

# New records of Darwin wasps (Hymenoptera, Ichneumonidae) from Norway, with descriptions of three new species

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In this taxonomical and faunistic survey, 63 species of the Ichneumonidae are reported as new for the fauna of Norway, 22 of these species have not been found in Scandinavia before. Three species of the subfamily Campopleginae are described as new: *Casinaria terebrator* **sp. n.**, *Cymodusa femorata* **sp. n.**, and *Gonotypus areolatus* **sp. n.**. In addition, the hitherto unknown male of *Mesochorus monacensis* Schwenke, 1999 and unknown female of *Exochus marklini* Holmgren, 1858 are described.

Key words: Norway, Ichneumonidae, Campopleginae, new species.

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## Introduction

The family Ichneumonidae represents a very diverse group of parasitic Hymenoptera in Northern Europe, but our knowledge of the taxonomy, biology, and distribution of many species is still incomplete. The Norwegian Ichneumonidae have been recently studied by several researchers, resulting in a total of 2210 species of Ichneumonidae known from Norway so far (unpublished personal data) with more than 750 new reports in the last two decades.

In this paper, 63 species of Ichneumonidae are added to the Norwegian list, including 22 of them not previously recorded from Scandinavia. Three new species of the subfamily Campopleginae and one unknown female and one unknown male of known species of other subfamilies were newly described.

## Material and methods

The Ichneumonidae recorded in this paper were mainly collected in Southern and Southeastern parts of Norway, usually caught in Malaise traps (if not mentioned differently below).

The subfamilies and tribes are listed in alphabetic order according to the recent classification of Broad *et al.* (2018). For the distributional records, the catalogue of Yu *et al.* (2016) was used, but only the Scandinavian countries are mentioned here.

The material is mainly deposited in the personal collection of the author, the holotypes of the new species are deposited in the Zoologische Staatssammlung Munich/Germany (ZSM).

For the descriptions, morphological terms follow Broad *et al.* (2018). For the measurements the following relations were used: Length of 1<sup>st</sup> flagellomere (without anellus) was measured in lateral view; length of temple and eye was measured from dorsal view, and length and width of hind femur and ovipositor sheath in lateral view.

For the punctuation of body parts the following definitions were used: very scattered – distance of punctures  $>2\times$  their diameter; scattered – distance  $1-2\times$  their diameter; dense – diameter of punctures larger than their distance.

For the measurements below, an Olympus SZX 7 stereo microscope with dividing eyepiece was used. The figures were taken with an Olympus SC 30 CCD-camera using the AnalySIS getIT and Helicon Focus Pro softwares and processed with the Microsoft Office Picture manager.

## List of species

### Subfamily Adelognathinae

#### *Adelognathus marginellus* Holmgren, 1857

**Material:** ROY, Sokndal, Skittmyr, 58.35048°N 6.30549°E, 1♀ 21 May–11 June 2020, leg. Jarl Birkeland.

**Distribution:** Europe, known from Finland and Sweden, new record for Norway.

#### *Adelognathus pusillus* Holmgren, 1857

**Material:** RY, Hå, Brusand S, 58.53657°N 5.75154°E, 1♀ 31 August–24 September 2019, leg. Alf Tore Mjøs.

**Distribution:** Holarctic regions, known from Sweden, new record for Norway.

#### *Adelognathus tenthredinarum* (Giraud, 1872)

**Material:** AAI, Evje & Hornnes, Kjetså, 58.54398°N 7.7592°E, 1♀ 18 June–12 July 2019, leg. Lars Breistol.

**Distribution:** Palaeartic region, new record for Norway and Scandinavia.

#### *Adelognathus tetracinctorius* (Thunberg, 1822)

**Material:** RY, Finnøy, Talgje, 59.11108°N 5.84658°E, 1♂ 8 May–9 June 2019, leg. Gaute Tengedal.

**Distribution:** Holarctic regions, known from Finland and Sweden, new record for Norway.

### Subfamily Anomaloniinae

#### *Barylypa propugnator* (Förster, 1855)

**Material:** Ø, Aremark, Kutjern, 59.27711°N 11.58547°E, 3♀ 25 July–10 September 2014, leg. Thor Jan Olsen.

**Distribution:** Palaeartic region, known from Finland and Sweden, new record for Norway.

### Subfamily Banchinae

#### *Lissonota buccator* (Thunberg, 1822)

**Material:** Ø, Rygge, Ekeby, Gunnarsbybekken (EIS 19), 1♀ 17 June–21 July 1992, leg. Hansen & Wahlberg; Sarpsborg, Holleby, 59.34435°N 11.11598°E, 1♂ 25 August–13 September 2015, leg. Thor Jan Olsen; TEI, Notodden, Lisleherad (EIS 27), 1♀ 22 June–6 August 1993, leg. Bakke.

**Distribution:** Palaeartic region, known from Finland and Sweden, new record for Norway.

### Subfamily Campopleginae

#### *Bathyplectes curculionis* (Thomson, 1887)

**Material:** RY, Hå, Brusand S, 58.53657°N 5.75154°E, 1♀ 31 May 2019, leg. Alf Tore Mjøs.

**Distribution:** Holarctic regions, known from Finland and Sweden, new record for Norway.

#### *Campoletis flagellator* Riedel, 2017

**Material:** VAI, Sirdal, Øykaheia NR, 58.63182°N 6.32866°E, 2♀ 2–30 June 2019, leg. Bjarne Oddane; RY, Tysvær, Ronvik, 1♀ 20 May 2019, leg. Alf Tore Mjøs; Hå, Hølland, 58.52445°N 5.83518°E, 1♀ 14–29 June 2020, leg. Alf Tore Mjøs.

**Distribution:** Europe, new record for Norway and Scandinavia.

#### *Campoletis procerus* (Brischke, 1880)

**Material:** HOY, Osterøy, Geitrheim, 60.54233°N 5.47652°E, 1♀ 13 July 2019, leg. Alf Tore Mjøs.

**Distribution:** Europe, known from Sweden, new record for Norway.

#### *Campoplex bilobus* (Thomson, 1887)

**Material:** VAI, Sirdal, Øyjaheia NR,

58.63182°N 6.32866°E, 1♂ 2–30 June 2019, leg. Bjarne Oddane.

**Distribution:** Europe, known from Finland and Sweden, new record for Norway.

### *Casinaria pyreneator* Aubert, 1960

**Material:** Ø, Rygge, Eløya, 59.32312°N 10.64747°E, leaf forest, 1♀ 8 July–19 August 2020, leg. Thor Jan Olsen.

**Distribution:** Europe, known from Denmark, new record for Norway.

### *Casinaria terebrator* sp. n. (Figures 1–5)

**Material:** HOLOTYPE: (♀) NORWAY **RY**, Hå, Hølland, 58.52445 N 5.83518 E, 29 June–16 July 2020, leg. Alf Tore Mjøs (ZSM).

PARATYPES: (♀) NORWAY **ROY**, Sokndal: Varåsen, N 58.3309808 E 6.2631551, Malaise trap, 13 June–10 July 2020, leg. J. Birkeland; **ROY**, Sokndal, Rekvei, 58.2059°N 6.1596°E, Malaise trap, 10 July–9 August 2020, leg. J. Birkeland (♀) Rekvei, long. Lat. N 58.2035° E 06.1559°, Malaise trap, 28 June 2019, leg. J. Birkeland; (♂) **RY**, Sola, Indraberget, 58.91242°N 5.66279°E, 10 June–7 July 2019, leg. Arjen Leendertse; (♂) Arstad, 58.2087°N 6.1481°E, Malaise trap, 9 August–5 September 2019, leg. Jarl Birkland; (all coll. Riedel).

**Etymology:** The species name refers to the uniquely modified form of the ovipositor.

**Description:** *Female:* Body length 9.5–10.5 mm. Flagellum with 31–34 flagellomeres, stout; 1<sup>st</sup> flagellomere 3.0–3.2× longer than wide; preapical flagellomere 1.2–1.4× wider than long. Head dorsally 2.2× wider than long. Temple moderately and roundly narrowed behind eye, dorsally 0.7× as long as eye width. Distance between lateral ocellus and eye 0.7–0.9× and between lateral ocelli 1.3–1.6× their diameter. Face with almost parallel sides, finely rugose-punctate, minimal width 1.0× frontal width and 0.70× eye length. Malar space 0.4× as long as width of mandibular base. Genal carina distinctly bent outwards ventrally, reaching mandibular base in an angle of c. 70°; gena slightly concave ventrally. Hypostomal carina not elevated.

Side of pronotum with strong longitudinal striation ventrally. Mesopleural disc granulate and

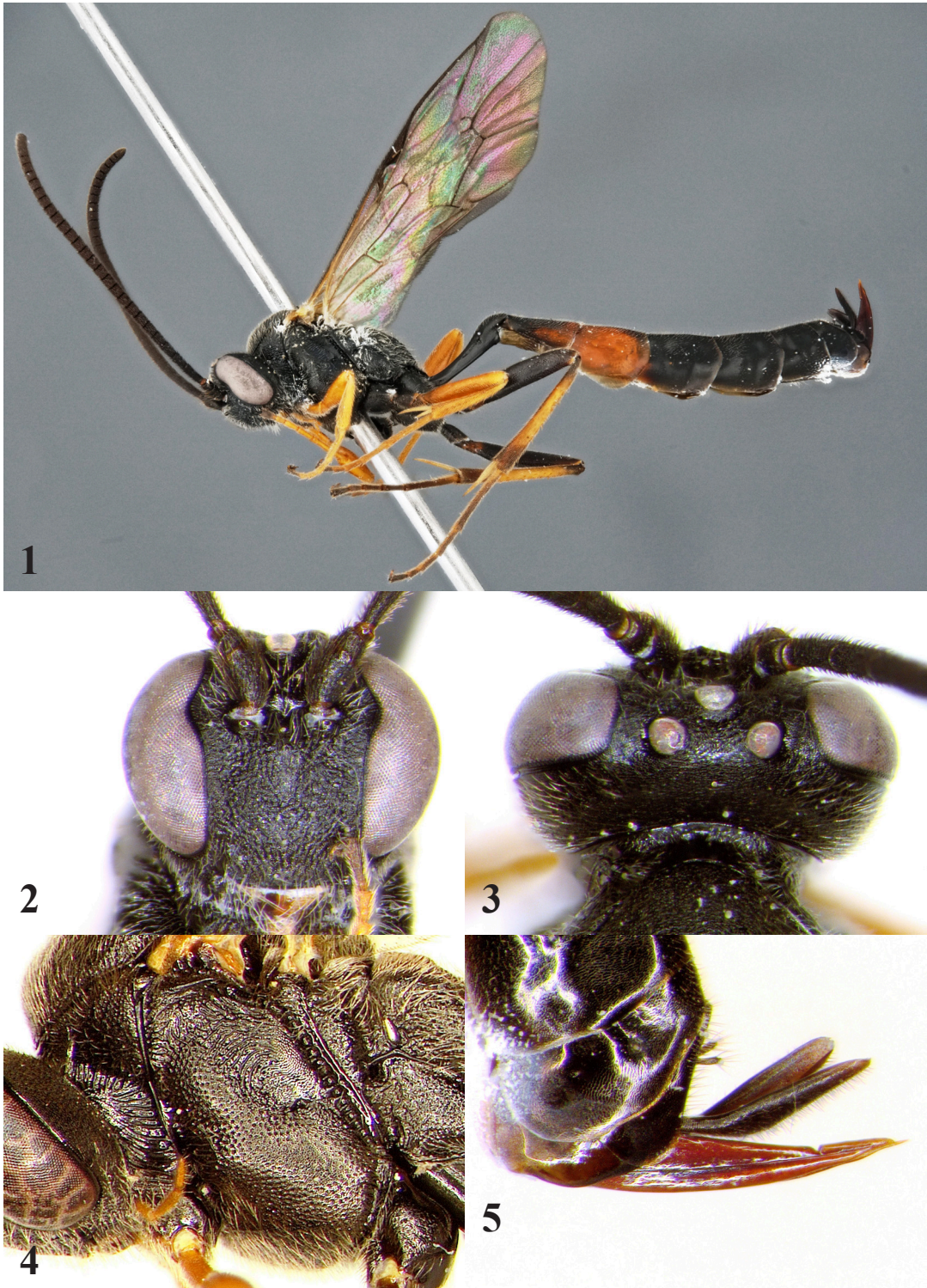
with ± distinct punctation, ± shining; speculum granulate; dorsal impression weak, with strong longitudinal striae. Epicnemial carina moderately and lamelliform elevated ventrally, narrow on mesopleural part. Propodeum transversally rugose, only with basal carina of area superomedia, with strong and narrow central longitudinal impression covered with transversal striae. Hind femur 4.1–4.5× as long as wide; inner spur of hind tibia 0.75× as long as hind metatarsus. Hind claw with two or three strong teeth. Areolet stalked, vein 2m-cu in or slightly distad its middle; vein 1cu-a postfurcal by 1–3× its width; postnervulus intercepted in middle; external angle of discoidal cell slightly acute (80–85°).

Metasoma very slender, apical tergites strongly compressed. 2<sup>nd</sup> tergite 1.8–2.4× longer than wide; thyridium small, roundish, its distance to basal margin of 2<sup>nd</sup> tergite 3.5× its length. 3<sup>rd</sup> tergite 1.7–2.2× longer than wide. Ovipositor very wide basally, continuously narrowed to apex.

**Color:** black. Palps and spot on mandible yellowish or reddish. Tegula yellowish (or brown in one paratype). Metasoma blackish; 2<sup>nd</sup> tergite reddish in apical 0.1–0.3 and lateral 0.5; 3<sup>rd</sup> tergite entirely red or ± black dorsally. Coxae black; fore coxa sometimes with reddish-yellow spot apically; fore trochanter and trochantellus reddish; mid and hind trochanters and trochantelli black. Legs otherwise reddish; hind femur entirely black; hind tibia yellowish medially or medio-externally, black in basal 0.15 and apical 0.2; hind tarsus except reddish base of metatarsus blackish. Pterostigma brown.

**Male:** Body length 8.3–10.1 mm. Flagellum with 36–42 flagellomeres; 1<sup>st</sup> flagellomere 2.5× longer than wide; preapical flagellomere slightly longer than wide. Distance between lateral ocellus and eye 0.7–0.8× and between lateral ocelli 1.1–1.3× their diameter. Epicnemial carina ± elevated behind fore coxae, low laterally. Hind femur 4.4–4.7× longer than wide. 2<sup>nd</sup> tergite 3.0–3.1× and 3<sup>rd</sup> tergite 2.0–2.5× longer than wide. Structure otherwise as described for the ♀.

**Color:** black. Palps, spot on mandible, tegula, small frontal spots on fore and mid coxae and trochanters yellowish. Fore and mid femora reddish, fore and mid tibiae and tarsi yellowish,



FIGURES 1–5. *Casinaria terebrator* sp. n. 1. Habitus, 2. Face, 3. Head, 4. Mesopleuron, 5. Ovipositor.

distal tarsomeres brown. 2<sup>nd</sup> tergite in apical 0.25–0.3 and 3<sup>rd</sup> tergite entirely red; 4<sup>th</sup> tergite sometimes basally and laterally reddish. Color otherwise as in ♀.

**Remarks:** This new species is characterized by its strongly compressed metasoma, distinct color pattern of hind tibia and especially the basally widened and modified ovipositor in ♀. In the key for the European *Casinaria* species (Riedel 2018), this new species runs to *Casinaria compressiventris* Riedel, but differs by its outwardly curved genal carina, different coloration of hind tibia and modified form of ovipositor.

### *Cymodusa femorata* sp. n. (Figures 6–11)

**Material:** HOLOTYPE: (♀) NORWAY RI, Sauda, Vikaneset 1, 59.56847°N 6.28322°E, MT, 28 July–6 August 2019, leg. Øyvind Nyvold Larsen (ZSM).

**Description:** *Female:* Body length 5.3 mm, length of fore wing 4.5 mm. Flagellum with 28 flagellomeres, filiform; 1<sup>st</sup> flagellomere 4.7× longer than wide, preapical flagellomere 1.4× longer than wide. Head covered with grey hairs, granulate. Temple roundly narrowed behind eye. Distance between lateral ocellus and eye 0.9× ocellar diameter. Face strongly narrowed ventrally, minimally 0.45× as wide as frons. Clypeus small, anterior tentorial groove small and situated at eye margin. Malar space narrow, 0.15× as long as width of mandibular base. Mesosoma covered with grey hairs. Side of pronotum with coarse longitudinal striae ventrally. Mesoscutum granulate and superficially punctate, dull; notaulus weakly indicated. Mesopleuron coarsely granulate and with superficial punctures; speculum smooth; impression above speculum with rather coarse striae in dorsal third. Propodeum distinctly carinate. Area basalis rectangular, 1.8× longer than wide. Area supermedia about as long as wide, confluent with area petiolaris; anterior transverse carina in its middle. Area petiolaris slightly impressed medially, with coarse transverse rugae. Hind femur slender, 5.8× longer than wide. Hind claw with three basal teeth. Areolet sessile, frontal distance between veins 2rs-m and 3rs-m 2× their width; vein 2m-cu basad its middle. Vein 1cu-a interstitial. Distal part of vein CU of hind wing

(discoidella) indistinct; nervellus not distinctly intercepted.

2<sup>nd</sup> tergite 1.8× and 3<sup>rd</sup> tergite 1.1× longer than wide. Apical margins of 6<sup>th</sup> and 7<sup>th</sup> tergite deeply excised medially. Ovipositor sheath 0.73× as long as hind tibia. Ovipositor slightly bent upwards.

**Color:** black. Palps, mandible except teeth and tegula yellow. 2<sup>nd</sup> to 7<sup>th</sup> tergites black, with reddish-brown apical bands. Fore and mid coxae red, yellow dorsally; hind coxa black, reddish apically. Fore and mid trochanters red, fore trochanter yellow frontally; hind trochanter black; all trochantelli yellow. Legs otherwise red; fore and mid tibiae slightly yellow basally; hind femur weakly infusate apically, hind tibia entirely red. Wings slightly infusate, pterostigma brown. Male unknown.

**Remarks:** This new species runs to *C. tibialis* Dbar, 1985 in his key of Palaearctic *Cymodusa* species (Dbar 1985), but differs by a slenderer hind femur, shorter ovipositor sheath and entirely yellow trochantelli. It also resembles *C. australis* Smits van Burgst, 1913 which exhibits considerable intraspecific variability (Vas 2022), but differs by a rougher structure of mesopleuron, entirely red hind tibia without a pale basal spot and slightly shorter ovipositor sheath.

It should be mentioned here that I have seen some additional specimens of *Cymodusa* with intermediate and/or slightly different morphology and coloration from Northern Europe. Therefore, the *australis*-group of *Cymodusa* sensu Dbar (1985) (e.g. with ventrally strongly narrowed inner eye margins) needs a modern revision with additional rearing results and genetical studies (Vas 2022).

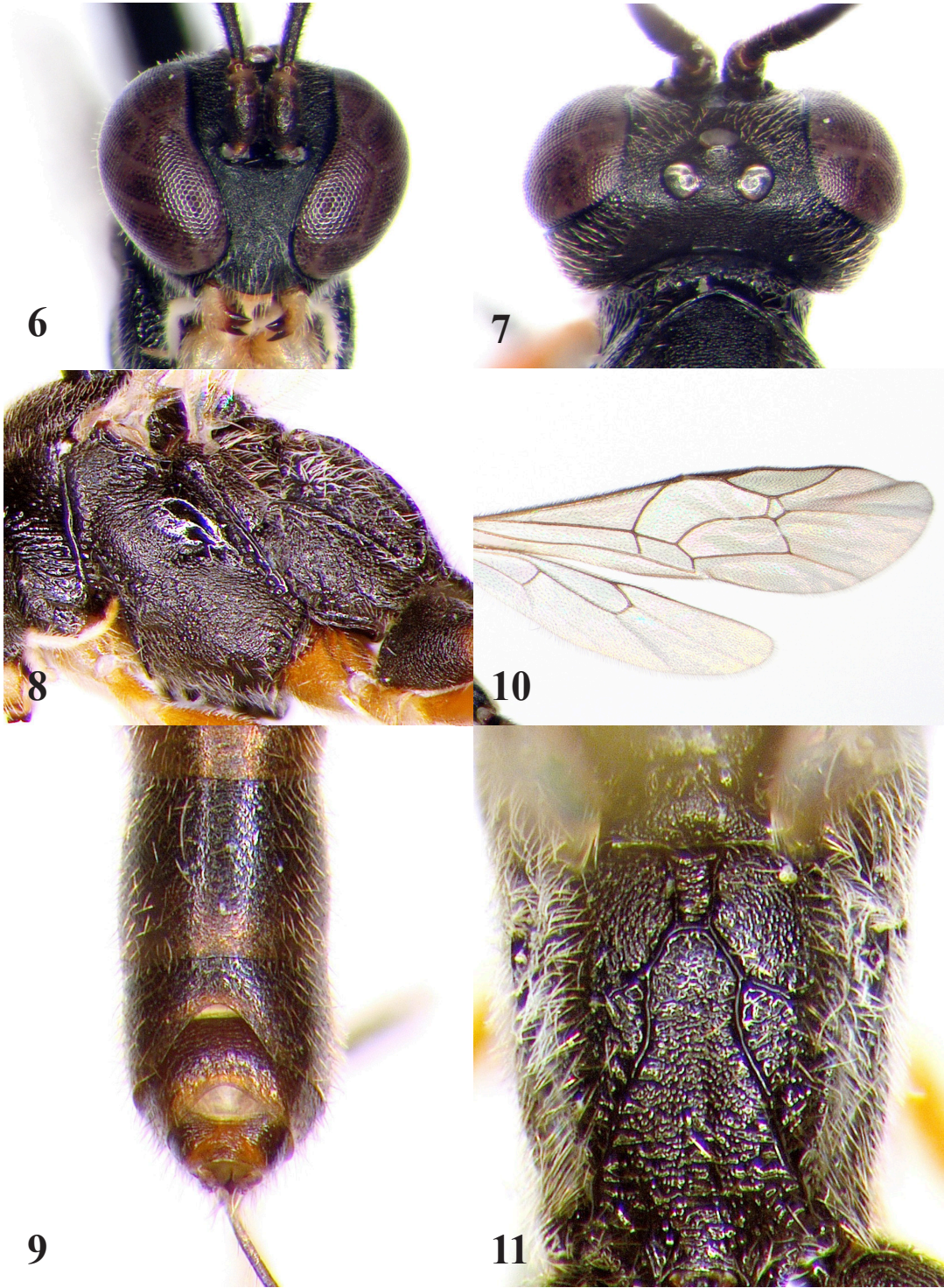
### *Diadegma crassum* (Bridgman, 1889)

**Material:** RY, Hå, Brusand S, 58.53657°N 5.75154°E, 1♀ 27 July–17 August 2019, leg. Alf Tore Mjøs; RI, Sauda, Vikaneset 1, 59.56847°N 6.28322°E, 1♀ 28 July–16 August 2019, leg. Øyvind Nyvold Larsen.

**Distribution:** Europe, new record for Norway and Scandinavia.

### *Diadegma duplicatum* Horstmann, 1980

**Material:** Ø, Sarpsborg, Tune, Råkil,



FIGURES 6–11. *Cymodusa femorata* sp. n. 6. Face, 7. Head, 8. Mesopleuron, 9. Apical tergites, 10. Wings, 11. Propodeum.

53.30092°N 11.09934°E, 1♀ 22 June 1994, leg. Thor Jan Olsen; **RY**, Klepp, Revtangen, 58.76181°N 5.50807°E, 1♀ 4 August 2019, leg. Alf Tore Mjøs.

**Distribution:** Europe, known from Sweden, new record for Norway.

***Diadegma griseescens* (Gravenhorst, 1829)**

**Material:** **RY**, Hå, Brusand S, 58.53657°N 5.75154°E, 1♀ 31 May–16 June 2019, leg. Alf Tore Mjøs.

**Remarks:** Flagellum with 31 flagellomeres. Postpetiolus and 2<sup>nd</sup> to 4<sup>th</sup> tergites entirely red, 5<sup>th</sup> tergite red laterally. Otherwise, a typical specimen.

**Distribution:** Europe, known from Denmark, Finland and Sweden, new record for Norway.

***Diadegma incompletum* Horstmann, 1973**

**Material:** **AAI**, Evje & Hornnes, Kjetså, 58.54398°N 7.7592°E, 1♀ 18 June–12 July 2019, leg. Lars Breistøl.

**Distribution:** Europe, known from Finland and Sweden, new record for Norway.

***Diadegma micrurum* (Thomson, 1887)**

**Material:** **RI**, Sauda, Vikaneset, 59.58083°N 6.28619°E, 1♀ 20 June–10 July 2019, leg. Øyvind Nyvold Larsen.

**Distribution:** Europe, known from Sweden, new record for Norway.

***Diadegma nigrostigmaticus* Horstmann, 1969**

**Material:** **RY**, Finnøy, Nordre Vignes, 59.16787°N 5.78825°E, 1♀ 9 June–8 July 2020, leg. Gaute Tengedal; Hå, Hølland, 58.52445°N 5.83518°E, 1♀ 21 May–11 June 2020, leg. Alf Tore Mjøs.

**Distribution:** Europe, new record for Norway and Scandinavia.

***Diadegma rufatum* (Bridgman, 1884)**

**Material:** **RY**, Hå, Brusand N, 58.53872°N 5.74565°E, 1♀ 27 July–17 August 2019, leg. Alf Tore Mjøs; **HOY**, Osterøy, Hosanger, 60.56832°N 5.48575°E, 1♀ 13 July–9 August 2020, leg. Alf Tore Mjøs.

**Distribution:** Europe, known from Finland and Sweden, new record for Norway.

***Diadegma tripunctatum* (Bridgman, 1886)**

**Material:** **HOY**, Osterøy, Hosanger, 60.56832°N 5.48575°E, 1♀ 18 May–18 June 2019, leg. Alf Tore Mjøs.

**Distribution:** Western and Central Europe, new record for Norway and Scandinavia.

***Dusona circumspectans* (Förster, 1868)**

**Material:** **Ø**, Sarpsborg, Næss, v. Isesjø, 1♀ September 2015, leg. Thor Jan Olsen; Halden, Enningdalen, 58.89588°N 11.52092°E, 1♀ 23 August 2009, leg. Thor Jan Olsen.

**Distribution:** Europe, known from Finland and Sweden, new record for Norway.

***Gonotypus areolatus* sp. n. (Figures 12–15)**

**Material:** HOLOTYPE: (♀) NORWAY **AAI**, Evje & Hornnes, Kjetså, 58.54396°N 7.75594°E, MT, 2–16 June 2020, leg. Lars Breistøl (ZSM).

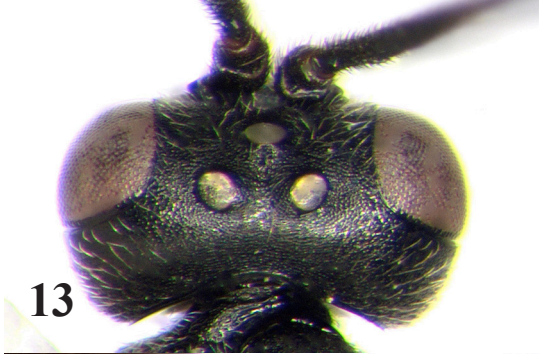
**Etymology:** The species name refers to the laterally closed areolet.

**Description:** **Female:** Body length 4.5 mm. Flagellum with 26 flagellomeres, filiform; 1<sup>st</sup> flagellomere 3.8× longer than wide; preapical flagellomere 1.4× longer than wide. Head granulate, with grey pilosity. Temple slightly and roundly narrowed behind eye, dorsally 0.9× as long as eye. Distance between lateral ocellus and eye 1.1× ocellar diameter. Face with almost parallel sides, minimal width 1.2× length of face+clypeus. Clypeus small, apical margin rounded. Malar space 0.6× as long as width of mandibular base. Genal carina reaching hypostomal carina far from mandibular base.

Mesosoma covered with grey hairs. Side of pronotum coarsely granulate dorsally, with longitudinal rugae ventrally. Mesopleural disc granulate; speculum smooth and shining; dorsal impression with some irregular longitudinal rugae dorsally. Epicnemial carina low. Area basalis triangular. Area superomedia pentagonal, slightly longer than wide, finely rugose, lateral carina indicated by rugae in caudal half. Anterior transverse carina (costula) absent. Area petiolaris finely rugose. Hind femur 3.9× as long as wide. Hind claw with two rather long basal teeth. Areolet closed (vein 3rs-m present), widely sessile frontally. Vein 2m-cu reaching areolet widely



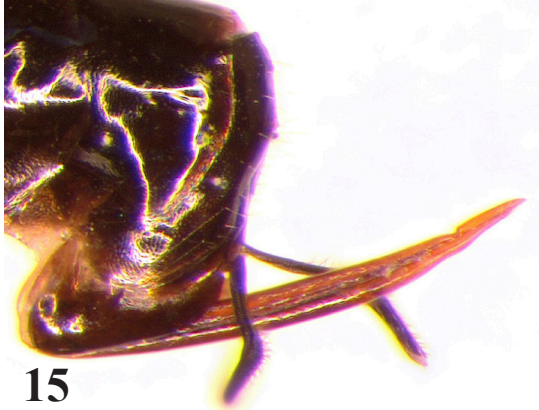
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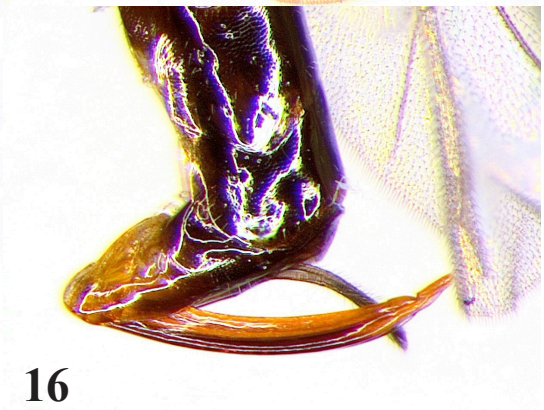
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15



16

FIGURES 12–15. *Gonotypus areolatus* sp. n. 12. Habitus, 13. Head, 14. Fore wing, 15. Ovipositor. FIGURE 16. Ovipositor of *Gonotypus melanostoma* (Thomson, 1887).



distad its middle. Vein 1cu-a interstitial. Nervellus of hind wing not intercepted.

Metasoma rather slender, apical tergites moderately compressed laterally. 1<sup>st</sup> tergite 2.1× longer than wide, with large glymma; postpetiolus as long as wide, with parallel sides. 2<sup>nd</sup> tergite 1.9× longer than wide. Thyridium roundish, its distance to tergal base 1× its length. 1<sup>st</sup> and 2<sup>nd</sup> tergites entirely granulate, 3<sup>rd</sup> tergite only in basal half. 3<sup>rd</sup> tergite apically and following tergites with microsculpture, becoming smooth and strongly shining apically. Hind margins of 3<sup>rd</sup> to 5<sup>th</sup> tergites straight, hind margin of 6<sup>th</sup> tergite weakly excavated medially. Ovipositor strong, moderately curved upwards.

**Color:** Black. Palps yellowish. Mandible reddish medially. Tegula cream-yellow. Tergites black, 2<sup>nd</sup> to 4<sup>th</sup> sternites yellowish, with blackish transverse bands medially. Coxa, trochanters and hind trochantellus black. Fore and mid trochantelli yellowish. Legs otherwise reddish; mid femur blackish ventro-basally; hind femur blackish, becoming diffusely reddish-brown in apical third; hind tibia reddish-yellow, with weak subbasal and apical brownish bands; hind tarsus blackish in distal 2/3. Pterostigma brown.

Male unknown.

**Remarks:** This new species resembles *Gonotypus melanostoma* (Thomson, 1887), but can be differentiated by the following key:

1. Areolet closed, vein 3rs-m present. Antenna with 26 flagellomeres. Temple slightly narrowed behind eye. Area superomedia slightly longer than wide. Areae superomedia and petiolaris finely rugulose. Apical margins of 2<sup>nd</sup> to 5<sup>th</sup> tergites not excavated medially. Ovipositor slenderer, less strongly curved (Figure 15). .....  
..... *G. areolatus* sp. n.
- Areolet open laterally, vein 3rs-m absent. Antenna with 22–25 flagellomeres. Temple parallel or slightly widened behind eye. Area superomedia slightly wider than long. Areae superomedia and petiolaris granulate. Apical margins of 2<sup>nd</sup> to 5<sup>th</sup> tergites ± triangularly excised medially. Ovipositor stouter and strongly curved (Figure 16). .....  
..... *G. melanostoma* (Thomson, 1887)

### *Hyposoter leucomerus* (Thomson, 1887)

**Material:** RI, Sauda, Vikaneset 2, 59.56888°N 6.28494°E, 1♀ 10–28 July 2019, leg. Øyvind Nyvold Larsen.

**Distribution:** Western Palearctic region, known from Finland and Sweden, new record for Norway.

### *Hyposoter placidus* (Desvignes, 1856)

**Material:** Ø, Rygge, Eløya, 59.32062°N 10.65684°E, small forest (5 m asl.), 1♀ 16 April–29 May 2019, leg. Thor Jan Olsen; RY, Hå, Hølland, 58.52445°N 5.83518°E, 2♀♀ 14–29 June 2020, leg. Alf Tore Mjøs.

**Distribution:** Western and Central Europe, new record for Norway and Scandinavia.

### *Hyposoter tibialis* (Hedwig, 1938)

**Material:** RY, Klepp, Revtingen OS, 58.76181°N 5.50807°E, 1♀ 27 August 2019, leg. Alf Tore Mjøs.

**Distribution:** Only known from Poland, new record for Norway and Scandinavia.

### *Melanoplex bucculentus* (Holmgren, 1860)

**Material:** HOY, Osterøy, Hosanger, 60.56832°N 5.48575°E, 2♀♀ 15 April–19 May 2019, leg. Alf Tore Mjøs; ROY, Sokndal, Skittmyr, 58.2102°N 6.18198°E, 1♂ 23 March–18 April 2019, leg. Jarl Birkeland.

**Distribution:** Europe, known from Sweden, new record for Norway.

### *Nemeritis specularis* Horstmann, 1975

**Material:** Ø, Rygge, Eløya, 59.32312°N 10.64747°E, leaf forest, 1♀ 8 July–19 August 2020, leg. Thor Jan Olsen; AAI, Evje & Hornnes, Kjetså, 58.54396°N 7.75594°E, 1♀ 15 July–6 August 2020, leg. Lars Breistøl.

**Distribution:** Central and Southern Europe, new record for Norway and Scandinavia.

### *Nepiesta tricingulata* Horstmann, 1973

**Material:** RY, Lund, Hovsvatnet, 58.48928°N 5.48575°E, 1♂ 27 May 2019, leg. Alf Tore Mjøs.

**Distribution:** Europe, known from Sweden, new record for Norway.

***Olesicampe confinis* (Holmgren, 1858)**

**Material:** HOY, Osterøy, Hosanger, 60.56832°N 5.48575°E, 1♀ 18 May–18 June 2020, leg. Alf Tore Mjøs.

**Distribution:** Europe, known from Finland and Sweden, new record for Norway.

***Olesicampe melanogaster* (Thomson, 1887)**

**Material:** HOY, Osterøy, Hosanger, 60.56832°N 5.48575°E, 1♀ 9 August–14 September 2019, leg. Alf Tore Mjøs; RY, Hå, Holland, 58.52445°N 5.83518°E, 1♀ 14–29 June 2020, leg. Alf Tore Mjøs; RI, Sauda, Hustveit, 59.56878°N 6.26467°E, 1♀ 16–30 June 2020, leg. Øyvind Nyvold Larsen.

**Distribution:** Holarctic regions, known from Sweden, new record for Norway.

***Olesicampe nigricoxa* (Thomson, 1887)**

**Material:** HOY, Osterøy, Hosanger, 60.56832°N 5.48575°E, 1♀ 18 May–18 June 2019, leg. Alf Tore Mjøs; RI, Hjelmeland, Fister, 59.17132°N 6.07342°E, 1♀ 2–15 June 2020, leg. Alf Tore Mjøs.

**Distribution:** Europe, known from Finland and Sweden, new record for Norway.

Subfamily Cryptinae

***Aptesis flagitator* (Rossi, 1794)**

**Material:** Ø, Halden, Remmendalen, forest/garden, 59.12172°N 11.36336°E, 1♀ 27 April–3 June 2020, leg. Thor Jan Olsen.

**Distribution:** Palaearctic region, known from Finland and Sweden, new record for Norway.

Subfamily Ctenopelmatinae

***Arbelus sanguinipes* (Thomson, 1894)**

**Material:** Ø, Rygge: Eløya, 59.32312°N 10.64747°E, leaf forest, 1♀ 8 July–19 August 2020, leg. Thor Jan Olsen; Eløya, 59.32244°N 10.64586°E, meadow, 2♀♀ 13 May–10 June 2020, 1♀ 8 July–19 August 2020, leg. Thor Jan Olsen.

**Distribution:** Western Palaearctic region, known from Finland and Sweden, new record for Norway.

***Campodoros ucrainicus* Kasparyan, 2005**

**Material:** Ø, Sarpsborg: Tune, Råkil, 53.30092°N 11.09934°E, window trap, 1♀ 4–22 June 2020, leg. Thor Jan Olsen.

**Distribution:** Only known from Ukraine, new record for Norway and Scandinavia.

***Euryproctus luteicornis* (Gravenhorst, 1829)**

**Material:** Ø, Marker: Buviken, 59.57619°N 11.51891°E, Malaise trap, 1♀ 5 July–19 August 2016, leg. Thor Jan Olsen; Sarpsborg: Holleby, 59.34391°N 16.11328°E, 1♂ June 2016, leg. Thor Jan Olsen.

**Remarks:** Body length 8 mm. Areolet open distally, vein 3rs-m absent. Facial orbits with yellow stripe opposite to antenna. Flagellum yellowish, basal flagellomeres slightly infuscate dorsally. Hind femur black; hind tibia yellow, narrowly brownish apically; hind tarsus yellow. Postpetiolus apically and 2<sup>nd</sup> to 4<sup>th</sup> tergites entirely red.

**Distribution:** Europe, known from Finland and Sweden, new record for Norway.

***Perilissus pallidus* (Gravenhorst, 1829)**

**Material:** Ø, Hvaler: Vesterøy, Vanerveien, 1♂ 10–16 June 2018, leg. Thor Jan Olsen.

**Distribution:** Palaearctic, new record for Norway, a previous report from Norway (Roman, 1942) refers to *Perilissus pallidus* sensu Holmgren (valid name: *Perilissus holmgreni* Habermehl, 1925).

***Syndipnus depressus* Kasparyan, 2018**

**Material:** Ø, Sarpsborg: Skjeberg, Grimsøya, 59.13327°N 11.17799°E, 1♀ 16 June 2002, leg. Thor Jan Olsen.

**Distribution:** Only known from Poland, new record for Norway and Scandinavia.

***Syndipnus sternoleucus* (Gravenhorst, 1829)**

**Material:** Ø, Sarpsborg: Skjeberg Kirke, 59.22720°N 11.19116°E, 1♀1♂ 15 June 2003, leg. Thor Jan Olsen.

**Distribution:** Central Europe and Finland, new record for Norway.

Subfamily Ichneumoninae

*Asthenolabus laticapus* (Thomson, 1894)

**Material:** Ø, Spydeberg: Myrvold, 59.53458°N 11.01041°E, 1♂ 15 July 2017, leg. Thor Jan Olsen.

**Distribution:** Europe, known from Finland, new record for Norway.

*Coelichneumon bilineatus* (Gmelin, 1790)

**Material:** Ø, Rakkestad: Degernes, Strømsfossveien 1332, 59.35886°N 11.51711°E, 1♀ 9 August–20 September 2020, leg. Thor Jan Olsen.

**Distribution:** Palaearctic region, known from Finland and Sweden, new record for Norway.

*Coelichneumon bohemani* (Holmgren, 1864)

**Material:** Ø, Rygge: Eløya, 59.31973°N 10.65882°E, 1♂ 10 August–10 September 2019, leg. Thor Jan Olsen.

**Distribution:** Palaearctic region, known from Finland and Sweden, new record for Norway.

*Ctenichneumon melanocastaneus* (Gravenhorst, 1820)

**Material:** Ø, Hvaler: Vesterøy, Sandholmen, 1♀ 25 July 2017, leg. Thor Jan Olsen.

**Remark:** This specimen belongs to the variant with entirely black metasoma.

**Distribution:** Western Palaearctic region, known from Finland and Sweden, new record for Norway.

*Dicaelotus montanus* (De Stefani, 1885)

**Material:** Ø, Rygge: Eløya, 59.32312°N 10.64747°E, leaf forest, 1♂ 19 August–15 September 2020, leg. Thor Jan Olsen.

**Distribution:** Central and Southern Europe, new record for Norway and Scandinavia.

*Ichneumon languidus* Wesmael, 1845

**Material:** AK, Vestby son Ringveien, 59.49574°N 10.68599°E, 1♀ 15 May–26 June 2020, leg. Thor Jan Olsen.

**Distribution:** Palaearctic region, new record for Norway and Scandinavia.

Subfamily Mesochorinae

*Astiphromma hirsutum* (Bridgman, 1883)

**Material:** RY, Sokndal: Rekvei, 58.2059°N 6.1596°E, 2♀ 21 May–13 June 2020, leg. Jarl Birkeland; RI, Sauda: Skarvanuthia, 59.57945°N 6.26635°E, 1♂ 2–16 June 2020, leg. Øyvind Nyvold Larsen.

**Distribution:** Palaearctic region, known from Finland and Sweden, new record for Norway.

*Astiphromma simplex* (Thomson, 1886)

**Material:** RY, Sola: Indraberget, 58.91242°N 5.66279°E, 1♀ 1–19 May 2019, leg. Arjen Leendertse.

**Distribution:** Western Palaearctic region, known from Finland and Sweden, new record for Norway.

*Mesochorus basalis* Curtis, 1833

**Material:** RY, Suldal, Finnvik AUG, 1♀ August 2021, leg. Håkon Haraldseide.

**Remarks:** This species is closely related to *M. tenthredinidis* Schwenke, 1999 and differs slightly by a different form of areolet (e.g., strongly oblique, and vein 2m-cu reaching areolet proximad its middle), longer area basalis, and wider face. *M. tenthredinidis* is probably a synonym of *M. basalis*.

**Distribution:** Only known from United Kingdom, new record for Norway and Scandinavia.

*Mesochorus coartatus* Schwenke, 2002

(syn. *M. tenebricosus* Schwenke, 1999 preoccupied)

**Material:** RY, Finnøy: Nordre Vignes, 59.16787°N 5.78825°E, 1♀ 9 June–8 July 2020, leg. Gaute Tengedal.

**Remarks:** The species belongs to the *pectoralis*-group of *Mesochorus*. It is characterized by: hyaline pterostigma, short ovipositor sheath (0.75–0.8× as long as hind metatarsus), narrowly darkened apex of hind tibia, small ocelli, very oblique areolet and ± antefurcal vein 1cu-a.

**Distribution:** Only known from France and Switzerland, new record for Norway and Scandinavia.

***Mesochorus frigidus* Schwenke, 1999**

**Material:** HOI, Ullensvang: Røldalsv., 59.76389°N 6.78407°E, 1 ♀ 30 June–17 July 2020, leg. Alf Tore Mjøs.

**Distribution:** Known from Finland and Sweden, new record for Norway.

***Mesochorus inclusus* Schwenke, 2002**

**Material:** RY, Vindafjord: Opsalneset, 1 ♀ June 2020, leg. H. Haraldseide & E. Thorsen.

**Remarks:** This species is closely related to *M. jugicola* Strobl. It mainly differs by a darker mid coxa and is probably a synonym of the latter species.

**Distribution:** Only known from Sweden, new record for Norway.

***Mesochorus macrophyae* Schwenke, 1999**

**Material:** RY, Klepp: Revtangen, 58.76181°N 5.50807°E, light trap, 1 ♀ 25 July 2020, leg. Alf Tore Mjøs; Soknal: Skittmyr, 58.2102°N 6.18197°E, 1 ♂ 11 June–10 July 2020, leg. Jarl Birkeland.

**Distribution:** Only known from Germany, new record for Norway and Scandinavia.

***Mesochorus monacensis* Schwenke, 1999, new ♂**

**Material:** ALLOTYPE: (♂) NORWAY AAI, Evje & Hornnes, Kjetså, 58.54398°N 7.7592°E, 1 ♂ 18 June–12 July 2019, leg. Lars Breistøl.

**Description:** **Male:** Body length 6.1–7.5 mm. Flagellum with 38–39 flagellomeres; 1<sup>st</sup> flagellomere 6.5× longer than wide and 0.75× as long as eye; 2<sup>nd</sup> flagellomere 4.2× and preapical flagellomere c. 2× longer than wide. Temple parallel or slightly widened behind eye, moderately narrowed apically, 0.9–1.0× as wide as eye. Distance between lateral ocellus and eye 1.0–1.1× ocellar diameter. Face 1.15× as wide as combined length of clypeus+face and 1.0× as wide as eye length, with divergent sides ventrally. Malar space finely striate, Malar space 0.3× as long as width of mandibular base. Lower mandibular tooth ± longer than upper tooth. Mesopleuron with dense punctures dorsally, with scattered or very scattered punctures ventrally. Areae basalis and superomedia confluent. Area basalis trapezoid, longer than wide. Area superomedia 1.9× longer

than wide and 1.6× longer than area petiolaris, anterior transverse carina (costula) reaching its frontal 0.3–0.4. Area petiolaris 0.8–0.9× as long as wide. Hind femur 4.2× longer than wide. Hind metatarsus 9.3× longer than wide and 0.53× as long as hind tibia. Hind claw apparently simple. Vein 1cu-a interstitial. 1<sup>st</sup> tergite 3.0× longer than wide; postpetiolus with central rim and with fine longitudinal rugae. 2<sup>nd</sup> tergite 1.2× longer than wide. Thyridium transverse-oval. Stylet stick-shaped, clubbed apically, sparsely pilose, 1.2× as long as 2<sup>nd</sup> hind tarsomere.

**Color:** Yellow. Flagellum yellow basally, brown distally. Face yellow. Palps, mandible except teeth, clypeus, malar space, ventral gena and wide inner orbit cream-yellow. Outer orbit reddish. Ocellar field brown. Mesosoma yellow, mesoscutum with three brownish stripes. 1<sup>st</sup> tergite brown, basally and apically yellow; 2<sup>nd</sup> tergite yellow, with two basolateral brown spots. Following tergites yellowish. Fore and mid coxae, all trochanters and fore and mid femora cream-yellow, legs otherwise yellow. Hind tibia narrowly at base and in apical 0.25–0.3 brown; hind tarsomeres ± brownish apically. Pterostigma dark brown, paler basally.

**Remarks:** This species was determined as *Mesochorus stigmator* (Thunberg, 1822) in Riedel & Haraldseide (2020), but differs from *M. stigmator* by its long and slightly narrowed temple, larger lower mandibular tooth, wide and ventrally divergent face, and narrow malar space.

**Distribution:** So far only known from Germany, new record for Norway and Scandinavia.

***Mesochorus sternalis* Schwenke, 1999**

**Material:** Ø, Halden: Remmendalen, forest/garden, 59.12172°N 11.36336°E, 1 ♀ 27 April–3 June 2020, leg. Thor Jan Olsen.

**Distribution:** Europe, known from Finland and Sweden, new record for Norway.

***Mesochorus veluminis* Schwenke, 1999**

**Material:** RY, Suldal, Finnvik, 1 ♀ September 2020, leg. H. Haraldseide.

**Distribution:** Germany and Poland, new record for Norway and Scandinavia.

## Subfamily Metopiinae

***Exochus marklini* Holmgren, 1858, new ♀**

**Material:** ALLOTYPE: (♀) NORWAY Ø, Sarpsborg: Holleby, 59.34391°N 16.11328°E, 1♀ 10 July 2017, leg. Thor Jan Olsen.

**Description:** *Female:* Body length 5.8 mm. Flagellum filiform with 30 flagellomeres; 1<sup>st</sup> flagellomere 2.6× longer than wide, widest flagellomeres about square. Temple strongly and roundly narrowed behind eye (as in ♂, see Tolkanitz 2007: 349, figure 23). Distance between lateral ocellus and eye 1.0× ocellar diameter. Occipital carina obsolete dorso-medially. Face not distinctly protruding or strongly convex. Apical margin of clypeus slightly convex. Mandible not swollen and without basal impression. Mesosoma covered with pale brownish hairs. Notaulus pit-like impressed at frontal margin of mesoscutum. Mesoscutum with dense punctures. Hind femur 2.3× longer than wide. Propodeum as in ♂ (see Tolkanitz 2007: 355, figure 146): Areae basalis and superomedia confluent, smooth; area externa densely pilose and with coarse punctures; anterior transverse carina present; area dentipara smooth, with lateral pilosity. Vein 1cu-a of fore wing strongly postfurcal (by its length). Metasomal tergites densely pilose. 1<sup>st</sup> tergite 1.2× longer than wide, with dorsal carina in basal 0.6. 2<sup>nd</sup> tergite 1.24× wider than long. 1<sup>st</sup> and 2<sup>nd</sup> tergites with fine dense punctures laterally, almost smooth medially.

**Color:** Black. Palps, mandible except teeth, upper margin of face, narrow stripe on frontal orbit and triangular spot on vertex, hind edge of pronotum and tegula ivory. Apical spot on scutellum and on postscutellum reddish-yellow. Fore and mid coxae and trochanters brownish, with ivory apical spots. Hind coxa black basally and reddish in apical half. Legs otherwise mainly reddish; apical spots on fore and mid femora ivory; hind tibia brown basally, with subbasal ivory ring, chestnut-red in apical half. Hind tarsomeres ivory, with ± wide brownish tips. Wings hyaline, pterostigma brownish.

**Remarks:** In the recent key for Palaearctic *Exochus* species (Tolkanitz 2007), this female runs to couplet 138 (137) *Exochus marklini* Holmgren ♂. Due to the corresponding form and

coloration of the head and the similar structure of propodeum, I suppose that this specimen represents the hitherto unknown ♀ of this species.

**Distribution:** Western Palaearctic region, known from Sweden, new record for Norway.

## Subfamily Ophioninae

***Enicospilus adustus* (Haller, 1885)**

(det. N. Johansson)

**Material:** Ø, Sarpsborg: Tune, Råkil, 59.29737°N 11.10056°E, 1♀ 8 August 2007, leg. Thor Jan Olsen.

**Distribution:** Western Palaearctic region, known from Sweden, new record for Norway.

***Ophion kallanderi* Johansson, 2019**

(det. N. Johansson)

**Material:** BØ, Nedre Eiker (EIS 28): Haga-tjern, 1♀ 18 September 1992, leg. Øistein Berg.

**Distribution:** Northern Europe, known from Sweden, new record for Norway.

## Subfamily Phygadeuontinae

***Gelis shawi* Schwarz, 2016**

**Material:** Ø, Halden: Remmendalen, forest/garden, 59.12172°N 11.36336°E, 1♀ 27 April–3 June 2020, leg. Thor Jan Olsen.

**Remarks:** The Norwegian female differs slightly from the description of holotype (see Schwarz 2016: 1732–1733) by: flagellum with 22 flagellomeres, 1<sup>st</sup> and 2<sup>nd</sup> flagellomeres entirely and 3<sup>rd</sup> flagellomere basally reddish, 4<sup>th</sup> tergite entirely and 5<sup>th</sup> tergite basally chestnut-red. It is otherwise a typical specimen.

**Distribution:** Only known from Sweden, new record for Norway.

***Phygadeuon dubius* (Gravenhorst, 1829)**

**Material:** ROY, Sokndal: Skittmyr, 58.35021773°N 6.3055563°E, 1♀ 9 August–5 September 2020, leg. Jarl Birkeland.

**Distribution:** Western Palaearctic region, known from Finland and Sweden, new record for Norway.

Subfamily Tryphoninae

***Ctenochira taiga* Kasparyan, 1972**

**Material:** Ø, Aremark: Kutjern, 59.27711°N 11.58547°E, 1♂ 25 May–25 June 2014, leg. Gro Anne Aase & Thor Jan Olsen.

**Distribution:** Palaearctic region, known from Central Europe, new record for Norway and Scandinavia.

***Phytodietus elongator* Aubert, 1963**

**Material:** AK, Vestby son Ringveien, 59.49574°N 10.68599°E, 1♀ 26 June–5 September 2020, leg. Thor Jan Olsen.

**Remarks:** The coloration of hind leg of this Norwegian female (hind coxa red, with yellow dorsal spot and blackish hind margin; hind trochanter black basally and reddish apically) resembles the East Palaearctic subspecies *Phytodietus elongator decoratus* Tolkanitz, 1976. The Central and South European females of *Phytodietus elongator* sensu stricto usually have the hind coxa and trochanter entirely red (Kasparyan, 1993).

**Distribution:** Palaearctic region, new record for Norway and Scandinavia.

Subfamily Xoridinae

***Xorides sepulchralis* (Holmgren, 1860)**

**Material:** Ø, Spydeberg: Myrvold, forest, 131 m asl., 59.53461°N 11.01049°E, 1♂ 2 June–2 July 2016, leg. Thor Jan Olsen.

**Distribution:** Palaearctic region, known from Finland and Sweden, new record for Norway.

**Discussion**

The parasitic wasps of the family Ichneumonidae represent one of the most diverse insect families in many countries of the Palaearctic region. Adding the new distributional records from this study, more than 2270 different Ichneumonid species are now known from Norway. Since this number is still lower than reported from other Scandinavian countries (e.g., 3157 species of Ichneumonidae are reported from Sweden (www.dyntaxa.se,

accessed on 16 July 2022) and 2766 species from Finland (Yu *et al.*, 2016) one can suggest a portion of unrecorded species for the Norwegian fauna.

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