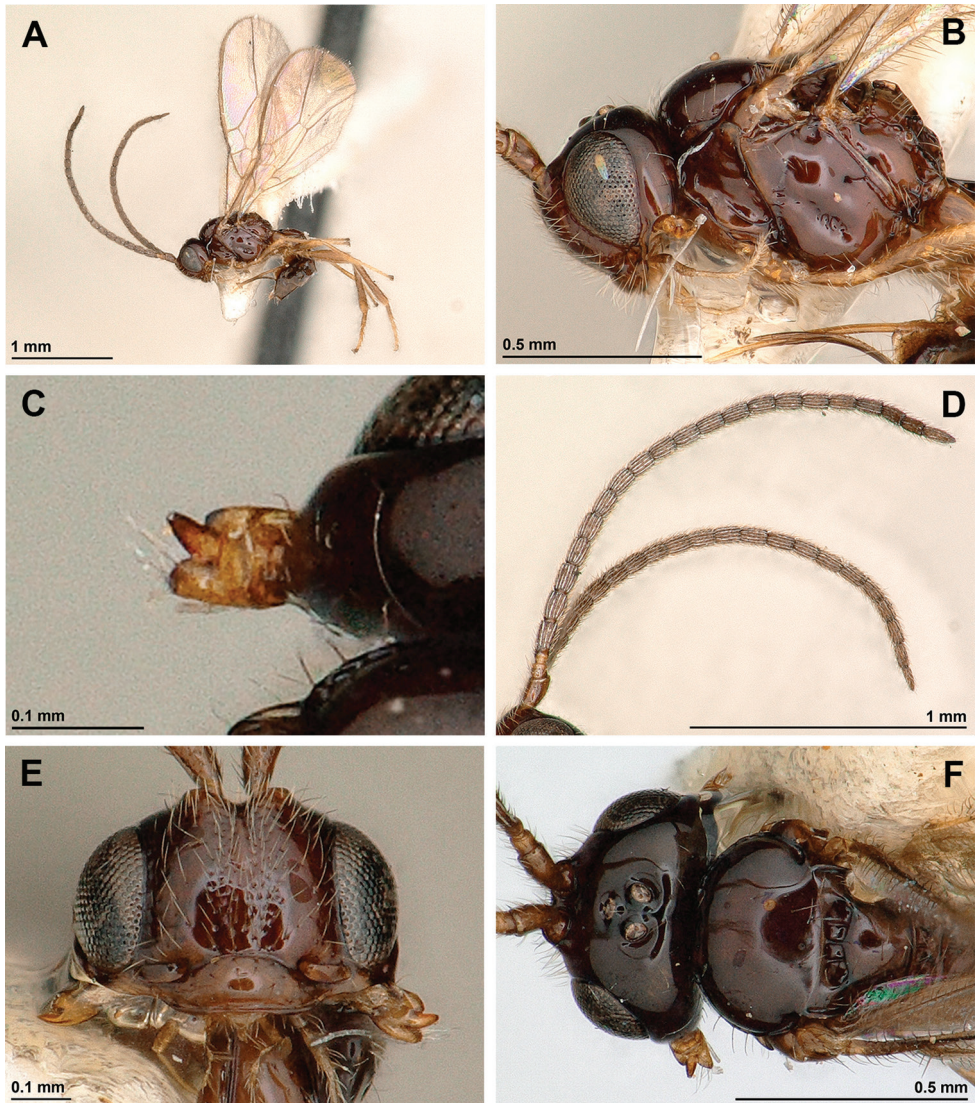


Figure 1. *Neorthostigma brachychlypeata* (Fischer, 1978) (female, holotype) **A** habitus, lateral view **B** head and mesosoma, lateral view **C** mandible **D** antenna **E** head, frontal view **F** head and mesonotum, dorsal view.

on horizontal surface of mesoscutum. Mesoscutal pit absent. Prescutellar depression smooth, with median and lateral carinae, 1.7 times as long as its maximum width. Precoxal sulcus present, crenulate, short, not reaching anterior and posterior margins of mesopleuron. Posterior mesopleural furrow smooth. Propodeum with large, wide and mainly smooth but partly rugulose pentagonal areola; basolateral areas smooth. Propodeal spiracles medium-sized, diameter 0.3 times distance from spiracle to anterior margin of propodeum.



Figure 2. *Neorhostigma brachychypta* (Fischer, 1978) (female, holotype) **A** propodeum, dorsal view **B** first metasomal tergite, dorsal view **C** hind leg, metasoma and ovipositor, lateral view **D** fore and hind wings.

Wings. Fore wing 2.5 times as long as its maximum width. Marginal cell ending at apex of wing, 3.9 times as long as its maximum width. Vein 3-SR 1.8 times as long as vein 2-SR. Vein SR1 2.3 times as long as vein 3-SR. Vein 3-SR 3.7 times as long as vein r. Vein r much longer than pterostigma width. First subdiscal cell 2.5 times as long as its maximum width. Hind wing 5.3 times as long as its maximum width.

Legs. Hind femur 3.8 times as long as its maximum width. Hind tibia weakly widened to apex, 6.4 times as long as its maximum subapical width, 1.1 times as long as hind tarsus. First segment of hind tarsus 1.7 times as long as second segment.

Metasoma. First tergite widened towards apex, 1.5 times as long as its apical width, sparsely striate laterally but rugose in medio-basal half. Ovipositor 1.6 times as long as first tergite, 0.5 times metasoma, approximately as long as hind femur.

Colour. Body, flagellar segments of antenna dark brown. Hind femur and tibia, mandible, pterostigma, fore and middle legs and hind tarsus light brown to reddish brown. First metasomal tergite similar colour to second and third tergites. Wings almost hyaline.

Male. Unknown.

Comparative diagnosis. This species is similar to *N. braeti* sp. nov.; the differences between them are indicated in the key to species (see below).

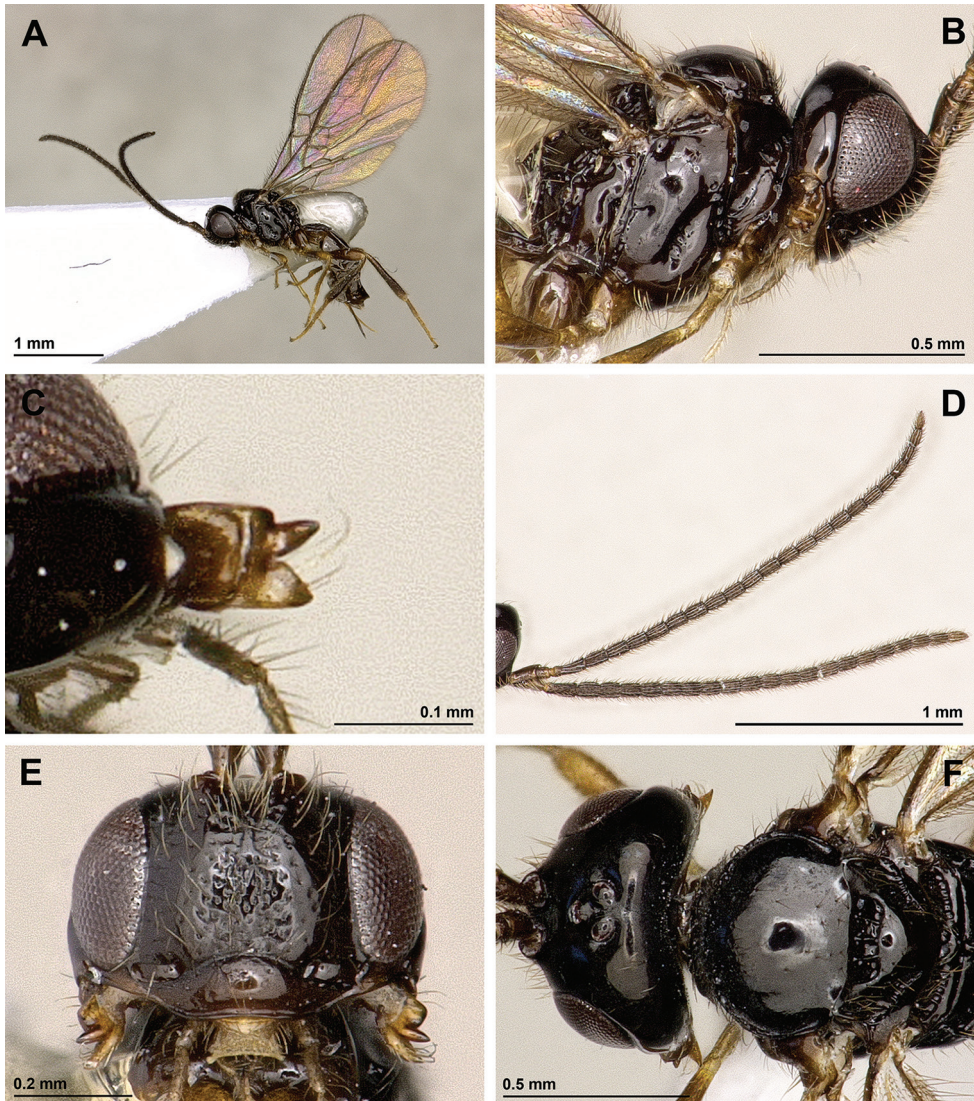


Figure 3. *Neorhostigma braeti* Peris-Felipo, sp. nov. (female, holotype) **A** habitus, lateral view **B** head and mesosoma, lateral view **C** mandible **D** antenna **E** head, frontal view **F** head and mesonotum, dorsal view.

***Neorhostigma braeti* Peris-Felipo, sp. nov.**

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Figs 3, 4

Type material. *Holotype*: female, Papua New Guinea, Mt Wilhelm, UTM (-5.731961, 145–2522), 700 m, 17–18.v.2013, understorey, Coll. by Sam et al., site: MW0700–01, P4705, vial: 20833, MAL–MW0700'A–05/16–d05 (MNHM).

Paratypes: 19 females, same location as holotype but: 2 females, 200 m, 1–2.11.2012; MAL–MW0200'C–08/16–d08 (MNHM); 1 female, MW0700–03,



Figure 4. *Neorhostigma braeti* Peris-Felipo, sp. nov. (female, holotype) **A** propodeum, dorsal view **B** first metasomal tergite, dorsal view **C** hind leg, metasoma and ovipositor, lateral view **D** fore and hind wings.

P4737, vial: 20837, MAL–MW0700'C–05/16–d05, voucher ID: JP_110, GenBank ID: [MW191729](#) (MNHM); 1 female, MW0700–03, P4753, vial: 20839, MAL–MW0700'D–05/16–d05, voucher ID: JP_113, GenBank ID: [MW191732](#) (MNHM); 2 females, MW0700–04, P4737, vial: 20837, MAL–MW0700'C–05/16–d05, voucher ID: JP_112, GenBank ID: [MW191731](#) (MNHM); 3 females, MW0700–04, P4737, vial: 20839, MAL–MW0700'D–05/16–d05 (MNHM, ZISP); 2 females, 200 m, 20–21.v.2013; MAL–MW0200'B–08/16–d08 (MNHM); 2 females, 22–23.v.2013, P4742, vial: 20873, MAL–MW0700'C–10/16–d10 (PFEC); 1 female, 22–23.v.2013, P4758, vial: 20624, MAL–MW0700'D–10/16–d10, voucher ID: JP_111, GenBank ID: [MW191730](#) (MNHM); 1 female, 22–23.v.2013, P4742, MAL–MW0700D–09/16–d09, voucher ID: JP_127, GenBank ID: [MW191733](#) (MNHM); 5 females, 175 m, 20–25.xi.2012; MAL–MAN–D–07/16–d07 (leg. Basset) (MNHM; ZISP).

Description. Female (holotype).

Length. Body 2.0 mm, fore wing 2.4 mm, hind wing 1.5 mm.

Head. In dorsal view, 1.9 times as wide as long, 1.3–1.4 times as wide as mesoscutum, smooth, with temple rounded behind eyes. Antenna 24-segmented, 1.2 times as long as body. Scape 2.0 times as long as pedicel. First flagellar segment 2.3 times

as long as its apical width, 1.3 times as long as second segment. Second flagellar segment 1.8 times, third to 22th (apical) segments 1.6–1.8 times as long as their maximum width. Eye in lateral view 1.6 times as high as wide and 1.6 times as wide as temple medially. POL 0.9 times OD; OOL 2.7 times OD. Face 1.4 times as wide as high, with sparse setae, punctate-rugulose medially; inner margins of eyes subparallel. Clypeus 2.8 times as wide as high, slightly concave ventrally. Mandible almost parallel-sided, 1.4 times as long as its maximum width. Upper tooth very small and obtuse; middle tooth rather narrow and as long as lower tooth, weakly directed upwards; lower tooth narrow, distinctly angulated ventro-distally, with several long outstanding curved setae.

Mesosoma. In lateral view 1.1 times as long as high. Mesoscutum (dorsal view) 0.9 times as long as its maximum width, smooth, sparsely setose. Notauli mainly absent on horizontal surface of mesoscutum. Prescutellar depression smooth, with median and lateral carinae, 1.3–1.4 times as long as its maximum width. Precoxal sulcus present, crenulate, long, almost reaching anterior margin but not reaching posterior margin of mesopleuron. Posterior mesopleural furrow almost smooth. Propodeum with large, wide and mainly smooth pentagonal areola; basolateral areas smooth, sparsely rugose close to carinae. Propodeal spiracles medium-sized, diameter 0.3 times distance from spiracle to anterior margin of propodeum.

Wings. Fore wing 2.3 times as long as its maximum width. Marginal cell ending at apex of wing, 3.9 times as long as its maximum width. Vein 3-SR 2.0 times as long as vein 2-SR. Vein SR1 2.4 times as long as vein 3-SR. Vein 3-SR 3.1 times as long as vein r. Vein r much longer than pterostigma width. First subdiscal cell 2.5 times as long as its maximum width. Hind wing 5.0 times as long as its maximum width.

Legs. Hind femur 4.0 times as long as its maximum width. Hind tibia weakly widened to apex, 7.8 times as long as its maximum subapical width, about as long as hind tarsus. First segment of hind tarsus 1.7 times as long as second segment.

Metasoma. First tergite widened towards apex, 1.8 times as long as its apical width, sparsely striate mainly but rugose in medio-basal half. Ovipositor 1.5 times as long as first tergite, 0.5 times metasoma, approximately as long as hind femur.

Colour. Body, hind femur and tibia, flagellar segments of antenna and pterostigma dark brown to black. Mandible, fore and middle legs and hind tarsus light reddish brown to reddish brown. First metasomal tergite similar colour to second and third tergites. Wings almost hyaline.

Variation. Body length 1.9–2.3 mm, fore wing length 2.1–2.6 mm, hind wing length 1.4–1.6 mm. Antenna 24–27-segmented. First flagellar segment 2.2–2.4 times as long as its maximum width. Hind femur 3.9–4.0 times as long as its maximum width. Hind tibia 7.5–8.0 times as long as its maximum subapical width. First metasomal tergite 1.8–1.9 times as long as its apical width.

Male. Unknown.

Etymology. Named in honor of Dr Yves Braet, Belgian braconidologist.

Comparative diagnosis. Differs from *N. brachyclypeata* as indicated in the key to species (see below).

***Neorhostigma macrops* (Stelfox & Graham, 1951), comb. nov.**

Figs 5–7

Aspilota macrops Stelfox and Graham 1951: 3; Tobias 1962: 106; 1986: 123; Fischer 1972: 409; Shenefelt 1974: 976; Yu et al. 2016; Belokobylskij et al. 2019: 208.

Neorhostigma macrops: Belokobylskij and Tobias 2007: 10.

Neorhostigma eoum Belokobylskij 1998: 9, syn. nov.; Fischer 2001: 65; Belokobylskij and Tobias 2007: 10; Yu et al. 2016; Belokobylskij et al. 2019: 215.

Orthostigma (*Neorhostigma*) *eoum*: Wharton 2002: 91.

Type material of *Aspilota macrops* (Figs 5A, 5B). *Holotype*: female, Ireland, Sligo, S. shore of Lough Gill near Doonee Rock, 15.x.1937 (AWS leg.) [USNM #76022; USNMMENT 01569377] (NMNH).

Type material of *Neorhostigma eoum* (Figs 5C–7A). *Holotype*: female, Russia, Primorskiy kray, Anisimovka, forest, 16.viii.1979 (S. Belokobylskij leg.) (ZISP). **Paratypes**: **Russia**: 2 females, Primorskiy kray, Spassk-Dal'niy, forest, glades, 16 and 22–23.viii.1995 (S. Belokobylskij leg.) (ZISP); 1 female, Sakhalin Island, 10 km W of Aniva, mixed forest, 15.viii.1981 (S. Belokobylskij leg.) (ZISP). **Japan**: 1 male, Fukuoka, Nogochi, Fukuoka-shi, 28.viii.1992 (V. Makarkin leg.) (ZISP).

Additional studied material. Norway. 1 female, Oslo [AK], Maridalen, Dausjøen, Spruce forest, 5.vi–16.x.2010, 60.01234 N 10.787665 E, 160 m, Malaise trap, river outlet (Lars Ove Hansen leg.) (NHMO).

Russia. Leningradskaya Province: 1 female, Tolmachevo, mixed forest, 22.VIII.1960 (V. Tobias leg.), “*Aspilota macrops* Stelf., Tobias det. 1961” (ZISP). Primorskiy kray: 1 female, 30 km E of Spassk-Dal'niy, forest, glades, 4.vi.1984 (S. Belokobylskij leg.) (ZISP); 1 female, Nadezhdinskiy District, 15 km SSW of Nezhino, forest, 16–18.vii.1993 (S. Belokobylskij leg.) (ZISP); 1 female, 30 km SE of Ussuriysk, forest, border of forest, 12–17.vii.2001 (S. Belokobylskij leg.) (ZISP); 1 female, Vladivostok, Okeanskaya, forest, 25.vii.2001 (S. Belokobylskij leg.) (ZISP); 1 female, Vladivostok, Sedanka, forest, border of forest, 30.vii.2001 (S. Belokobylskij leg.) (ZISP).

Re-description. Female (holotype).

Length. Body 2.6 mm, fore wing 3.3 mm, hind wing 2.1 mm.

Head. In dorsal view, 1.9 times as wide as long, 1.2 times as wide as mesoscutum; smooth, with temple rounded behind eyes. Antenna 27-segmented, 1.3 times as long as body. Scape 3.0 times as long as pedicel. First flagellar segment 2.6 times as long as its apical width, 1.3 times as long as second segment. Second to 25th (apical) segments 1.6–2.0 times as long as their maximum width. Eye in lateral view 1.6 times as high as wide and 1.9 times as wide as temple medially. POL 1.1 times OD; OOL 2.7 times OD. Face 1.5 times as wide as high; inner margins of eyes subparallel, with numerous setae, with numerous sparse punctation. Clypeus 2.5 times as wide as high, slightly concave ventrally. Mandible almost parallel-sided, 1.4 times as long as its maximum width; upper tooth very small; middle tooth rather wide and short, directed forwards,

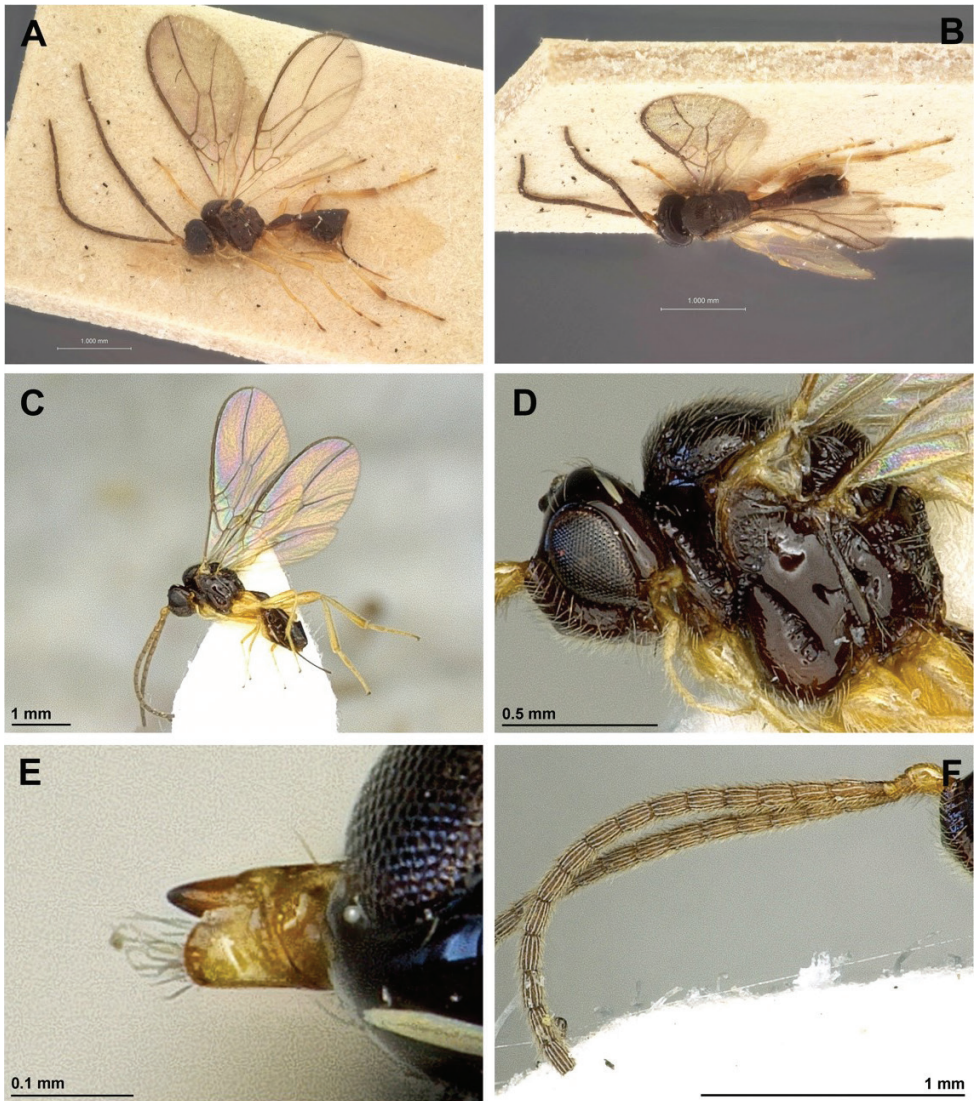


Figure 5. *Neorthostigma macrops* (Stelfox & Graham, 1951) (**A, B** female, holotype of *A. macrops*; **C–F** female, holotype of *Neorthostigma eoum*) **A, C** habitus, lateral view **B** habitus, dorsal view **D** head and mesosoma, lateral view **E** mandible **F** antenna.

longer than lower tooth; lower tooth wide and rounded distally, not angulated ventro-distally, with several long outstanding curved setae.

Mesosoma. In lateral view 1.1 times as long as high. Mesoscutum (dorsal view) 0.9 times as long as its maximum width, entirely densely setose. Notauli mainly absent on horizontal surface of mesoscutum. Mesoscutal pit absent. Prescutellar depression smooth, with median and lateral carinae, almost twice as long as its maximum width. Precoxal sulcus present, crenulate, reaching anterior margin and not reaching

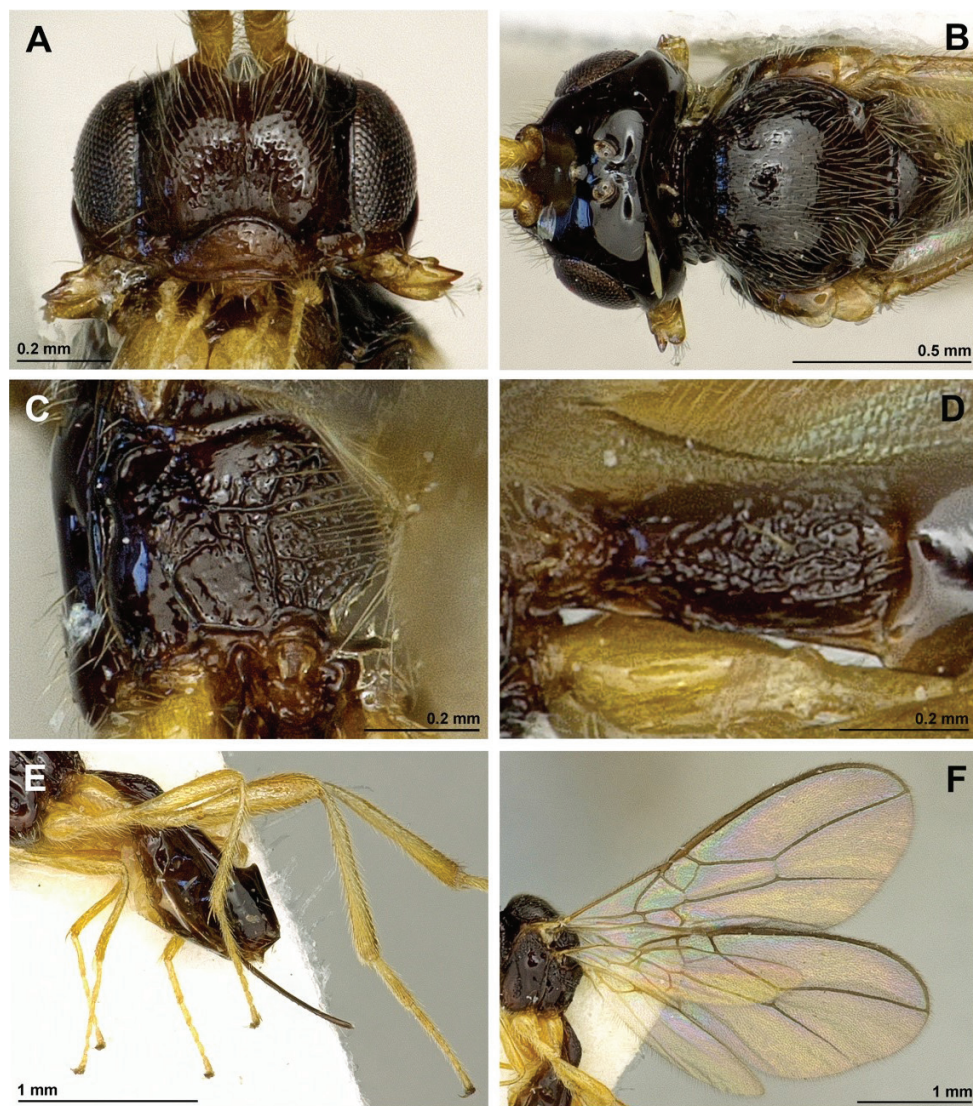


Figure 6. *Neorthostigma macrops* (Stelfox & Graham, 1951) (**A–F**: female, holotype of *Neorthostigma eoum*) **A** head, frontal view **B** head and mesonotum, dorsal view **C** propodeum, dorsal view **D** first metasomal tergite, dorsal view **E** hind leg, metasoma and ovipositor, lateral view **F** fore and hind wings.

posterior margin of mesopleuron. Posterior mesopleural furrow smooth. Propodeum largely rugulose, smooth anteriorly and postero-laterally, with some longitudinal and transverse carinae, with wide rugose areola delineated by distinct carinae. Propodeal spiracles relatively small, its diameter 0.2 times distance from spiracle to anterior margin of propodeum.

Wings. Fore wing 2.3 times as long as its maximum width. Marginal cell ending at apex of wing, 4.4 times as long as its maximum width. Vein 3-SR 2.5 times as long as vein 2-SR. Vein SR1 2.0 times as long as vein 3-SR. Vein 3-SR 4.7 times as long as

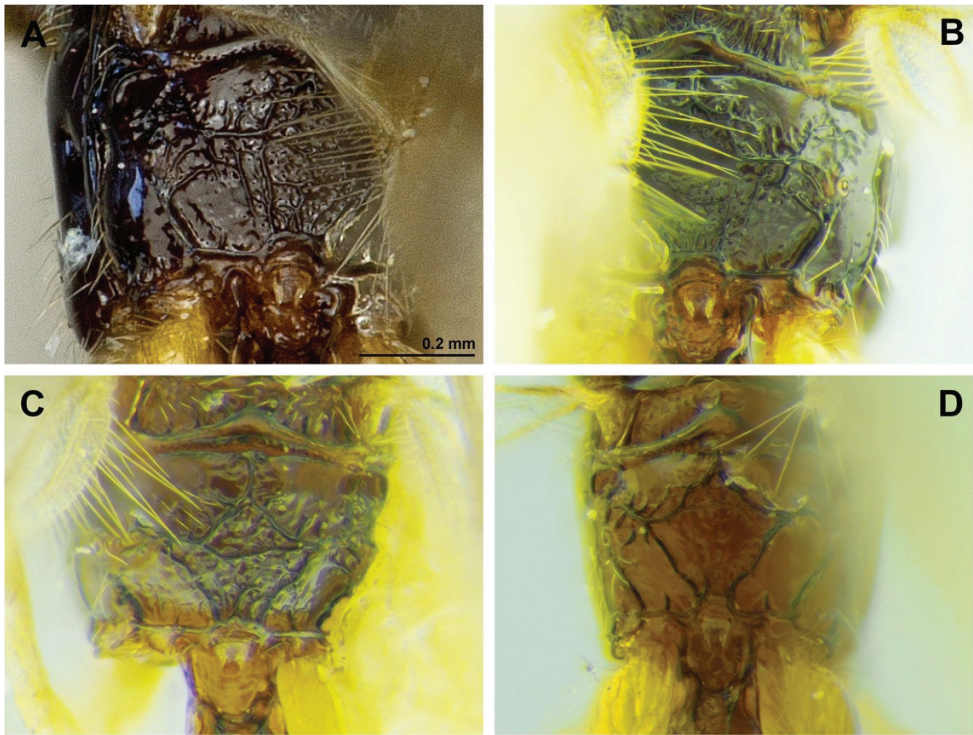


Figure 7. Propodeum variation of *Neorthostigma macrops* (Stelfox & Graham, 1951) (**A** female, holotype of *Neorthostigma eoum*; **B–D** additional material).

vein r. Vein r much longer than width of pterostigma. First subdiscal cell 1.9 times as long as its maximum width. Hind wing 5.0 times as long as its maximum width.

Legs. Hind femur 3.9 times as long as its maximum width. Hind tibia weakly widened to apex, 8.8 times as long as its maximum (subapical) width, 1.1 times as long as hind tarsus. First segment of hind tarsus 1.7 times as long as second segment.

Metasoma. First tergite weakly and evenly widened towards apex, 1.7 times as long as its apical width, entirely densely rugose-reticulate. Ovipositor 1.5 times as long as first tergite, 0.5 times as long as metasoma, approximately as long as hind femur.

Colour. Body black or dark reddish brown. Antenna black, paler basally; two basal segments light brown. Legs entirely light brown, but hind tibia finely infusate apically. Wings hyaline.

Variation. Body length 1.9–2.7 mm; fore wing length 2.3–3.3 mm; hind wing length 1.8–2.1 mm. Antenna 20–27 segments, 0.9–1.2 times as long as body. First flagellar segment in lateral view 2.7–3.5 times as long as maximum subapical width, 1.4–1.7 times as long as second segment. Face 1.2–1.5 times as wide as high, often with weak medial vertical carina in upper half, but sometimes this carina rather distinct; laterally usually with scattered row of orbital setae, but sometimes these setae very sparse; clypeus sometimes with only a few setae. Mandible 1.3–1.5 times as long as its maximum width. Mesoscutum almost entirely in dense, long and white setae, but often

sublaterally with narrow or rather wide glabrous areas. Propodeum with areola often entirely densely and rather coarsely rugose-striate, but sometimes this sculpture fine to very fine, and as exception areola entirely almost smooth; basolateral areas smooth at least in basal half or two thirds, but rarely at most part; propodeum postero-laterally often with small smooth areas. Precoxal sulcus often distinctly crenulate, but sometimes crenulae fine and anteriorly almost indistinct. In fore wing, vein 3-SR 3.2–4.8 times as long as vein r, 2.0–2.6 times as long as vein 2-SR. First submarginal cell 2.7–2.9 times as long as maximum width; First subdiscal cell 1.9–2.6 times as long as its maximum width. Vein 3-CU1 usually straight, but sometimes weakly and evenly curved. Hind femur 3.7–4.1 times as long as its maximum width. First metasomal tergite 1.45–1.70 times as long as apical width. Ovipositor 1.3–1.6 times as long as first tergite. Body often brown or reddish brown, rarely almost entirely black with scape and pedicel of antenna darkened; legs may be infusate, light reddish brown to almost reddish brown.

Male. Body length 2.3 mm; fore wing length 2.0 mm. Otherwise similar to female.

Comparative diagnosis. This species is similar to *N. brachyclypeata* (Fischer, 1978) and *N. braeti* sp. nov., but differs from them in having precoxal sulcus reaching anterior margin of mesopleuron (not reaching in *N. brachyclypeata* and *N. braeti*), mesoscutum almost entirely densely setose (glabrous laterally and very sparsely setose medially in *N. brachyclypeata* and *N. braeti*), and lower (third) tooth of mandible rather wide (narrow in *N. brachyclypeata* and *N. braeti*).

Distribution. Ireland, Japan (Kyushu Island), Netherlands, Norway (new record), Russia (Leningradskaya Province, Primorskiy Territory, Sakhalin Island), Slovakia, United Kingdom.

Remarks. We studied the photos of the holotype of *Aspilota macrops* (female, “Ireland, Sligo, S. shore of Lough Gill near Doonee Rock, 15.X.1937, A.W. Stelfox; Smithsonian Institute, Washington) (<http://n2t.net/ark:/65665/36930ade8-ba26-4c84-967b-7484f2b81346>) (Figs 5A, 5B). These illustrations together with originally well described and figured species (Stelfox and Graham 1951) and additional material from Norway and Russia (Far East and North West of the European part) showed morphological identity of *A. macrops* and *N. eoum* together with distinct variability of some their morphological characters (see Variation section in re-description). As result of this study *Neorthostigma eoum* Belokobylskij 1998 is here synonymised with *Aspilota macrops* Stelfox and Graham 1951 (syn. nov.).

Key to *Neorthostigma* species

- 1 Precoxal sulcus reaching anterior margin of mesopleuron (Fig. 5D). Mesoscutum entirely covered by dense numerous setae (Fig. 6B). Lower (third) tooth of mandible relatively wide (Fig. 5E). Vein 3-SR 4.0–4.7 times as long as vein r (Fig. 6F). Body length 1.9–2.7 mm. Ireland, United Kingdom, Netherlands, Norway, Slovakia, Russia, Japan..... ***N. macrops* (Stelfox & Graham) (♀♂)**
- Precoxal sulcus not reaching anterior margin of mesopleuron (Figs 1B, 3B). Mesoscutum very sparsely setose only medially (Figs 1F, 3F). Lower (third)

- tooth of mandible narrow (Figs 1C, 3C). Vein 3-SR 3.1–3.7 times as long as vein r (Figs 2D, 4D) **2**
- 2 First metasomal tergite 1.5 times as long as its apical width (Fig. 2B). Mesosoma in lateral view 1.4 times as long as high (Fig. 1B). Mesoscutum in dorsal view 0.7 times as long as its maximum width (Fig. 1F). Vein 3-SR 3.7 times as long as vein r (Fig. 2D). Hind tibia 6.4 times as long as its maximum (subapical) width (Fig. 2C). Prescutellar depression 1.7 times as long as its maximum width (Fig. 1F). Middle tooth longer than rounded apically lower tooth. Body length 1.8 mm. Papua New Guinea *N. brachychypeata* (Fischer) (♀)
- First metasomal tergite 1.8–1.9 times as long as its apical width (Fig. 4B). Mesosoma in lateral view 1.1 times as long as high (Fig. 3B). Mesoscutum in dorsal view 0.9 times as long as its maximum width (Fig. 3F). Vein 3-SR 3.1 times as long as vein r (Fig. 4D). Hind tibia 7.5–8.0 times as long as its maximum (subapical) width (Fig. 4C). Prescutellar depression 1.3–1.4 times as long as its maximum width (Fig. 3F). Middle tooth as long as acuminate apically lower tooth. Body length 1.9–2.3 mm. Papua New Guinea *N. braeti* Peris-Felipo, sp. nov. (♀)

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