Ent. Tidskr. 141 (2020)

Contribution to the Mesochorinae of Sweden (Hymenoptera: Ichneumonidae)

MATTHIAS RIEDEL

Riedel, M.: Contribution to the Mesochorinae of Sweden (Hymenoptera: Ichneumonidae). [**Bidrag till faunan av Mesochorinae i Sverige (Hymenoptera: Ichneumonidae.**] – Entomologisk Tidskrift 141 (3): 95–120. Björnlunda, Sweden 2020. ISSN 0013-886x.

For this study, a part of the Swedish material of the subfamily Mesochorinae (Hymenoptera: Ichneumonidae) collected by the Swedish Malaise Trap Project (SMTP) was determined. In the available material 97 different species of Mesochorinae were identified, 31 of them are new records for the Swedish fauna. Four species are new to science: *Mesochorus albofacies* **sp. nov.**, *Mesochorus longivalvator* **nov.sp.**, *Mesochorus nigritor* **sp. nov.** and *Mesochorus nigroclypeatus* **sp. nov.** The new taxa are described in detail and illustrated here.

For *Mesochorus frigidus* Schwenke, 1999 and *Mesochorus macrophyae* Schwenke, 1999, the previously unknown males are described. *Mesochorus skanensis* Vikberg, 2017 is synonymized with *Mesochorus terebratus* Schwenke, 1999 and *Mesochorus acutus* Schwenke, 1999 is re-established as a separate species from *Mesochorus suomiensis* Schwenke, 1999. *Stictopisthus* Thomson is regarded as a subgenus of *Mesochorus* Gravenhorst.

This is the third contribution to the fauna of Ichneumonidae from the Swedish Malaise Trap Project, following Riedel & Magnusson (2014) and Riedel & Magnusson (2017).

Dr. Matthias Riedel, Zoologische Staatssammlung München, Münchhausenstr. 21, D-81247 Munich, Germany. E-mail: mamaflo.riedel@t-online.de

The subfamily Mesochorinae is a moderately large group of Ichneumonidae containing almost 900 described species worldwide, about 90% of them belonging to the cosmopolitan genus *Mesochorus* Gravenhorst. The species of Mesochorinae are probably all obligate hyperparasitoids, though some authors have mentioned a few (questionable) cases of primary parasitism (Broad et al. 2018).

The European members of the subfamily Mesochorinae have recently been revised by Schwenke (1999, 2002, 2004) who described a large number of new taxa, but his descriptions are very short and often not useful for an unequivocal determination of the species (Riedel 2019). Horstmann (2004, 2006) and Vikberg & Vårdal (2017) have corrected some taxonomic mistakes and inconsistencies and described a few new species. After studying the Schwenke collection in the Zoologische Staatssammlung Munich, Germany, additional informations on the *Mesochorus* species described by Schwenke and descriptions of some new European *Mesochorus* species were recently published by Riedel (2018a, 2018b, 2019). The European species of *Cidaphus* Förster had been revised by Fitton (1985) and the Western Palaearctic *Astiphromma* Förster by Riedel (2015). Recently, *Dolichochorus* Strobl was again raised to a valid genus separate from *Astiphromma* Förster and its members described by Broad & Watanabe (2019).

The genus *Stictopisthus* Thomson had been traditionally separated from *Mesochorus* Gravenhorst as a different genus (e.g. Schwenke 1999), but in his cladistic analysis Wahl (1993) had placed *Stictopisthus* as a synonym of *Mesochorus* because a separation of both genera would leave *Mesochorus* as non-monophyletic in his view. At least in the Palaearctic fauna,

members of *Stictopisthus* represent a subgenus (or species-group) that is easy separable from the main bulk of *Mesochorus* by distinct morphological features: straight (and not dipped) transverse carina below the antennal sockets; antennal sockets widely separated from each other; mesosoma usually ± compressed; scuto-scutellar groove narrow; vein 1cu-a strongly postfurcal. Aligned with Araujo et al. (2018), I propose *Stictopisthus* as a subgenus of *Mesochorus* here, until more cladistic and molecular data will help to better understand the phylogeny of the large and diverse genus *Mesochorus* in the future.

In total, 355 species of Mesochorinae are known from Europe and 105 species have been reported from Sweden so far (Yu et al. 2016, Vikberg & Vårdal 2017).

Material and methods

In total, 1182 Mesochorinae specimens found in 193 samples from 59 sites (for locations see Appendix 1) from the Swedish Malaise Trap Project were prepared and determined for this study. The main material will be deposited in the Department of Zoology, Swedish Museum of Natural History in Stockholm; some voucher specimens and paratypes are housed in the private collection of the author. The distribution records given below were taken from the catalogue of Yu et al. (2016).

For the descriptions, morphological terms follow Broad et al. (2018), but the parameres of males are termed stylets here. For the measurements the following relations were used: length of 1st 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 punctation of body parts the following definitions were used: very scattered – distance between punctures >2x their diameter; scattered – distance 1–2x their diameter; dense – diameter of punctures larger than the distance between them.

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.

Species list

Genus *Astiphromma* Förster, 1869

***Astiphromma aggressor* (Fabricius, 1804)**
syn. *Mesochorus marginellus* Holmgren, 1860
Material: Trap 17: 1 ♀ 19.vii.-12.viii.2003; trap 46: 1 ♀ 28.vi.-15.vii.2004.
Distribution: Europe, known from Sweden (Holmgren 1860 as *marginellus*, Riedel 2015).

***Astiphromma albitarse* (Brischke, 1880)**
Material: Trap 22: 1 ♂ 1–15.vi.2005; trap 40: 1 ♂ 22.v.-20.vi.2005; trap 58: 1 ♂ 22.ix.-14.x.2003.
Distribution: Europe, known from Sweden (Riedel 2015).

***Astiphromma alpinum* Roman, 1909**
Material: Trap 6: 1 ♀ 9.xii.2003–14.vi.2004; trap 17: 2 ♀♀ 31.v.-15.vi.2005; trap 22: 1 ♀ 15–29.vi.2005, 1 ♀ 20.v-28.vi.2006.
Distribution: Europe, known from Sweden (Roman 1909, Schwenke 1999, Riedel 2015).

***Astiphromma anale* Holmgren, 1860**
Material: Trap 4: 1 ♀ 11.viii.-7.ix.2004; trap 6: 2 ♀♀ 9.xii.2003–14.vi.2004; trap 8: 1 ♂ 20.v.-20.vi.2005; trap 42: 1 ♀ 21.v.-17.vi.2004; trap 43: 1 ♀ 16–30.vi.2004, 1 ♀ 29.vi.-14.vii.2005; trap 46: 1 ♂ 28.vi.-15.vii.2004; trap 50: 1 ♀ 23.vi.-8.vii.2004, 8 ♀♀ 1 ♂ 8.vii.-5.viii.2004, 1 ♂ 13–26.vi.2005; trap 55: 1 ♀ 9–23.vii.2004.
Distribution: Europe, known from Sweden (Holmgren 1860, Schwenke 1999, Riedel 2015).

***Astiphromma dorsale* (Holmgren, 1860)**
Material: Trap 12: 1 ♀ 24.vi.-5.vii.2003, 2 ♀♀ 13–27.vi.2004, 1 ♀ 27.vi.-17.vii.2004; trap 22: 1 ♂ 20.v.-1.vi.2005; trap 29: 1 ♀ 30.vii.-20.viii.2004; trap 1002: 1 ♀ 2 ♂♂ 4–18.vi.2005.
Distribution: Palaearctic and Oriental, known from Sweden (Holmgren 1860, Riedel 2015).

***Astiphromma hirsutum* (Bridgman, 1883)**
syn. *Mesochorus graniger* Thomson, 1886
Material: Trap 22: 1 ♀ 15–29.vi.2005
Distribution: Europe, known from Sweden (Dalla Torre 1902 and Schwenke 1999 as *graniger*).

***Astiphromma leucogrammum* (Holmgren, 1860)**
Material: Trap 42: 1 ♀ 4.vii.-4.viii.2004; trap 46: 1 ♀ 28.vi.-15.vii.2004; trap 50: 1 ♀ 8.vii.-5.viii.2004.
Distribution: Holarctic, known from Sweden (Holmgren 1860, Roman 1909, Roman 1931, Schwenke 1999, Riedel 2015).

***Astiphromma nigrocoxatum* (Strobl, 1904)**
Material: Trap 22: 1 ♀ 1–15.vi.2005; trap 1001: 1 ♂ 18.v-15.vi.2006.
Distribution: Europe, known from Norway, new record for Sweden.

***Astiphromma pictum* (Brischke, 1880)**
Material: Trap 1008: 2 ♀♀ 12–22.v.2006, 1 ♀ 1–10.vi.2006.
Distribution: Palaearctic, known from Sweden (Riedel 2015).

***Astiphromma rimosum* Schwenke, 1999**
Material: Trap 6: 1 ♂ 9.xii.2003–14.vi.2004; trap 11: 2 ♀♀ 22.v-6.vi.2005; trap 1001: 1 ♀ 18.v-15.vi.2006.
Distribution: Europe, known from Finland and Norway, new record for Sweden.

***Astiphromma scutellatum* (Gravenhorst, 1829)**
Material: Trap 39: 14 ♀♀ 1 ♂ 12.vi.-13.vii.2004, 1 ♂ 22.iv.-26.v.2005, 2 ♀♀ 20.60.vi.2005.
Distribution: Europe, known from Sweden (Holmgren 1860).

***Astiphromma splenium* (Curtis, 1833)**
syn. *Mesochorus strenuus* Holmgren, 1860
Material: Trap 1: 1 ♂ 28.v.-16.vi.2004; trap 4: 1 ♀ 21.vi.-20.vii.2004; trap 5: 1 ♀ 16.-30.vi.2004; trap 7: 3 ♀♀ 17.vi.-3.vii.2003, 1 ♀3.-29.vii.2003, 1 ♀ 4–20.ix.2004, 3 ♀♀ 14.vii.-4.vii.2005; trap 8: 1 ♀ 20.v.-20.vi.2005; trap 9: 2 ♀♀ 1–19.ix.2003; trap 10: 1 ♀ 8–21.vii.2003, 1 ♀ 26.viii.-16.ix.2003, 1 ♀ 13.v.-18.vi.2004; trap 12: 1 ♀ 19–28.viii.2004; trap 17: 3 ♀♀ 19.vii.-12.viii.2003, 1 ♀ 19.v.-10.vi.2004, 3 ♀♀ 1 ♂ 31.v.-15.vi.2005; trap 18: 1 ♀ 4–29.vii.2003, 1 ♀ 20–30.vi.2004, 3 ♀♀ 20–30.viii.2004; trap 22: 1 ♀ 1–15.vi.2005, 3 ♀♀ 15–29.vi.2005, 1 ♀ 20.v-28.vi.2006, 1 ♀ 20.vii.-15.viii.2006; trap 24: 2 ♀♀ 19.v.-27.vi.2004, 9 ♀♀ 31.v.-20.vii.2005; trap 29: 10 ♀♀ 4–21.vi.2005; trap 39: 1 ♀ 25.vii.-8.viii.2003, 1 ♀ 9 ♂♂ 8.iv.-1.vi.2004, 23 ♀♀ 2 ♂♂ 12.vi.-13.vii.2004, 1 ♂ 22.ix.-1.xi.2004, 13 ♀♀ 22.iv.-26.v.2005; trap 40: 5 ♀♀ 14 ♂♂ 22.v.-20.vi.2005; trap 41: 1 ♀ 12–21.vii.2003; trap 42: 1 ♂ 4.vii.-4.viii.2004; trap 43: 1 ♀ 29.vi.-14.vii.2005; trap 44: 3 ♂♂ 3–16.vi.2003, 1 ♂ 5–25.vii.2004; trap 46: 1 ♀ 28.vi.-15.vii.2004, 1 ♀ 26.vii.-15.viii.2004, 1 ♀ 15–30.viii.2004; trap 48: 1 ♀ 13.viii.-1.ix.2004; trap 50: 1 ♂ 4–10.viii.2005, 1 ♀ (var. sericeus) 5–12.viii.2004; trap 51: 2 ♀♀ 1 ♂ 21.vii.-12.viii.2004; trap 55: 5 ♀♀ 9–23.vii.2004; trap 57: 1 ♀ 20.viii.-3.ix.2004; trap 1001: 2 ♀♀ 2–12.vii.2005, 11 ♀♀ 18.v-15.vi.2006; trap 1003: 1 ♀ 24.vii.-12.ix.2005; trap 1006: 1 ♀ 15–30.vii.2005; trap 1007: 1 ♀ 26.vi.-15.vii.2006; trap 1008: 2 ♀♀ 15–20.vi.2005, 1 ♀ 10–15.vii.2005, 1 ♀ 20–25.viii.2005, 3 ♀♀ 1–10.vi.2006, 1 ♀ 10–16.vii.2006.
Distribution: Holarctic, known from Sweden (Holmgren 1860, Thomson 1886 and Roman 1931 as *strenuus*, Riedel 2015).

***Astiphromma striatum* (Brischke, 1880)**
syn. *Mesochorus mandibularis* Thomson, 1886
Material: Trap 8: 1 ♀ 20.v.-20.vi.2005; trap 17: 1 ♀ 19.v.-10.vi.2004; trap 24: 3 ♀♀ 19.v.-27.vi.2004; trap 1001: 1 ♀ 2 ♂♂ 18.v-15.vi.2006.
Distribution: Europe, known from Sweden (Thomson 1886 and Schwenke 1999 as *mandibularis*, Riedel 2015).

***Astiphromma tenuicorne* (Thomson, 1886)**
Material: Trap 37: 1 ♀ 11.vi.-3.vii.2004, 1 ♀ 7.vii.-9.viii.2005; trap 43: 1 ♀ 14–27.vii.2005.
Distribution: Europe, known from Sweden (Thomson 1886, Schwenke 1999, Riedel 2015).

***Astiphromma tridentatum* Schwenke, 1999**
Material: Trap 1001: 1 ♀ 18.v-15.vi.2006.
Distribution: Europe, known from Sweden (Riedel 2015).

***Astiphromma uliginosum* Schwenke, 1999**
Material: Trap 43: 1 ♀ 25.viii-9.ix.2005; trap 46: 3 ♀♀ 26.vii.-15.viii.2004.
Distribution: Europe, known from Norway, new record for Sweden.

***Astiphromma varipes* (Holmgren, 1860)**
Material: Trap 2003: 1 ♀ 10.x-23.xi.2006.
Distribution: Europe, known from Sweden (Holmgren 1860, Schwenke 1999, Riedel 2015).

Genus *Cidaphus* Förster, 1869

***Cidaphus areolatus* (Boie, 1850)**
Material: Trap 1003: 1 ♀ 24.vii.-12.ix.2005.
Distribution: Europe, known from Finland and Norway, new record for Sweden.

Genus *Dolichochorus* Strobl, 1904

***Dolichochorus longiceps* (Strobl, 1904)**
Material: Trap 17: 4 ♀♀ 13.ix.-4.x.2005; trap 46: 1 ♀ 15–30.viii.2004.
Distribution: Europe, known from Sweden (Schwenke 1999, Riedel 2015, Broad & Watanabe 2019).

Genus *Mesochorus* Gravenhorst, 1829

***Mesochorus (Mesochorus) acutus* Schwenke, 1999, stat. rev.**
Taxonomic remark: this species was synonymized with *Mesochorus suomiensis* Schwenke by Jussila (2011), but the holotype of *M. acutus* Schwenke differs from *M. suomiensis* by: face brown (reddish in *M. suomiensis)*, punctures of mesopleuron scattered (rugose and more densely punctate in *M. suomiensis*) and pterostigma ochreous (blackish in *M. suomiensis*). I therefore re-establish *Mesochorus acutus* as a separate species here.
Material: Trap 8: 1 ♀ 20.v.-20.vi.2005; trap 55: 1 ♀ 24.ix.-15.x.2004.
Distribution: Central Europe, new record for Sweden.

***Mesochorus (Mesochorus) albifrons* sp. nov.**
Material: Trap 22: 1 ♂ 1–15.vi.2005; trap 1002: 1 ♂ 18–25.vi.2005.
Distribution: New record for Sweden.

***Mesochorus (Mesochorus) alpigenus* Strobl, 1904**
Material: Trap 1007: 2 ♀♀ 1 ♂ 26.vi.-15.vii.2006, 1 ♀ 21–27.vii.2005, 1 ♀ 27.vii.-4.viii.2005, 1 ♀ 11–17.viii.2005, 2 ♀♀ 17–31.viii.2005.
Distribution: Europe, known from Sweden (Roman 1917).

***Mesochorus (Mesochorus) angustatus* Thomson, 1886**
Material: Trap 22: 1 ♀ 18.vii.-1.viii.2005.
Distribution: Europe, known from Sweden (Thomson 1886, Schwenke 1999).

***Mesochorus (Mesochorus) anomalus* Holmgren, 1860**
Material: Trap 6: 1 ♀ 26.viii.-9.ix.2003; trap 7: 1 ♀ 26.viii.-9.ix.2003; trap 22: 1 ♀ 18.vii.-1.viii.2005; trap 39: 1 ♀ 25.vii.-8.viii.2003; trap 48: 1 ♀ 13.viii.-1.ix.2004; trap 1003: 2 ♀♀ 24.vii.-12.ix.2005; trap 1006: 1 ♀ 26.ix.2005–10.ii.2006.
Distribution: Europe, known from Sweden (Holmgren 1860, Nordström 1916, Schwenke 1999).

***Mesochorus (Mesochorus) anthracinus* Kriechbaumer, 1890**
Material: Trap 42: 1 ♂ 4.vii.-4.viii.2004.
Distribution: Europe, known from Finland, new record for Sweden.

***Mesochorus (Mesochorus) arenarius* (Haliday, 1838)**
Material: Trap 2006: 2 ♀♀ 13–24.vii.2007.
Distribution: Holarctic, known from Sweden (Holmgren 1856, 1860, Schwenke 1999).

***Mesochorus (Mesochorus) atriventris* Cresson, 1872**
syn. *Mesochorus sylvarum* auct. non Curtis
Material: Trap 4: 2 ♀♀ 21.vi.-20.vii.2004; trap 6: 1 ♀ 26.viii.-9.ix.2003; trap 7: 1 ♀ 26.viii.-9.ix.2003; trap 8: 3 ♀♀ 10.ix.2005; trap 10: 2 ♀♀ 8–21.vii.2003, 4 ♀♀ 4–26.viii.2003, 9 ♀♀ 26.viii.-16.ix.2003; trap 17: 1 ♀ 19.vii.-12.viii.2003, 1 ♀ 31.v.-15.vi.2005, 3 ♀♀ 13.ix.-4.x.2005; trap 18: 1 ♀ 20–30.vi.2004; trap 22: 2 ♀♀ 15–29.vi.2005, 1 ♀ 18.vii.-1.viii.2005; trap 24: 1 ♀ 5.ix.2005–15.iv.2006; trap 39: 1 ♀ 31.vii.-6.viii.2004, 1 ♀ 22.ix.-1.xi.2004; trap 43: 1 ♂ 22.ix.-6.x.2004; trap 44: 1 ♀ 5–25.vii.2004; trap 46: 1 ♂ 28.vi.-15.vii.2004, 1 ♂ 15–30.viii.2004; trap 47: 2 ♂♂ 18.vi.-20.vii.2004; trap 48: 1 ♀ 13.viii.-1.ix.2004; trap 50: 1 ♀ 8.vii.-5.viii.2004; trap 51: 3 ♀♀ 2 ♂♂ 21.vii.-12.viii.2004; trap 53: 1 ♀ 1–22.ix.2003; trap 54: 1 ♀ 22.ix.-14.x.2003; trap 55: 1 ♀ 22.ix.-14.x.2003, 5 ♀♀9–23.vii.2004; trap 58: 2 ♀♀ 1 ♂ 22.ix.-14.x.2003; trap 1001: 1 ♀ 18.v-15.vi.2006; trap 1003: 1 ♀ 24.vii.-12.ix.2005; trap 1008: 1 ♀ 20–25.vii.2005.

Distribution: Holarctic, known from Sweden (Holmgren 1860 as *sylvarum*, Horstmann 2006).

***Mesochorus (Mesochorus) bicinctus* Schwenke, 1999**
Material: Trap 13: 4 ♂♂ 15.vi.-5.vii.2005.
Distribution: North and Central Europe, known from Norway, new record for Sweden.

***Mesochorus (Mesochorus) bicolor* Schwenke, 1999**
Material: Trap 28: 1 ♀ 8–18.vii.2003.
Distribution: North and Central Europe, known from Sweden (Schwenke 1999).

***Mesochorus (Mesochorus) britannicus* Schwenke, 1999**
Material: Trap 6: 1 ♀ 12–26.viii.2003, 1 ♀ 26.viii.-9.ix.2003; trap 42: 1 ♀ 4.vii.-4.viii.2004.
Distribution: Europe, known from Sweden (Riedel 2018a).

***Mesochorus (Mesochorus) capeki* Schwenke, 2002**
syn. *Mesochorus incisus* Schwenke, 1999, preoccupied.
Remark: Body length 3 mm. Flagellum with 28 flagellomere. Hind femur 4.5x longer than wide. 1st tergite 2.7x longer than wide, postpetiolus with longitudinal rugae. 2nd tergite 0.85 x as long as wide. Hind tibia infuscate in apical 0.1 (0.5x tibial width).
Material: Trap 10: 2 ♀♀ 26.viii.-16.ix.2003; trap 12: 4 ♀♀ 9–19.viii.2004, 2 ♀♀ 19–28.viii.2004; trap 39: 1 ♀ 7–22.ix.2004; trap 42: 1 ♂ 4.vii.-4.viii.2004.
Distribution: Only known from Czech Republic, new record for Sweden.

***Mesochorus (Mesochorus) crassimanus* Holmgren, 1860**
Material: Trap 40: 1 ♀ 22.v.-20.vi.2005.
Distribution: Europe, known from Sweden (Holmgren 1860, Horstmann 2006).

***Mesochorus (Mesochorus) curvulus* Thomson, 1886**
syn. *Mesochorus cinctus* Schwenke, 1999 and *Mesochorus bipartitus* Schwenke, 1999, synonymized by Riedel (2019).
Material: Trap 6: 3 ♀♀ 12.-26.viii.2003; trap 10: 1 ♀ 8–21.vii.2003; trap 12: 3 ♀♀ 24.vi.-5.vii.2003, 3 ♀♀ 20.vii.-2.viii.2003, 1 ♀ 1 ♂ 27.vi.-17.vii.2004; trap 13: 1 ♂ 20–26.vii.2005; trap 18: 1 ♀ 6–11.vii.2003; trap 22: 1 ♂ 1–15.vi.2005; 5 ♀♀ 2 ♂♂ 15–29.vi.2005, 5 ♀♀ 29.vi.-18.vii.2005; trap 27: 1 ♀ 7–21.vii.2003; trap 28: 1 ♀ 16.vii.-2.viii.2004; trap 35: 2 ♀♀ 7–9.viii.2004; trap 39: 1 ♀ 12.vi.-13.vii.2004; trap 43: 1 ♀ 30.vi.-14.vii.2004, 4 ♀♀ 14–27.vii.2005; trap 50: 10 ♀♀ 5–12.viii.2004, 1 ♀ 4–10.viii.2005; trap 51: 2 ♀♀ 21.vii.-12.viii.2004; trap 54: 1 ♀ 5–20.viii.2004; trap 1001: 3 ♀♀ 2–12.vii.2005; trap 1002: 2 ♀♀ 18–25.vi.2005, 2 ♀♀ 25.vi.-7.vii.2005, 2 ♀ 1 ♂ 23.vii.-12.viii.2005, 1 ♀ 12–24.viii.2005; trap 1005: 1 ♀ 30.vii.-26.ix.2005; trap 1006: 5 ♀♀ 15–30.vii.2005; trap 1007: 1 ♀ 27.vii.-4.viii.2005; trap 1008: 1 ♀ 20–25.viii.2005; trap 2003: 1 ♀ 9–29.vi.2006; trap 2006: 1 ♀ 12–29.viii.2008.
Distribution: Holarctic, known from Sweden (Jussila 1978, Schwenke 1999, Jussila 2011 as *bipartitus*).

***Mesochorus (Mesochorus) declinans* Habermehl, 1922**
Material: Trap 24: 1 ♀ 19.v.-27.vi.2004; trap 41: 2 ♀♀ 20.viii.-17.ix.2004; trap 42: 1 ♀ 4.vii.-4.viii.2004.
Distribution: Europe, known from Sweden (Jussila 2011).

***Mesochorus (Mesochorus) dimidiator* Aubert, 1970**
Material: Trap 9: 1 ♀ 1–19.ix.2003; trap 24: 1 ♀ 18.viii.-13.ix.2003.
Distribution: Europe, known from Sweden (Schwenke 1999).

***Mesochorus (Mesochorus) discitergus* (Say, 1835)**
syn. *Mesochorus facialis* Bridgman, 1884
Material: Trap 12: 1 ♂ 25.viii.-19.ix.2003.
Distribution: Almost worldwide, known from Sweden (Dalla Torre 1902 as *facialis*).

***Mesochorus (Mesochorus) dispar* Brischke, 1880**
Material: Trap 10: 1 ♀ 26.viii.-16.ix.2003; trap 11: 1 ♂ 4–18.viii.2003, 1 ♀ 18.viii.-1.ix.2003; trap 12: 1 ♀ 9–19.viii.2004; trap 28: 1 ♀ 21.ix.2004–1.iv.2005, 1 ♀ 2.ix.-8.xi.2005; trap 35: 1 ♀ 29.ix.-10.x.2004, 1 ♀ 29.iii.-9.iv.2005; trap 43: 1 ♀ 16–30.

vi.2004; trap 48: 5 ♀♀ 13.viii.-1.ix.2004; trap 49: 1 ♂ 14.ix.-5.x.2003; trap 50: 2 ♀♀ 8.vii.-5.viii.2004, 1 ♀ 5–12.viii.2004, 1 ♀ 4–10.viii.2005; trap 57: 1 ♀ 20.viii.-3.ix.2004; trap 1002: 1 ♂ 25.vi.-7.vii.2005, 1 ♂ 23.vii.-12.viii.2005, 1 ♂ 12–24.viii.2005; trap 1003: 2 ♀♀ 24.vii.-12.ix.2005.
Distribution: Europe, known from Denmark and Finland, new record for Sweden.

***Mesochorus (Mesochorus) divergentus* Schwenke, 1999**
syn. *Mesochorus tumidus* Schwenke, 1999, preoccupied.
Remark: Flagellum with 28 flagellomeres. Mesopleuron with fine but dense punctures dorsally and fine scattered punctures ventrally. Hind femur 4.4x longer than wide. Hind tibia basally and in apical 0.2 brown, hind tarsus brown. 1st tergite black, 6th tergite brown, 7th tergite ochreous.
Material: Trap 7: 1 ♀ 3–29.vii.2003; trap 9: 1 ♀ 16.vii.-6.viii.2005; trap 1003: 2 ♀♀ 24.vii.-12.ix.2005.
Distribution: Only known from Poland, new record for Sweden.

***Mesochorus (Mesochorus) errabundus* Hartig, 1838**
syn. *Mesochorus politus* sensu Schwenke non Gravenhorst
Material: Trap 45: 1 ♀ 23.viii.-7.ix.2003.
Distribution: Europe, known from Sweden (Schwenke 1999 as *politus*).

***Mesochorus (Mesochorus) faciator* Horstmann, 2003**
Material: Trap 39: 1 ♀ 7–22.ix.2004.
Distribution: Known from Germany, Italy and Turkey, new record for Sweden.

***Mesochorus (Mesochorus) fennicus* Schwenke, 1999**
Remark: The Swedish ♀♀ slightly differ from the holotype (for a description see Riedel 2019: 78–79): Body length 6–6.5 mm. Flagellum with 35–37 flagellomeres. Distance between lateral ocellus and eye 0.8x ocellar diameter. Hind femur 4.9x longer than wide. Ovipositor sheath 7.5x longer than wide and 0.8x as long as hind metatarsus, distinctly narrowed in apical 0.3 and slightly bent upwards apically. 2nd tergite black, diffusely reddish in posterior 0.25 and with yellow hind margin. Hind tibia infuscate in apical 0.15.
Material: Trap 5: 1 ♀ 16.-30.vi.2004; trap 10: 1 ♀ 4–26.viii.2003; trap 24: 1 ♀ 27.vi.-22.vii.2004; trap 37: 2 ♀♀ 11.vi.-3.vii.2004; trap 1008: 5 ♀♀ 15–20.vi.2005.
Distribution: Only known from Finland, new record for Sweden.

***Mesochorus (Mesochorus) flexus* Schwenke, 1999**
Material: Trap 6: 11 ♀♀ 12.-26.viii.2003; trap 51: 1 ♀ 21.vii.-12.viii.2004; trap 1008: 1 ♀ 20–25.viii.2005.
Distribution: North and Central Europe, known from Sweden (Jussila 2011).

***Mesochorus (Stictopisthus) formosus* Bridgman, 1882**
Material: Trap 28: 2 ♀♀ 9.viii.-2.ix.2005; trap 49: 1 ♀ 14.ix.-5.x.2003; trap 50: 1 ♀ 8.vii.-5.viii.2004; trap 1002: 1 ♀ 23.vii.-12.viii.2005.
Distribution: Europe, known from Sweden (Thomson 1886, Schwenke 1999).

***Mesochorus (Mesochorus) frigidus* Schwenke, 1999, new ♂**
Material: Trap 35: 1 ♂ 1–24.iv.2004; trap 1007: 1 ♀ 11–17.viii.2005, 1 ♀ 17–31.viii.2005.
Distribution: Known from Finland and Sweden (Schwenke 1999).

***Mesochorus (Mesochorus) frondosus* Schwenke, 1999**
Material: Trap 10: 1 ♀ 8–21.vii.2003; trap 11: 1 ♂ 18.viii.-1.ix.2003; trap 12: 1 ♀ 20.vii.-.2.viii.2003, 1 ♀ 27.vi.-17.vii.2004; trap 23: 1 ♀ 26.vi.-10.vii.2003, 1 ♀ 10–24.vii.2003; trap 24: 1 ♀ 27.vi.-22.vii.2004; trap 28: 1 ♀ 16.vii.-2.viii.2004, 1 ♂ 1–10.iv.2005; trap 31: 1 ♀ 29.vi.-14.vii.2004; trap 34: 1 ♀ 5.vii.-20.viii.2003; trap 43: 1 ♀ 30.vi.-14.vii.2004, 1 ♀ 14–27.vii.2005; trap 50: 1 ♀ 5–12.viii.2004; trap 1002: 7 ♀♀ 25.vi.-7.vii.2005; trap 1005: 1 ♀ 30.vii.-26.ix.2005; trap 1008: 1 ♀ 10–16.vii.2006.
Distribution: Known from Germany, new record for Sweden.

***Mesochorus (Mesochorus) fulgurans* Curtis, 1833**
syn. *Mesochorus fulvus* Thomson, 1886
Material: Trap 4: 1 ♀ 21.vi.-20.vii.2004; trap 10: 1 ♀ 26.viii.-16.ix.2003; trap 22: 1 ♀ 1–23.vi.2004; trap 42: 2 ♀♀ 10–30.ix.2003; trap 44: 1 ♀ 5–25.vii.2004; trap 47: 1 ♂ 18.vi.-20.vii.2004; trap 55: 1 ♀ 24.ix.-15.x.2004; trap 60: 1 ♀ 1–18.viii.2003.
Distribution: Palaearctic and Oriental, known from Sweden (Holmgren 1860, Thomson 1886, Roman 1931, Jussila 1978 and Schwenke 1999 as *fulvus*, Horstmann 2006, Riedel 2018a)

***Mesochorus (Mesochorus) fulgurator* Horstmann, 2006**
Material: Trap 27: 1 ♀ 7–21.vii.2003; trap 42: 1 ♂ 4.vii.-4.viii.2004; trap 1008: 1 ♀ 10–16.vii.2006.
Distribution: Europe, known from Sweden (Horstmann 2006, Riedel 2018a).

***Mesochorus (Mesochorus) gemellus* Holmgren, 1860**
Material: Trap 6: 1 ♀ 26.viii.-9.ix.2003.
Distribution: Holarctic, known from Sweden (Holmgren 1860, Thomson 1886, Kemner 1927, Vikberg & Vårdal 2017).

***Mesochorus (Mesochorus) giberius* (Thunberg, 1822)**
syn. *Mesochorus temporalis* Thomson, 1886, synonymized by Riedel & Kolarov (2020).
Material: Trap 17: 1 ♂ 31.v.-15.vi.2005; trap 24: 1 ♀ 15.vii.-1.viii.2003; trap 28: 1 ♀ 21.ix.2004–1.iv.2005, 2 ♀♀ 2.ix.-8.xi.2005; trap 38: 1 ♀ 24–31.v.2005; trap 1002: 1 ♀ 18–25.vi.2005.
Distribution: Holarctic and Oriental, known from Sweden (Holmgren 1860, Schwenke 1999 as *temporalis*, Vikberg & Vårdal 2017).

***Mesochorus (Mesochorus) globulator* (Thunberg, 1822)**
Material: Trap 10: 3 ♀♀ 4–26.viii.2003, 3 ♀♀ 13.v.-18.vi.2004; trap 12: 2 ♀♀ 25.viii.-19.ix.2003, 2 ♀♀ 13–27.vi.2004; trap 1001: 1 ♀ 2–12.vii.2005.
Distribution: Holarctic, known from Sweden (Dalla Torre 1902, Schwenke 1999, Horstmann 2004, 2006).

***Mesochorus (Mesochorus) haeselbarthi* Schwenke, 1999**
Material: Trap 50: 1 ♀ 23.vi.-8.vii.2004, 1 ♀ 8.vii.-5.viii.2004; trap 1007: 1 ♀ 21–27.vii.2005.
Distribution: Known from Central Europe and Norway, new record for Sweden.

***Mesochorus (Mesochorus) halticae* Schwenke, 1999**
Material: Trap 1003: 1 ♀ 24.vii.-12.ix.2005.
Distribution: Known from Switzerland, new record for Sweden.

***Mesochorus (Mesochorus) ingentis* Schwenke, 1999**
Material: Trap 51: 1 ♀ 21.vii.-12.viii.2004.
Distribution: Known from Poland and Sweden (Schwenke 2002).

***Mesochorus (Mesochorus) lapponicus* Thomson, 1886**
Material: Trap 1008: 1 ♀ 20.x.-20.xi.2005.
Distribution: Europe, known from Sweden (Riedel 2018a).

***Mesochorus (Mesochorus) larentiae* Schwenke, 1999**
Material: Trap 47: 1 ♀ 18.vi.-20.vii.2004.
Distribution: Known from Austria and Germany, new record for Sweden.

***Mesochorus (Mesochorus) laricis* Hartig, 1838**
Material: Trap 6: 1 ♀ 26.viii.-9.ix.2003; trap 34: 1 ♂ 5.vii.-20.viii.2003; trap 41: 1 ♂ 12–21.vii.2003, 1 ♀ 20.viii.-17.ix.2004, 1 ♀ 17.vii.-3.viii.2005, 1 ♀ 1–21.ix.2005; trap 54: 1 ♀ 22.ix.-14.x.2003.
Distribution: Europe, known from Sweden (Riedel 2018a).

***Mesochorus (Mesochorus) latus* Schwenke, 1999**
Material: Trap 8: 1 ♀ 29.vii.-8.viii.2004; trap 10: 1 ♀ 8–21.vii.2003; trap 12: 1 ♀ 9–19.viii.2004; trap 55: 5 ♀♀ 9–23.vii.2004.
Distribution: Only known from United Kingdom, new record for Sweden.

***Mesochorus (Mesochorus) longivalvator* sp. nov.**
Material: Trap 12: 1 ♀ 9–19.viii.2004.
Distribution: New record for Sweden.

***Mesochorus (Mesochorus) macrophyae* Schwenke, 1999, new** ♂
Material: Trap 10: 1 ♂ 8–21.vii.2003
Distribution: Only known from Germany, new record for Sweden.

***Mesochorus (Mesochorus) mellis* Schwenke, 1999**
Material: Trap 13:1 ♀ 15.vi.-5.vii.2005; trap 16: 1 ♀ 19.vii.-2.viii.2005; trap 28: 2 ♀♀ 16.vii.-2.viii.2004; trap 37: 1 ♀ 11.vi.-3.vii.2004; trap 1002: 1 ♀ 12–24.viii.2005.
Distribution: North and Central Europe, known from Sweden (Schwenke 1999).

***Mesochorus (Mesochorus) nigritor* sp. nov.**
Material: Trap 50: 1 ♀ 18–23.ix.2003.
Distribution: New record for Sweden.

***Mesochorus (Mesochorus) nigroclypeatus* sp. nov.**
Material: Trap 1007: 1 ♀ 17–31.viii.2005.
Distribution: New record for Sweden.

***Mesochorus (Mesochorus) nigrofacies* sp. nov.**
Material: Trap 12: 1 ♀ 24.vi.-5.vii.2003; trap 1002: 1 ♀ 18–25.vi.2005, 1 ♀ 25.vi.-7.vii.2005; 1 ♀ 1 ♂ Norway, RY, Hå, Ognasanden, N 58°51.237´ E 5°79.923´, 2–14.vi.2019.
Distribution: New records for Norway and Sweden.

***Mesochorus (Mesochorus) nuncupator* (Panzer, 1800)**
Material: Trap 6: 1 ♀ 12.-26.viii.2003; trap 9: 1 ♀ 1–19.ix.2003; trap 22: 1 ♀ 18.vii.-1.viii.2005; trap 27: 1 ♀ 7–21.vii.2003; trap 43: 2 ♀♀ 29.vi.-14.vii.2005.
Distribution: Palaearctic, known from Sweden (Horstmann 2006).

***Mesochorus (Mesochorus) olerum* (Curtis, 1833)**
syn. *Mesochorus pectoralis* Ratzeburg, 1844
Material: Trap 2: 1 ♀ 21.vi.-20.vii.2004; trap 5: 1 ♀ 16.-30.vi.2004; trap 11: 2 ♂♂ 4–18.viii.2003,trap 20: 3 ♀♀ 2 ♂♂ 3–26.vi.2005; trap 22: 1 ♀ 1–23.vi.2004; trap 38: 1 ♀ 24–31.v.2005; trap 50: 3 ♀♀ 2 ♂♂ 8.vii.-5.viii.2004; trap 51: 1 ♀ 21.vii.-12.viii.2004; trap 1002: 1 ♀ 4–18.vi.2005, 2 ♀♀ 23.vii.-12.viii.2005; trap 2006: 1 ♀ 29.viii.-11.ix.2008.
Distribution: Palaearctic, known from Sweden (Holmgren 1856, 1860 and Nordenström 1903 as *pectoralis*).

***Mesochorus (Mesochorus) oppacheus* Schwenke, 1999**
Material: Trap 1006: 1 ♀ 26.ix.2005–10.ii.2006.
Distribution: Central Europe, new record for Sweden.

***Mesochorus (Mesochorus) orbitalis* Holmgren, 1860**
Material: Trap 1: 1 ♀ 28.v.-16.vi.2004; trap 7: 2 ♀♀ 3–29.vii.2003; trap 22: 1 ♀ 18.vii.-1.viii.2005; trap 23: 1 ♀ 26.vi.-10.vii.2003; trap 28: 1 ♀ 16.vii.-2.viii.2004, 1 ♀ 2.ix.-8.xi.2005; trap 1006: 1 ♀ 15–30.vii.2005.
Distribution: Europe, known from Sweden (Holmgren 1860, Schwenke 1999).

***Mesochorus (Mesochorus) paracarinatus* Araujo & Vivallo, 2015**
syn. *Mesochorus carinatus* Schwenke, 1999, preoccupied.
Material: Trap 5: 2 ♀♀ 16.-30.vi.2004; trap 6: 2 ♀♀ 12.-26.viii.2003; trap 11: 2 ♀♀ 1 ♂ 4-18.viii.2003; trap 12: 1 ♀ 13–27.vi.2004; trap 13: 2 ♀♀ 26.vii.-2.viii.2005; trap 17: 1 ♀ 31.v.-15.vi.2005; trap 18: 1 ♀ 20–30.vi.2004; trap 20: 2 ♀♀ 5.vii.-2.viii.2005; trap 24: 1 ♀ 31.v.-20.vii.2005; trap 28: 4 ♀♀ 8–18.vii.2003, 2 ♀♀ 16.vii.-2.viii.2004, 1 ♀ 21.ix.2004–1.iv.2005; trap 41: 1 ♀ 5–20.vi.2005; trap 42: 2 ♀♀ 10–30.ix.2003; trap 43: 2 ♀♀ 16–30.vi.2004, 1 ♀ 30.vi.-14.vii.2004, 3 ♂♂ 22.ix.-6.x.2004, 1 ♀ 14–27.vii.2005, 1 ♀ 25.viii-9.ix.2005, 1 ♂ 21.ix.-7.x.2005; trap 44: 1 ♂ 3–16.vi.2003; trap 46: 1 ♀ 28.vi.-15.vii.2004, 1 ♀ 26.vii.-15.viii.2004; trap 48: 5 ♀♀ 1 ♂ 13.viii.-1.ix.2004; trap 49: 1 ♀ 14.ix.-5.x.2003, 1 ♀ 1 ♂ 1.i.-1.vi.2004; trap 50: 1 ♀ 7–21.viii.2003, 2 ♀♀ 1 ♂ 8.vii.-5.viii.2004; trap 55: 9 ♀♀ 9–23.vii.2004; trap 57: 1 ♀ 20.viii.-3.ix.2004; trap 58: 1 ♀ 22.ix.-14.x.2003; trap 1001: 1 ♂ 2–12.vii.2005; trap 1002: 1 ♀ 12–24.viii.2005.
Distribution: Known from United Kingdom, new record for Sweden.

***Mesochorus (Mesochorus) pelvis* Schwenke, 2002**
Material: Trap 22: 1 ♂ 1–15.vi.2005.
Distribution: Palaearctic region, known from Sweden (Riedel 2018a).

***Mesochorus (Mesochorus) phasganon* Araujo & Vivallo, 2015**
syn. *Mesochorus lanceolatus* Schwenke, 1999, preoccupied.
Remarks. As an addition to Schwenke´s short description (Schwenke 1999): ♀: Body length 3 mm. Flagellum with 28 flagellomeres; 1st flagellomere 0.85x as long as eye. Mesopleuron with coarse scattered punctures. Hind femur 5.0x longer than wide. Ovipositor sheath very slender, with long hairs (1.5x width of sheath), c.14x longer than wide and 1.15x longer than hind metatarsus. Hind tibia narrowly at base and in apical 0.15 (1x tibial width) brown. 2nd tergite red in apical 0.25 and 3rd tergite in basal 0.4; tergites with narrow greyish apical margins. Pterostigma hyaline.
Material: Trap 12: 1 ♂ 27.vi.-17.vii.2004; trap 35: 1 ♀ 29.ix.-10.x.2004.
Distribution: Finland, Netherlands, known from Sweden (Schwenke 1999 as *lanceolatus*).

***Mesochorus (Mesochorus) pictilis* Holmgren, 1860**
Material: Trap 4: 1 ♀ 21.vi.-20.vii.2004; trap 9: 1 ♀ 24.vi.-16.vii.2005; trap 10: 1 ♀ 8–21.vii.2003, 7 ♀♀ 4–26.viii.2003; trap 10: 1 ♀ 13.v.-18.vi.2004; trap 12: 1 ♂ 24.vi.-5.vii.2003; trap 21: 1 ♀ 25.viii.-4.ix.2003; trap 51: 1 ♀ 21.vii.-12.viii.2004; trap 1006: 1 ♀ 15–30.vii.2005; trap 1008: 1 ♀ 1–10.vi.2006.
Distribution: Holarctic, known from Sweden (Holmgren 1860, Schwenke 1999).

***Mesochorus (Mesochorus) plumosus* Dasch, 1974**
syn. *Mesochorus söderlundi* Schwenke, 1999, synonymized by Riedel (2019)
Material: Trap 28: 1 ♀ 1 ♂ 16.vii.-2.viii.2004; trap 28: 3 ♀♀ 2.ix.-8.xi.2005; trap 1002: 1 ♀ 25.vi.-7.vii.2005.
Distribution: Holarctic, known from Sweden (Schwenke 1999 as *söderlundi*).

***Mesochorus (Mesochorus) politus* Gravenhorst, 1829**
syn. *Mesochorus tuberculiger* Thomson, 1886
Material: Trap 11: 1 ♂ 18.viii.-1.ix.2003; trap 39: 1 ♂ 22.iv.-26.v.2005; trap 48: 1 ♀ 13.viii.-1.ix.2004.
Distribution: Palaearctic and Oriental, known from Sweden (Holmgren 1860, Hedqvist 1948, Jussila 1978, Thomson 1886 and Schwenke 1999 as *tuberculiger*).

***Mesochorus (Mesochorus) punctipleuris* Thomson, 1886**
Material: Trap 2: 1 ♀ 04.xi.2003–28.i.2004, 1 ♀ 18–21.vi.2004, 3 ♀♀ 21.vi.-20.vii.2004, 2 ♀♀ 20.vii.-11.viii.2004; trap 6: 1 ♀ 12.-26.viii.2003, 7 ♀♀ 26.viii.-9.ix.2003; trap 7: 2 ♀♀ 17.vi.-3.vii.2003, 1 ♀ 3.-29.vii.2003, 1 ♀ 4–20.ix.2004, 1 ♀ 4.x.-1.xi.2004, 4 ♀♀ 2 ♂♂ 14.vii.-4.vii.2005; trap 10: 1 ♀ 26.viii.-16.ix.2003; trap 11: 1 ♀ 1 ♂ 4–18.viii.2003, 2 ♀♀ 3.ix.-3.x.2003; trap 12: 2 ♀♀ 2 ♂♂ 25.viii.-19.ix.2003, 3 ♀♀ 27.vi.-17.vii.2004, 1 ♀ 3 ♂♂ 9–19.viii.2004, 2 ♀♀ 1 ♂ 19–28.viii.2004, 1 ♂ 2–31.x.2004; trap 13: 1 ♀ 26.vii.-2.viii.2005; trap 24: 6 ♀♀ 15.vii.-1.viii.2003, 1 ♀ 19.v.-27.vi.2004; trap 28: 1 ♀ 1 ♂ 8–18.vii.2003, 1 ♀ 16.vii.-2.viii.2004, 1 ♀ 21.ix.2004-1.iv.2005, 2 ♀♀ 1 ♂ 2.ix.-8.xi.2005; trap 34: 5 ♂♂ 5.vii.-20.viii.2003; trap 35: 1 ♀ 5.viii.-15.ix.2003, 15 ♀♀ 4 ♂♂ 7–9.viii.2004, 6 ♀♀ 30.viii.-12.ix.2005, 16 ♀♀ 29.iii.-9.iv.2005; trap 41: 2 ♀♀ 23.vii.-3.viii.2004, 1 ♀ 17.vii.-3.viii.2005; trap 43: 1 ♀ 22.ix.-6.x.2004, 1 ♂ 21.ix.-7.x.2005; trap 50: 1 ♀ 8.vii.-5.viii.2004, 1 ♀4–10.viii.2005; trap 53: 1 ♀ 1–22.ix.2003; trap 1002: 3 ♀♀ 18–25.vi.2005, 6 ♀♀ 4 ♂♂ 25.vi.-7.vii.2005, 12 ♀♀ 3 ♂♂ 15–23.vii.2005, 43 ♀♀ 29 ♂♂ 23.vii.-12.viii.2005, 13 ♀♀ 15 ♂♂ 12–24.viii.2005; trap 1006: 1 ♀ 15–30.vii.2005, 1 ♀ 26.ix.2005–10.ii.2006; trap 1007: 2 ♀♀ 17–31.viii.2005; trap 1008: 1 ♀ 15–20.viii.2005.
Distribution: Holarctic, known from Sweden (Roman 1913, 1931, Schwenke 1999).

***Mesochorus (Mesochorus) pyramideus* Schwenke, 1999**
Material: Trap 48: 1 ♀ 13.viii.-1.ix.2004
Distribution: Known from Norway and Sweden (Schwenke 1999).

***Mesochorus (Mesochorus) rubeculus* Hartig, 1838**
Material: Trap 7: 1 ♀ 4.x.-1.xi.2004.
Distribution: Europe, known from Sweden (Jussila 2011).

***Mesochorus (Mesochorus) rufoniger* Brischke, 1880**
syn. *Mesochorus brevigena* Thomson, 1886)
Material: Trap 1: 1 ♀ 8–17.vi.2003; trap 22: 1 ♀ 20.v-28.vi.2006; trap 27: 1 ♀ 29.ix.-12.x.2003; trap 35: 1 ♀ 29.iii.-9.iv.2005; trap 1002: 1 ♂ 25.vi.-7.vii.2005, 1 ♀ 12–24.viii.2005.
Distribution: Europe, known from Sweden (Thomson 1886 as *brevigena*, Schwenke 1999).

***Mesochorus (Mesochorus) salicis* Thomson, 1886**
Material: Trap 17: 1 ♀ 19.vii.-12.viii.2003; trap 27: 1 ♀ 7–21.vii.2003; trap 28: 1 ♀ 2.ix.-8.xi.2005
Distribution: Europe, known from Sweden (Thomson 1886, Schwenke 1999).

***Mesochorus (Mesochorus) scandinavicus* Schwenke, 1999**
Material: Trap 31: 1 ♂ 29.vi.-14.vii.2004.
Distribution: So far only known from Sweden (Schwenke 1999).

***Mesochorus (Mesochorus) semirufus* Holmgren, 1860**
Material: Trap 4: 2 ♀♀ 21.vi.-20.vii.2004, 2 ♀♀ 11.viii.-7.ix.2004; trap 6: 10 ♀♀ 9.xii.2003–14.vi.2004; trap 7: 3 ♀♀ 17.vi.-3.vii.2003, 1 ♀ 14.vii.-4.vii.2005; trap 10: 1 ♀ 4–26.viii.2003; trap 11: 1 ♀ 1 ♂ 4–18.viii.2003; trap 12: 2 ♀♀ 13–27.vi.2004; trap 13: 1 ♀ 15.vi.-5.vii.2005, 1 ♀ 20–26.vii.2005; trap 17: 4 ♀♀ 19.v.-10.vi.2004, 1 ♀ 13.vii.-20.viii.2004, 1 ♀ 31.v.-15.vi.2005, 2 ♀♀ 13.ix.-4.x.2005; trap 22: 3 ♀♀ 15–29.vi.2005; trap 24: 1 ♀ 18.viii.-13.ix.2003, 2 ♀♀ 31.v.-20.vii.2005; trap 28: 1 ♀ 16.vii.-2.viii.2004; trap 37: 1 ♀ 11.vi.-3.vii.2004; trap 43: 1 ♀ 29.vi.-14.vii.2005; trap 44: 1 ♀ 5–25.vii.2004; trap 46: 1 ♂ 15–30.viii.2004, 1 ♂ 13.ix.-4.x.2004; trap 48: 1 ♀ 13.viii.-1.ix.2004; trap 55: 4 ♀♀ 9–23.vii.2004; trap 58: 1 ♀ 1–18.viii.2003; trap 1001: 1 ♀ 4–19.vi.2005; trap 1002: 1 ♀ 4–18.vi.2005.
Distribution: Palaearctic and Oriental, known from Sweden (Holmgren 1860, Thomson 1886, Roman 1931, Schwenke 1999).

***Mesochorus (Mesochorus) skaneus* Schwenke, 1999**
Material: Trap 4: 1 ♀ 11.viii.-7.ix.2004; trap 6: 1 ♀ 2.x.2005–12.i.2006; trap 7: 1 ♀ 26.viii.-9.ix.2003, 2 ♀♀ 4–20.ix.2004.
Distribution: Known from Finland and Sweden (Schwenke 1999).

***Mesochorus (Mesochorus) sternalis* Schwenke, 1999**
Remarks. The species is characterized by the very densely pectinate base of the hind claw, larger lower mandibular tooth and ± red mesosternum. The Swedish specimen differs from the holotype by: pterostigma entirely brownish (pale proximally and distally in holotype); 4th to 7th tergites vespoid, but with central reddish longitudinal stripes (vespoid without central red stripe in holotype). It is otherwise typical. Flagellum with 33 flagellomeres (tips of flagella missing in holotype)
Material: Trap 27: 1 ♀ 7–21.vii.2003
Distribution: Known from Estonia, Finland and Germany, new record for Sweden.

***Mesochorus (Mesochorus) styriacus* Schwenke, 2002**
Material: Trap 1002: 2 ♀♀ 18–25.vi.2005.
Distribution: Known from Austria, new record for Sweden.

***Mesochorus (Mesochorus) tachypus* Holmgren, 1860**
syn. *Mesochorus tetricus* auct. non Holmgren
Material: Trap 6: 1 ♀ 26.viii.-9.ix.2003; trap 28: 1 ♀ 1–10.iv.2005, 5 ♀♀ 2.ix.-8.xi.2005; trap 1001: 1 ♀ 2–12.vii.2005; trap 1006: 1 ♀ 26.ix.2005–10.ii.2006; trap 2003: 1 ♀ 10.x-23.xi.2006.
Material: Holarctic, known from Sweden (Holmgren 1860, Vikberg & Vårdal 2017).

***Mesochorus (Mesochorus) tenthredinidis* Schwenke, 1999**
Material: Trap 10: 3 ♀♀ 8–21.vii.2003; trap 22: 1 ♀ 18.vii.-1.viii.2005; trap 37: 1 ♀ 7.vii.-9.viii.2005; trap 1008: 1 ♀ 10–16.vii.2006.
Distribution: Europe, known from Finland, new record for Sweden.

***Mesochorus (Mesochorus) terebratus* Schwenke, 1999**
syn. nov. *Mesochorus skanensis* Vikberg, 2017
Remarks. The holotype of *Mesochorus terebratus* was compared with the detailed description and illustrations of *Mesochorus skanensis,* and I found no significant differences between these species.

Material: Trap 12: 1 ♀ 27.vi.-17.vii.2004; trap 13: 1 ♀ 20–26.vii.2005; trap 17: 1 ♀ 19.vii.-12.viii.2003.
Distribution: North and Central Europe, known from Sweden (Vikberg & Vårdal 2017 as *skanensis*).

***Mesochorus (Mesochorus) testaceus* Gravenhorst, 1829**
Material: Trap 10: 1 ♀ 4–26.viii.2003, 1 ♂ 13.v.-18.vi.2004; trap 17: 2 ♀♀ 13.vii.-20.viii.2004; trap 24: 1 ♀ 22.vii.-25.ix.2004; trap 35: 1 ♂ 1–24.iv.2004; trap 46: 1 ♀ 26.vii.-15.viii.2004; trap 1003: 1 ♀ 24.vii.-12.ix.2005; trap 1008: 1 ♀ 20–25.vii.2005.
Distribution: Europe, known from Sweden (Holmgren 1860, Schwenke 1999).

***Mesochorus tetricus* Holmgren, 1860**
syn. *Mesochorus curvicaudus* Thomson, 1886
Material: Trap 24: 1 ♀ 18.viii.-13.ix.2003; trap 42: 1 ♀ 21.v.-17.vi.2004.
Distribution: Europe, known from Sweden (Holmgren 1860, Thomson 1886 as *curvicaudus*, the reports of "*M. tetricus*" from Thomson 1886 and Schwenke 1999 are misinterpretations of *Mesochorus tachypus* Holmgren – see Vikberg & Vårdal 2017).

***Mesochorus (Mesochorus) thomsonii* Dalla Torre, 1901**
syn. *Mesochorus nigriceps* Thomson, 1886 preoccupied.
Remark: this species was re-established as separate from *M. punctipleuris* Thomson by Riedel & Kolarov (2020).
Material: Trap 3: 1 ♀ 22.ix.-21.x.2004; trap 12: 1 ♀ 13–27.vi.2004; trap 1002: 2 ♂♂ 4–18.vi.2005.
Distribution: Europe, known from Sweden (Roman 1931, Schwenke 1999)

***Mesochorus (Mesochorus) tibialis* Schwenke, 2002**
Remarks. In addition to the description of Schwenke (2002): flagellum with c.40 flagellomeres; 1st flagellomere 7.6x longer than wide and 0.78x as long as eye. Hind femur often ± brownish laterally. Hind claw with 3 rather long teeth in basal half. Ovipositor sheath 7.0x longer than wide and 0.9x as long as hind metatarsus.
Material: Trap 9: 1 ♀ 24.vi.-16.vii.2005, 1 ♀ 16.vii.-6.viii.2005; trap 11: 1 ♀ 18.viii.-1.ix.2003; trap 12: 1 ♀ 20.vii.-.2.viii.2003, 1 ♀ 9–19.viii.2004; trap 17: 1 ♀ 13.vii.-20.viii.2004; trap 22: 1 ♀ 15–29.vi.2005; trap 23: 1 ♀ 26.vi.-10.vii.2003; trap 28: 2 ♀♀ 8–18.vii.2003, 1 ♀ 9.viii.-2.ix.2005; trap 40: 1 ♀ 13.vii.-13.viii.2004; trap 50: 1 ♀ 4–10.viii.2005; trap 2006: 1 ♀ 11.ix.-3.x.2008.
Distribution: Known from Germany, new record for Sweden.

***Mesochorus (Mesochorus) tipularis* Gravenhorst, 1829**
Material: Trap 12: 1 ♀ 27.vi.-17.vii.2004; trap 22: 1 ♂ 1–23.vi.2004; trap 28: 2 ♀♀ 8–18.vii.2003, 1 ♀ 21.ix.2004–1.iv.2005, 1 ♀ 1–10.iv.2005; trap 35: 6 ♀♀ 1 ♂ 1–24.iv.2004, 1 ♀ 30.viii.-12.ix.2005, 1 ♂ 29.iii.-9.iv.2005; trap 1002: 1 ♂ 25.vi.-7.vii.2005; trap 1003: 1 ♀ 24.vii.-12.ix.2005.
Distribution: Holarctic, known from Finland and Norway, new record for Sweden.

***Mesochorus (Mesochorus) triangulus* Schwenke, 1999**
Material: Trap 4: 1 ♀ 11.viii.-7.ix.2004; trap 7: 1 ♀ 17.vi.-3.vii.2003, 12 ♀♀ 4.x.-1.xi.2004; trap 9: 4 ♀♀ 16.vii.-6.viii.2005; trap 10: 2 ♀♀ 4–26.viii.2003; trap 17: 1 ♀ 13.vii.-20.viii.2004; trap 24: 1 ♀ 27.vi.-22.vii.2004; trap 47: 2 ♀♀ 18.vi.-20.vii.2004; trap 55: 1 ♀ 9–23.vii.2004; trap 1003: 9 ♀♀ 24.vii.-12.ix.2005; trap 1008: 1 ♀ 10–16.vii.2006.
Distribution: Known from Finland, Germany and Poland, new record for Sweden.

***Mesochorus (Stictopisthus) unicinctor* (Thunberg, 1822)**
Material: Trap 6: 1 ♀ 26.viii.-9.ix.2003; trap 1002: 2 ♀♀ 12–24.viii.2005.
Distribution: Europe, known from Sweden (Holmgren 1860, Thomson 1886, Horstmann 2004).

***Mesochorus (Mesochorus) velox* Holmgren, 1860**
Material: Trap 35: 1 ♀ 30.viii.-12.ix.2005; trap 1002: 4 ♀♀ 25.vi.-7.vii.2005.
Distribution: Palaearctic, known from Sweden (Holmgren 1860, Schwenke 1999).

***Mesochorus (Mesochorus) vittator* Zetterstedt, 1838**
Material: Trap 4: 1 ♀ 11.viii.-7.ix.2004; trap 7: 2 ♀♀ 17.vi.-3.vii.2003; trap 12: 1 ♀ 24.vi.-

5.vii.2003, 4 ♀♀ 9–19.viii.2004; trap 13: 1 ♀ 26.vii.-2.viii.2005; trap 18: 1 ♀ 4–29.vii.2003; trap 17: 1 ♀ 13.ix.-4.x.2005; trap 22: 1 ♀ 1–23.vi.2004, 1 ♀ 20.vii.-15.viii.2006; trap 28: 1 ♂ 16.vii.-2.viii.2004; trap 39: 1 ♀ 8.iv.-1.vi.2004, 1 ♀ 22.ix.-1.xi.2004; trap 55: 3 ♀♀ 9–23.vii.2004; trap 1001: 1 ♀ 18.v-15.vi.2006; trap 1002: 1 ♀ 23.vii.-12.viii.2005, 1 ♀ 12–24.viii.2005; trap 1008: 1 ♀ 10–15.vii.2005; trap 2003: 1 ♀ 9–29.vi.2006; trap 2006: 1 ♀ 11.ix.-3.x.2008.
Distribution: Holarctic, known from Sweden (Holmgren 1860, Jussila 1978).

***Mesochorus (Mesochorus) vitticollis* Holmgren, 1860**
Material: Trap 7: 1 ♀ 14.vii.-4.vii.2005; trap 12: 1 ♀ 13–27.vi.2004; trap 13: 1 ♀ 1 ♂ 20–26.vii.2005; trap 24: 1 ♀ 18.viii.-13.ix.2003, 1 ♀ 27.vi.-22.vii.2004, 2 ♀♀ 31.v.-20.vii.2005; trap 46: 2 ♂♂ 15–30.viii.2004; trap 1002: 2 ♀♀ 1 ♂ 25.vi.-7.vii.2005, 2 ♀♀ 15–23.vii.2005, 1 ♀ 1 ♂ 23.vii.-12.viii.2005; trap 1007: 1 ♂ 31.viii.-6.ix.2005; trap 1008: 1 ♀ 10–16.vii.2006; trap 2006: 3 ♀♀ 13–24.vii.2007.
Distribution: Europe, known from Sweden (Holmgren 1860, Nordenström 1903, Jussila 1978).

***Mesochorus (Mesochorus) zoerneri* Schwenke, 1999**
Material: Trap 43: 1 ♀ 29.vi.-14.vii.2005, 1 ♀ 14–27.vii.2005; trap 1003: 1 ♀ 2 ♂♂ 24.vii.-12.ix.2005.
Distribution: Only known from Germany, new record from Sweden.

Descriptions

***Mesochorus (Mesochorus) albifrons* sp. nov. (Figs 1A–B)**

Holotype: (♂) Sweden, **Öl**, Mörbylånga kommun, Gamla Skogsby (Kalkstad), «diversitetsängen». Meadow with bushes. N 56°37.002´ E 16°30.457´(= Trap ID 22) 01.vi.-15.vi.2005 (= coll. event ID 1313) (Stockholm)

Paratype: (♂) Sweden, **Vr**, Munkfors kommun, Ransäter, Rudstorp, Sandy railway embankment through pasture-land. N 66°36.454´ E 13°69.030´(= Trap ID 1002) 18.vi-25.vi.2005 (= coll. event ID 1373) (coll. Riedel).

Description: ♂. Body length 3.5 mm. Flagellum with 30 flagellomeres; 1st flagellomere 6.4x longer than wide and 0.7x as long as eye. Temple slightly and roundly narrowed behind eye, dorsally 0.7x as long as eye. Distance between lateral ocellus and eye 2.0x ocellar diameter. Face very wide, width 1.2–1.3x length of clypeus + face and 1.1–1.15x eye length, punctate; inner eye margins slightly divergent ventrally. Ventral 0.3 of facial orbit and malar space widely striate. Malar space 0.9x as long as width of mandibular base. Mesopleuron with very scattered fine punctures ventrally. Propodeum completely carinate. Area basalis trapezoid, about as long as wide. Area superomedia short, 1.7x longer than wide and as long as area petiolaris; anterior transversal carina in its middle. Area petiolaris large, 1.1x longer than wide. Hind femur 4.6x longer than wide. Hind claw without visible teeth. Areolet pointed or shortly sessile, vein 2m-cu in its middle. Vein 1cu-a interstitial. Pterostigma wide, 2.7x longer than wide, vein 2r&RS reaching slightly behind its middle, distal part of vein RS slightly sinusoid.

1st tergite 2.7x longer than wide; postpetiolus with few fine rugae. 2nd tergite 1.1–1.2x wider than long. Thyridium transverse-oval. Stylet with large basal body, 1.3x longer than 2nd hind tarsomere, slightly clubbed apically.

Color: Head yellowish. Flagellum mainly ochreous, basal flagellomeres yellow. Palps, mandible except teeth, clypeus, face, frons, malar space, orbits, scape and pedicel ivory; stemmaticum blackish. Mesosoma yellowish; pronotum, ventral mesopleuron, two lateral stripes and central H-shaped spot of mesoscutum, tegula and scutellum laterally ivory. Propodeum slightly infuscate in anterior third. 1st tergite brownish, yellow anteriorly and posteriorly; 2nd tergite brown in anterior half, yellow in posterior half, posterior margin ivory; following tergites yellow. Fore and mid legs, hind trochanter and hind tibia ivory, hind leg otherwise yellow. Pterostigma hyaline-yellow.

♀ and hosts unknown.

Taxonomic remark: Due to the sinusoid distal part of the vein RS, small ocelli, rugose postpetiolus and short area superomedia, this new taxon belongs to the *curvulus*-group of *Mesochorus* sensu Schwenke (1999), though the ivory coloration of the frons resembles the *orbitalis*-group. *Mesochorus albifrons* sp. nov. is characterized by its wide face and mainly yellow and ivory color pattern. In the key of ♂♂ of the

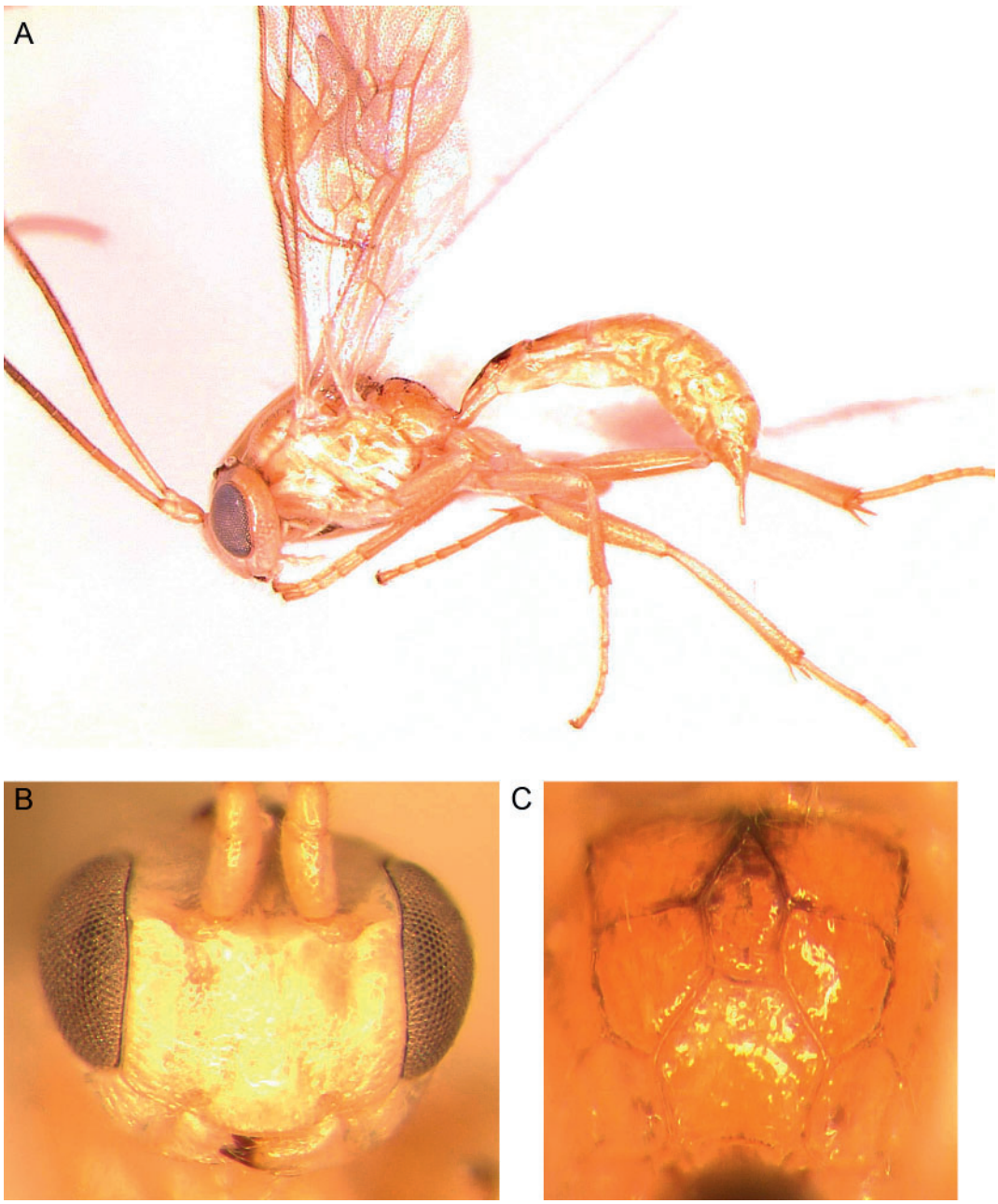

Figure 1. *Mesochorus albofacies* **sp. nov.** holotype (HT); – A) lateral habitus; – B) face; – C) propodeum.
Figur 1. *Mesochorus albofacies* **sp. nov.** holotyp (HT); – A) sidovy av habitus; – B) ansikte; – C) propodeum.

curvulus-group (Schwenke 1999: 36–37), it runs to couplet 16(17) *M. sedis* Schwenke, 1999 (for a description see Riedel 2018b: 13–14), but differs by its wide face, ivory color pattern of the head and mesosoma and entirely yellow posterior tergites.

***Mesochorus (Mesochorus) frigidus* Schwenke, 1999, new ♂ (Figs 2A–B)**

Description of ♂: body length 5.0 mm. Flagellum with 32–33 flagellomeres; 1st flagellomere 4.6x longer than wide and 0.65x as long as eye. Temple roundly narrowed behind eye, dorsally 0.65x as long as eye. Distance between lateral ocellus and eye 1.3x ocellar diameter. Face width 1.2x length of clypeus+face and 1.0x eye length, strongly punctate, with parallel sides. Ventral 0.2 of facial orbits and malar spaces striate. Malar space 0.3x as long as width of mandibular base. Mesopleuron with dense and coarse punctures dorsally and ventrally. Metapleuron with finer rather scattered punctures. Area basalis trapezoid. Area superomedia 2.5x longer than wide and 1.6–1.8x as long as area petiolaris; anterior transversal carina in frontal 0.35. Area petiolaris 1.2x wider than long. Hind femur 4.7–5.4x longer than wide. Hind claw with 1 visible basal tooth. Areolet pointed, vein 2m-cu in the middle. Vein 1cu-a interstitial.

1st tergite 2.3x longer than wide; postpetiolus with some longitudinal rugae. 2nd tergite as long as wide. Thyridium transverse-oval. Stylet 1.15x longer than 2nd hind tarsomere, slightly clubbed apically.

Color: Black. Flagellum brown. Head including face black; mandible ivory; malar space yellowish; clypeus inner orbit and large spot on vertex red (Fig. 2A). Mesosoma blackish; hind edge of pronotum and tegula cream-yellow. 1st and 2nd tergites black; 2nd tergite with red band in apical 0.2; 3rd tergite red; 4th to 6th tergites brown in basal half and red apically; 7th tergite brown. Legs reddish; trochanters yellowish; hind coxa brown, hind tibia not infuscate apically. Pterostigma ochreous or brownish, proximal and distal edges paler.

Taxonomic remark: This species differs from other members of the *nigripes*-group by the entirely yellowish or reddish inner orbits. Flagellum with 37 flagellomeres, preapical flagellomeres 2x longer than wide. Hind claw with c.5 basal teeth (2nd tooth longest). Fore coxa brown, mid and hind coxae black.

Distribution: Known from Finland and Sweden (Schwenke 1999)

***Mesochorus (Mesochorus) longivalvator* sp. nov. (Figs 3A–C)**

Holotype: (♀) Sweden, **Sö**, Trosa kommun, Hunga Södergård nr 1. Tall grass close to pile of manure behind stable, N 58°55.244´ E 17°31.274´ (= Trap ID 12) 09.viii-19.viii.2004 (= coll. event ID 894) (Stockholm).

Description: ♀. Body length 3.0 mm. Flagellum with 26 flagellomeres; 1st flagellomere 6.6x longer than wide and 0.76x as long as eye; preapical flagellomere 2x longer than wide. Temple strongly

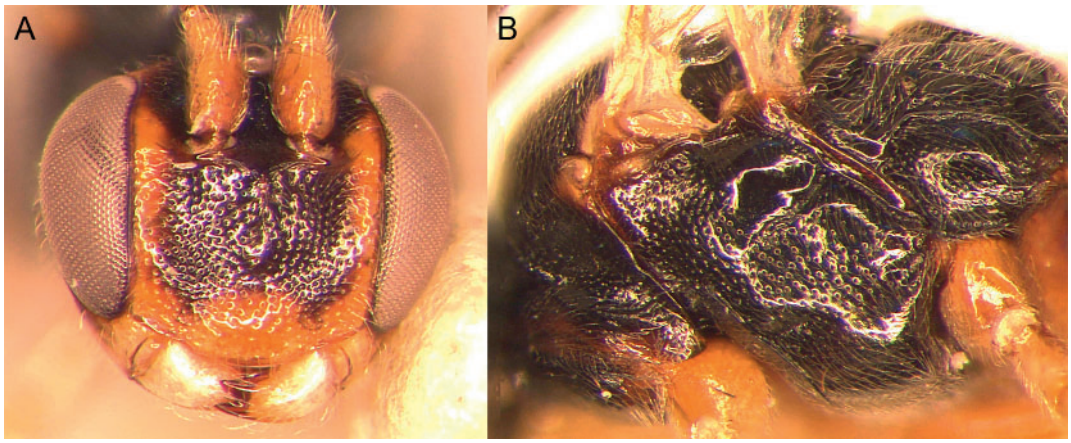

Figure 2. *Mesochorus frigidus* Schwenke ♂; – A) face; – B) mesopleuron.

Figur 2. *Mesochorus frigidus* Schwenke ♂; – A) ansikte; – B) mesopleuron.

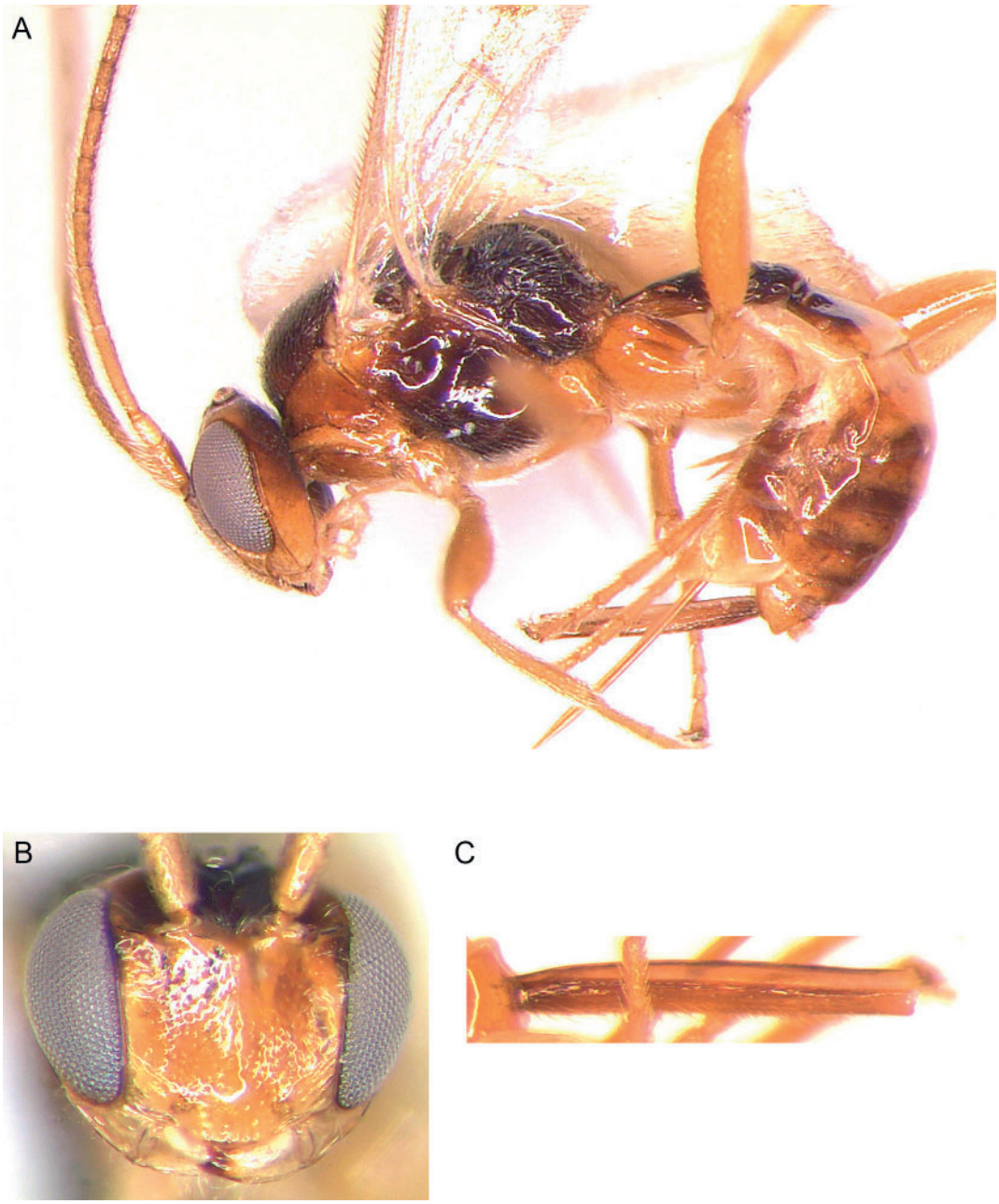

Figure 3. *Mesochorus longivalvator* **sp. nov.** HT; – A) lateral habitus; –B) face; – C) ovipositor sheath.
Figur 3. *Mesochorus longivalvator* **sp. nov.** HT; – A) sidovy av habitus; –B) ansikte; – C) äggläggningsskida.

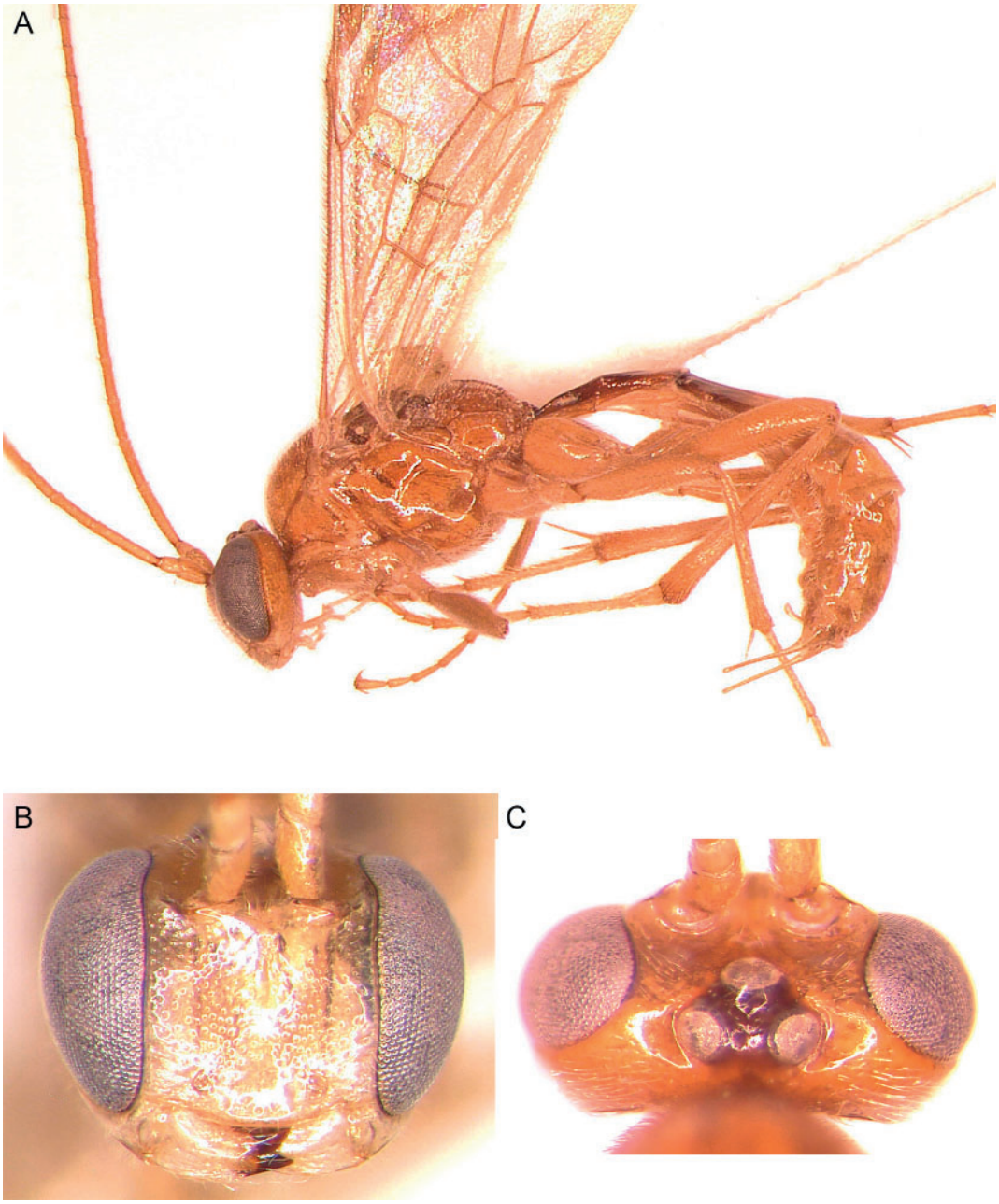

Figure 4. *Mesochorus macrophyae* Schwenke ♂; – A) lateral habitus; – B) face; – C) head (dorsal).
Figur 4. *Mesochorus macrophyae* Schwenke ♂; – A) sidovy av habitus; – B) ansikte; – C) huvud (sett från ovan).

and roundly narrowed behind eye, dorsally 0.7x as long as eye. Distance between lateral ocellus and eye 1.6x ocellar diameter. Transverse carina below antennal sockets dipped medially. Face width 1.0x length of face + clypeus and 0.9x eye length, with rather dense punctures, ± shining. Inner eye margins slightly convergent ventrally. Ventral 0.3 of facial orbit and malar space widely striate. Clypeus partly smooth. Mandible with two equally sized teeth. Malar space 0.7x as long as width of mandibular base. Genal carina reaching hypostomal carina far from mandibular base.

Mesoscutum with dense superficial punctures, shining. Mesopleuron with scattered fine setiferous punctures dorsally and almost smooth ventrally. Propodeum completely carinate. Area superomedia 2.1x longer than wide and as long as area petiolaris; anterior transversal carina in its anterior 0.4. Area petiolaris about as long as wide. Hind femur 4.9x longer than wide. Hind claw without visible teeth. Areolet shortly sessile; vein 2m-cu in its middle. Vein 1cu-a slightly postfurcal by 1x its width. Pterostigma wide, 2.5x longer than wide; vein 2r&RS reaching its distal 0.6. Distal part of vein RS slightly curved, not sinusoid.

1st tergite 2.1x longer than wide; postpetiolus smooth, with some coarse rugae. 2nd tergite very wide, 1.6x wider than long. Thyridium comma-shaped. Ovipositor sheath very long and slender, 11.1x longer than wide and 1.65x longer than hind metatarsus, pilose, slightly narrowed over its entire length.

Color: Body including head brownish-black. Scape, pedicel and basal flagellomeres yellow, distal flagellomeres ochreous. Face reddish, with diffuse paramedian reddish-brown stripes. Palps and mandible cream yellow; clypeus, malar space, gena and facial orbits reddish-yellow; frontal orbit and spot on vertex reddish. Mesosoma brownish; mesoscutum with red H-shaped central spot; scutellum and pronotum reddish. 1st tergite black, reddish basally; 2nd tergite black, with triangular reddish spot in apical 0.4; 3rd tergite reddish, with brownish apical band; following tergites vespoid (reddish basally, brownish apically). Ovipositor sheath ochreous. Legs reddish; hind coxa with reddish-brown spot dorsally; hind tibia not distinctly infuscate apically. Pterostigma hyaline-ochreous.

♂ and hosts unknown.

Taxonomic remark: This new taxon belongs to the *dispar*-group sensu Schwenke (1999) and is characterized by the slightly infuscate face, red base of 1st tergite, vespoid color of apical tergites and very long ovipositor sheath. In the key of the *dispar*-group (Schwenke 1999: 48–49), it runs to couplet 11(10) *M. dispar* Brischke, but differs by its very long and slender ovipositor sheath and vespoid coloration of the apical tergites.

***Mesochorus macrophyae* Schwenke, 1999, new ♂ (Figs 4A–C)**

Description: Body length 5.5 mm. Flagellum with 37 flagellomeres; 1st flagellomere 7.2x longer than wide and 0.66x as long as eye; preapical flagellomere 2x longer than wide. Temple distinctly and roundly narrowed behind eye, dorsally c.0.5x as long as eye. Distance of lateral ocellus to eye 0.9x ocellar diameter. Face width 1.0x length of face+clypeus and 0.85x eye length, densely punctate, with parallel sides. Clypeus with scattered punctures. Mandible with two equally sized teeth. Malar space 0.3x as long as width of mandibular base. Mesopleuron with scattered fine punctures ventrally. Area basalis rectangular, slightly longer than wide, confluent with area superomedia. Area superomedia 2.3x longer than wide and 1.6x longer than area petiolaris; anterior transversal carina its anterior 0.3. Area petiolaris 0.9x as long as wide. Hind femur 4.8x longer than wide; hind claw without visible teeth. Areolet pointed; vein 2m-cu in its middle. Vein 1cu-a interstitial. Pterostigma c.3.0x longer than wide.

1st tergite 3.0x longer than wide, postpetiolus smooth. 2nd tergite about as long as wide; thyridium large, rounded. Stylet stick-shaped, slightly clubbed apically, c.1.3x longer than 2nd hind tarsomere.

Color: Reddish. Palps, mandible except teeth, clypeus, gena, clypeus and face yellowish. Stemmaticum brown. Mesosoma reddish; hind edge of pronotum and tegula cream-yellow. 1st tergite brownish, basally and in apical 0.2 reddish; 2nd tergite brownish, reddish in apical 0.3; following tergites reddish. Fore and mid legs yellow; hind leg reddish; hind tibia narrowly brownish at apex (0.5x tibial width); hind tarsomeres yellowish, with brown tips. Pterostigma ochreous, paler basally.

Taxonomic remark: This species belongs to the *declinans*-group sensu Schwenke (1999) and is characterized by its mainly reddish coloration

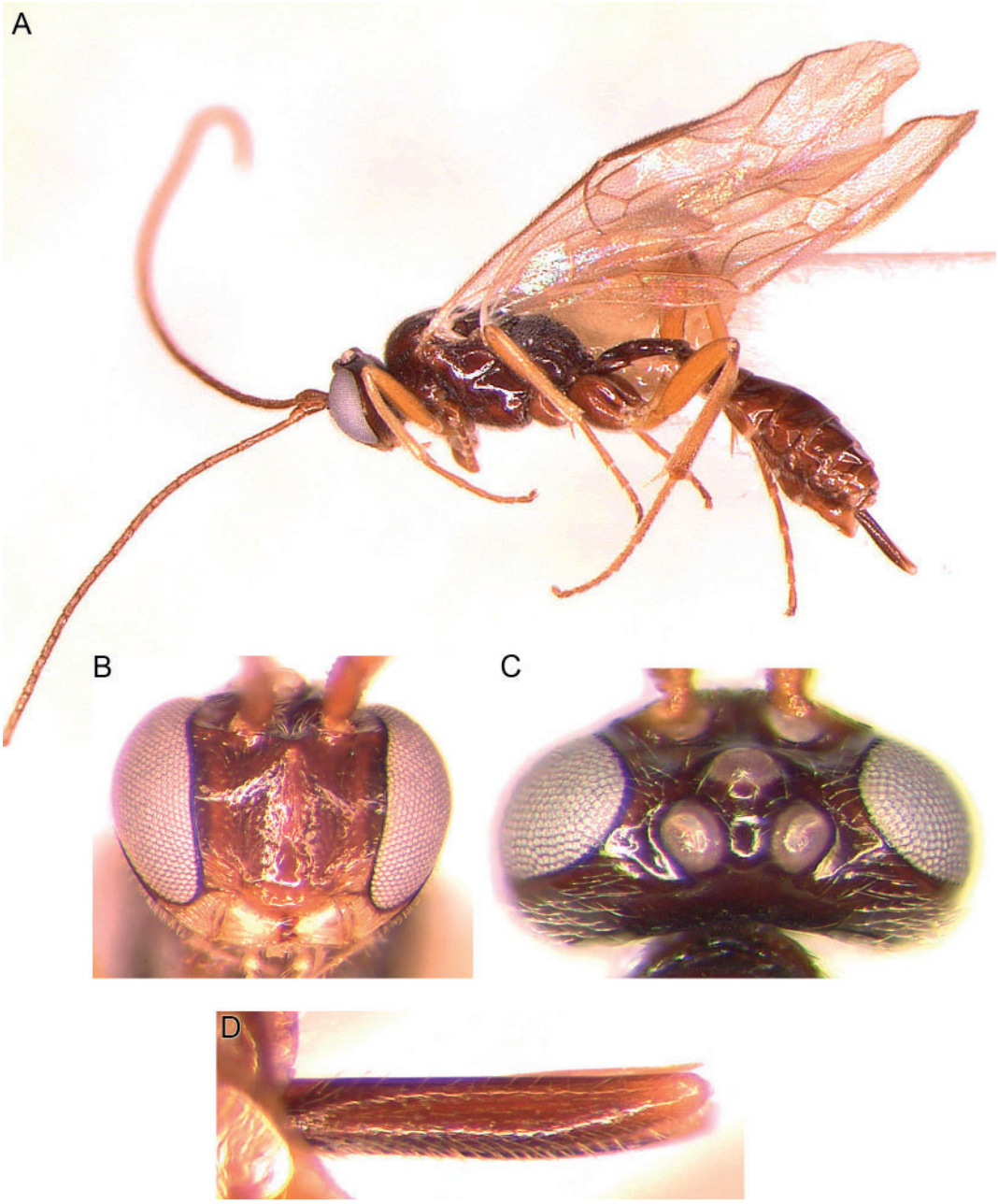

Figure 5. *Mesochorus nigritor* **sp. nov.** HT; – A) lateral habitus; –B) face; – C) head (dorsal); – D) ovipositor sheath.

Figur 5. *Mesochorus nigritor* **sp. nov.** HT; – A) sidovy av habitus; –B) ansikte; – C) huvud (sett från ovan); – D) äggläggningsskida.

with brownish basal tergites and its large ocelli (description of ♀: see Riedel 2019: 92).

In the key of ♂♂ (Schwenke, 1999: 115–118), the ♂ of *M. macrophyae* runs to couplet 41(40) *Mesochorus gardanus* Schwenke, but can be distinguished by the red mesosoma and reddish apical tergites (from 3rd tergite on).

***Mesochorus (Mesochorus) nigritor* sp. nov. (Figs 5A–D)**

Holotype: (♀) Sweden, **To**, Kiruna kommun, Abisko nationalpark. Dry alpine birch wood. N 68°21.232´ E 18°46.929´ (= Trap ID 50) 18.ix-23.ix.2003 (= coll. event ID 718) (Stockholm).

Description: ♀. Body length 3.5 mm. Flagellum with 32 flagellomeres; 1st flagellomere 7,0x longer than wide and 0.65x as long as eye; preapical flagellomere 2x longer than wide. Temple strongly and roundly narrowed behind eye, dorsally 0.5x as long as eye. Ocelli very large, distance between lateral ocellus and eye 0.5x ocellar diameter. Frons smooth. Transverse carina below antennal sockets dipped medially. Face width 1.0x length of face+clypeus and 0.75x eye length, with rather dense but superficial punctures, ± shining. Inner eye margins convergent ventrally. Ventral 0.3 of facial orbit, malar space and mandible striate. Clypeus partly smooth. Mandible with two equally sized teeth. Malar space 0.4x as long as width of mandibular base. Genal carina reaching hypostomal carina far from mandibular base.

Mesoscutum with fine superficial punctures, ± shining. Mesopleuron with very scattered fine setiferous punctures ventrally. Propodeum completely carinate. Area basalis trapezoid, c.2x longer than wide. Area superomedia 2.1x longer than wide and 1.6x longer than area petiolaris; anterior transversal carina in its anterior 0.3. Area petiolaris 1.1x longer than wide. Hind femur 4.3x longer than wide. Hind claw without visible teeth. Areolet large, pointed; vein 2m-cu in its middle. Vein 1cu-a interstitial. Pterostigma 3.4x longer than wide; vein 2r&RS reaching its distal 0.67. Distal part of vein RS slightly curved, not sinusoid.

1st tergite 2.1x longer than wide; postpetiolus smooth, with weak central rim. 2nd tergite 1.1x wider than long. Thyridium reniform. Ovipositor sheath 5.8x longer than wide and 0.9x as long as hind metatarsus, pilose, moderately narrowed in apical 0.3.

Color: Body including head brownish-black. Flagellum brown. Mesoscutum with dark reddish shimmer. Palps, mandible except teeth, malar space, hind edge of pronotum, tegula and wing base cream-yellow. Metasoma black; 1st tergite ventrally basally dark reddish shine; 2nd tergite with very narrow yellowish apical margin. Fore and mid coxae reddish-brown; hind coxa brown; legs otherwise reddish-yellow; hind tibia brownish in apical 0.2; hind tarsus brownish. Pterostigma ochreous.

Taxonomic remark: This new taxon belongs to the *angustatus*-group sensu Schwenke (1999) and resembles *Mesochorus rubeculus* Hartig, but differs by its dark color. Beside its very large ocelli, it is characterized by the entirely dark head, mesosoma and coxae. From the members of the *nigripes*-group sensu Schwenke (1999), it can be distinguished by the smooth mesopleuron and large ocelli. In the key of the *angustatus*-group (Schwenke 1999: 72–73), it runs to no 43(44) *Mesochorus angustatus* Thomson, but differs by the larger ocelli, blackish face, almost smooth mesopleuron and ochreous pterostigma.

***Mesochorus (Mesochorus) nigroclypeatus* sp. nov. (Figs 6A–C)**

Holotype: (♀) Sweden, **To**, Kiruna kommun, Abisko NP. Bare mountain above tree limit, 900 m.a.s.l., RT 90 7588337, 1620014 (= Trap ID 1007), 17.viii -31.viii.2005 (= coll. event ID 1988) (Stockholm).

Description: ♀. Body length 5.5 mm. Flagellum with 29 flagellomeres; 1st flagellomere 6.5x longer than wide and 0.68x as long as eye; preapical flagellomere 2x longer than wide. Temple strongly and almost linearly narrowed behind eye, dorsally 0.65x as long as eye. Distance between lateral ocellus and eye 1.4x ocellar diameter. Transverse carina below antennal sockets dipped medially. Face width 1.15x length of face + clypeus and 1.0x eye length, with dense, partly rugose punctures. Inner eye margins parallel. Malar space striate. Clypeus with rather dense punctures, shining. Mandible with two equally sized teeth. Malar space 0.7x as long as width of mandibular base. Genal carina reaching hypostomal one far from mandibular base.

Mesosoma c.1.6x longer than high, except smooth and punctate scutellum with granulation,

± matt. Side of pronotum punctate dorsally and rugose centrally. Mesopleuron with coarse dense punctures, partly rugose-punctate, speculum with fine microsculpture, but shining. Propodeum weakly carinate. Area basalis rectangular, slightly longer than wide. Area superomedia c.2x longer than wide and as long as area petiolaris; anterior transversal carina in its anterior 0.4. Area petiolaris 1.2x longer than wide. Hind femur 5.3x longer than wide. Hind metatarsus 0.48x as long as hind tibia. Hind claw with c.3 short basal teeth. Areolet shortly sessile, quadrangular; vein 2m-cu in its middle. Vein 1cu-a interstitial. Pterostigma narrow (but frontal margin turned ventrally).

1st tergite 3.0x longer than wide; postpetiolus with fine longitudinal striae and rugae. 2nd tergite 1.2x wider than long. Thyridium comma-shaped. Ovipositor sheath 5.9x longer than wide and 0.83x as long as hind metatarsus, sabre-shaped, widest centrally, slightly narrowed in apical 0.4 and moderately bent upwards apically.

Color: Body including head black. Antenna brown. Palps, mandible except teeth and malar space reddish-yellow; spot on vertex reddish. Mesosoma black; hind edge of pronotum and tegula yellow. 1st tergite black; 2nd tergite black, with yellow band in apical 0.15; following tergites brown; 3rd tergite slightly paler centrally. Ovipositor sheath brown. Legs reddish; mid coxa and hind trochanter brown, hind coxa black; hind tibia narrowly black basally and in apical 0.15 (1x tibial width). Tarsi ± brownish. Pterostigma ochreous, narrowly ivory basally.

♂ and hosts unknown.

Taxonomic remark: This new species is a typical member of the *nigripes*-group of *Mesochorus* sensu

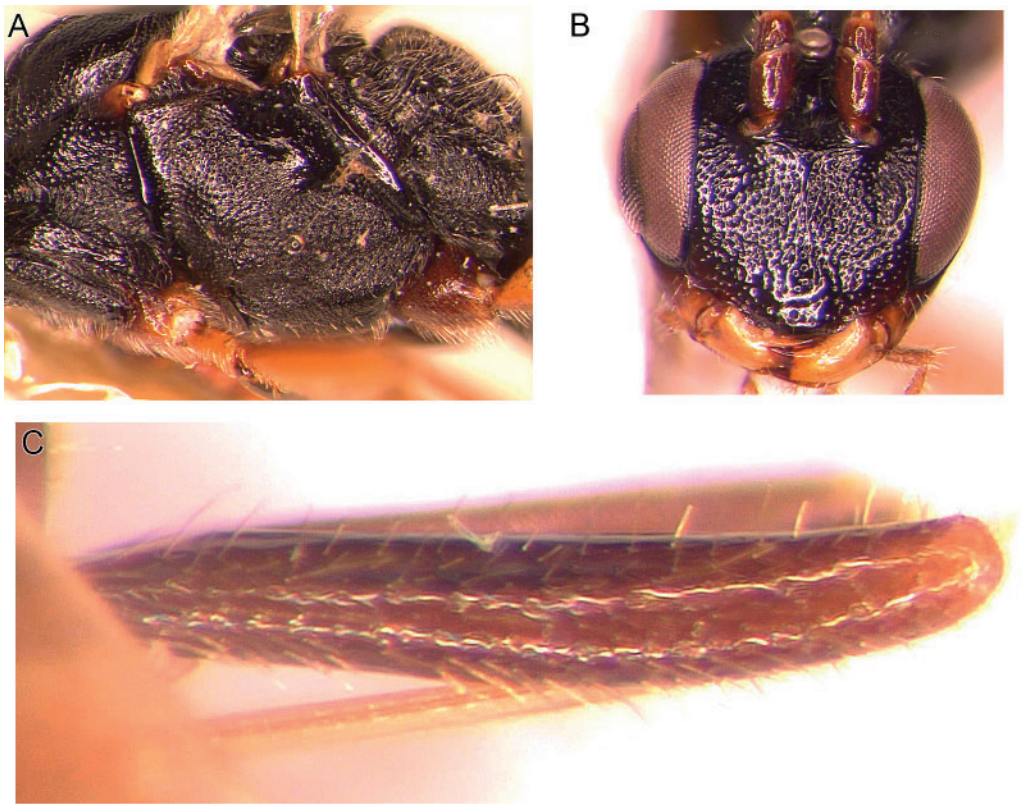

Figure 6. *Mesochorus nigroclypeatus* **sp. nov.** HT; – A) mesopleuron; – B) face; – C) ovipositor sheath.
Figur 6. *Mesochorus nigroclypeatus* **sp. nov.** HT; – A) mesopleuron; – B) ansikte; – C) äggläggningsskida.

Schwenke (1999). It is characterized by the entirely black face and clypeus, granulate surface of the mesosoma, dark mid and hind coxae and short and slightly sabre-shaped ovipositor sheath. In the key of the *nigripes*-group (Schwenke 1999: 42), this taxon runs to couplet 12(11) *M. nigriceps* Thomson (recte: *M. thomsonii* Dalla Torre), but differs by the granulate mesosoma, entirely black clypeus and shorter ovipositor sheath.

***Mesochorus (Mesochorus) nigrofacies* sp. nov. (Figs 7A–D)**

Holotype: (♀) Sweden, **Vr,** Munkfors kommun, Ransäter, Rudstorp, Sandy railway embankment through pasture-land. N 66°36.454´ E 13°69.030´(= Trap ID 1002), 18.vi-25.vi.2005 (= coll. event ID 1373) (Stockholm).

Paratypes: (2 ♀♀) Sweden, **Vr**, Munkfors kommun, Ransäter, Rudstorp, Sandy railway embankment through pasture-land. N 66°36.454´ E 13°69.030´(= Trap ID 1002), 25.vi-07.vii.2005 (= coll. event ID 1374) (Stockholm and coll. Riedel); (♀) Sweden, **Sö**, Trosa kommun, Hunga Södergård nr 1. Tall grass close to pile of manure behind stable. N 58°55.244´ E 17°31.274´ (= Trap ID 12) 24.vi-05.vii.2003 (= coll. event ID 69) (Stockholm); (♀♂) Norway, RY, Hå, Ognasanden, N 58.51237° E 5.79923°, 2–14.VI.2019, leg. Jarl Birkeland (coll. Riedel)

Description: ♀. Body length 3.0–3.2 mm. Flagellum with 25–27 flagellomeres; 1st flagellomere 6.4x longer than wide and 0.63x as long as eye; 2nd flagellomere 4.3x longer than wide; preapical one 2x longer than wide. Temple moderately and roundly narrowed behind eye, dorsally 0.75x as long as eye. Distance of lateral ocellus to eye 2.0x ocellar diameter. Face with parallel sides, width 1.15x length of clypeus + face and 0.95x eye length, punctate. Clypeus with rather scattered punctures. Facial orbit and malar space entirely striate. Lower mandibular tooth sometimes slightly longer than upper one. Malar space 0.3–0.5x as long as width of mandibular base. Genal carina reaching hypostomal one far from mandibular base; hypostomal carina narrow.

Mesopleuron with fine rather dense punctures dorsally and very scattered and fine setiferous punctures ventrally. Scutellum slightly convex, not carinate laterally. Area basalis trapezoid, wider than long. Area superomedia c.1.6x longer than wide and 1.0–1.1x as long as area petiolaris; anterior transversal carina in its middle. Area petiolaris 1.1x longer than wide. Hind femur 4.6–5.0x longer than wide. Hind claw with 3–4 long teeth. Areolet shortly sessile, vein 2m-cu in middle. Vein 1cu-a interstitial. Pterostigma wide, 2.6x longer than wide; distal part of vein RS slightly sinusoid.

1st tergite 3.3x longer than wide; postpetiolus 1.5x longer than wide, with fine longitudinal striae or rugae. 2nd tergite 0.7–0.9x as long as wide; thyridium transverse, comma-shaped. Ovipositor sheath with dense hairs basally and more scattered hairs in apical half, 7.8–8.2x longer than wide and 1.15–1.2x longer than hind metatarsus, continuously and moderately narrowed to apex.

Color: Black. Antenna black. Face blackish, inner orbit, spot on vertex and outer orbit reddish-yellow. Palp, mandible except teeth and malar space cream-yellow. Mesosoma black, hind edge of pronotum and tegula cream-yellow. Metasoma black; 2nd tergite with yellow band in apical 0.15, 3rd tergite with yellow band in basal 0.2 (slightly widened medially). Ovipositor sheath blackish. Coxae blackish (fore coxae sometimes reddish-brown); legs otherwise reddish; hind tibia yellowsh, infuscate basally and in apical 0.2 (2x tibial width); hind tarsus blackish. Pterostigma ochreous.

♂: Body length 3 mm. Flagellum with 26 flagellomeres; 1st flagellomere 6.8x longer than wide and 0.66x as long as eye; 2nd flagellomere 4.5x longer than wide. Hind femur 5.3x as long as wide; hind claw with 2 basal teeth. Stylet 1.25x as long as 2nd hind tarsomere, slightly clubbed apically. 3rd tergite with yellow basal band and apical yellow triangular spot. Structure and color otherwise as described for the ♀, e.g. face and coxae blackish.

Taxonomic remark: This species belongs to the *curvulus*-group sensu Schwenke (1999). It is characterized by the black face (with yellow or red facial orbits) and entirely brown or black coxae. Its status as a taxon separate from *Mesochorus curvulus* Thomson remains questionable. *Mesochorus curvulus* as interpreted by Dasch (1971: 243–244) is very variable in color pattern, such as pale and/or blackish face and coxae. Horstmann (2006: 1460–1461) has discussed this interpretation and noted that there are several species under "*M. curvulus*" sensu Dasch with different host spectra.

In the material from Northern Europe previously determined as "*curvulus*", there are two different

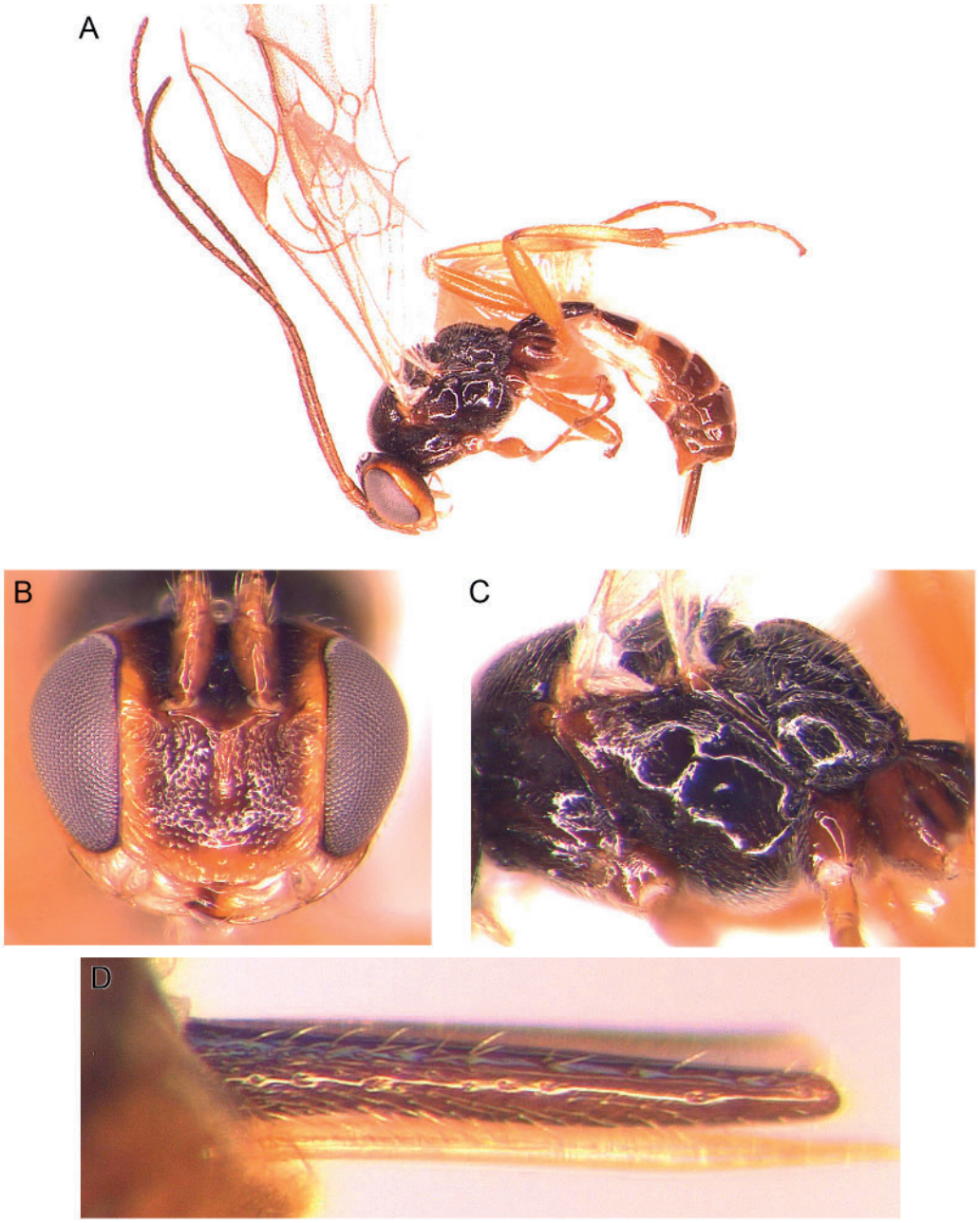

Figure 7. *Mesochorus nigrofacies* **sp. nov.** HT; – A) lateral habitus; – B) face; – C) mesopleuron; – D) ovipositor sheath.

Figur 7. *Mesochorus nigrofacies* **sp. nov.** HT; – A) sidovy av habitus; – B) ansikte; – C) mesopleuron; – D) äggläggningsskida.

color forms (without intermediate specimens, at least in my material). The forms determined as *M. curvulus* here (which are similar to the male lectotype of *M. curvulus* – lectotype studied by me) have reddish faces and ± dark hind coxae, but fore and mid coxae are pale in both sexes, and the teeth of hind claws are rather short in the ♀♀. The form described as *M. nigrofacies* sp. nov. has a black face and dark coxae in both sexes and a longer pectination of hind claws.

In the key for the ♀♀ of the *curvulus*-group (Schwenke 1999: 35–36), *Mesochorus nigrofacies* sp. nov. runs to *Mesochorus subniger* Schwenke, 1999 (recte: *M. convallis* Schwenke, 2002), but differs by the black flagellum and black fore and mid coxae, ochreous pterostigma and the different color pattern of the metasoma. The ♂ (from Norway) runs to *Mesochorus minutus* Szepligéti (recte: *M. tipularis* Gravenhorst) in the key for the males (Schwenke 1999: 36–37), but differs by its entirely blackish coxae and dark hind tarsus.

For a definite taxonomic revision of the "*curvulus*" species-group, more host records and molecular data will be necessary in the future.

Discussion

The findings of the material from the Swedish Malaise Trap Project increase the number of Swedish Mesochorinae from 105 to 136 species, more than 1/3 of the known European mesochorine species so far. For the genus *Astiphromma* Förster, 17 of 27 the known European species (63 %) and for *Mesochorus*, 112 of the 332 European taxa (34 %) have been found in Sweden. Also, one of three European species of *Cidaphus* Förster (33 %), and the only known European species of *Dolichochorus* Strobl were reported from Sweden to date.

Since some species-groups of the large genus *Mesochorus* still need a new and detailed revision for a correct separation and determination of some species, especially the *declinans*- and *pectoralis*-groups sensu Schwenke (1999), a portion of the collected material from the SMTP (ca. 10 %) could still not be determined certainly. I suppose a significant higher number of species of the subfamily Mesochorinae will be found in Sweden when more revisions, molecular data and host records will be available in the future.

Acknowledgments

I thank the initiators of the Swedish Malaise Trap Project, Thomas Pape and Fredrik Ronquist, as well as all Swedish collectors for the realization of this project. For her support of my work and allowance to prepare and study the material, I´d like to thank Kajsa Glemhorn. I also thank Pelle Magnusson who carefully sorted a large part of the huge available Malaise trap material to subfamilies.

References

Araujo, R.O. 2018. Taxonomic notes and Corrigendum for the manuscript entitled "Ichneumonid wasps of the subfamily Mesochorinae (Hymenoptera: Ichneumonidae): new replacement names, combinations and an updated key to the World genera" Araujo et al. (2018) Zootaxa 4521: 52–60. – Zootaxa 4527 (2): 292–294.

Broad, G.R., Shaw, M.R. & Fitton, M.G. 2018. Ichneumonid wasps (Hymenoptera: Ichneumonidae): their Classification and Biology. – Handbooks for the Identification of British Insects Vol 7, Part 12. Royal Entomological Society, London.

Broad, G.R. & Watanabe, K. 2019. *Dolichochorus* Strobl 1904: a valid genus of Mesochorinae (Hymenoptera: Ichneumonidae: Mesochorinae). – Zootaxa 4555 (4) 523–530.

Dalla Torre, C.G. de 1902. Catalogus Hymenopterorum. Volumen III. Trigonalidae, Megalyridae, Stephanidae, Ichneumonidae, Agriotypidae, Evaniidae, Pelecinidae. – Guilelmi Engelmann. Lipsiae. 1901: 1–544, 1902: 545–1141.

Fitton, M.G. 1985. The British species of *Cidaphus*. – Entomological Gazette 36: 293–300.

Hedqvist, K.J. 1948. Om parasiter på tallmätaren (*Bupalus piniarus* L.). – Annales Entomologici Fennici 14 (Suppl.): 88–92.

Holmgren, A.E. 1856. Entomologiska anteckningar under en resa i södra Sverige ar 1854. – Kongliga Svenska Vetenskapsakademiens Handlingar 75 (1854): 1–104.

Holmgren, A.E. 1860. Försök till uppställning och beskrifning af de i Sverige funna Ophionider. (Monographia Ophionidum Sueciae). – Kongliga Svenska Vetenskapsakademiens Handlingar 2 (8): 1–158.

Horstmann, K. 2004. Revisionen von Schlupfwespen-Arten VIII (Hymenoptera: Ichneumonidae). – Mitteilungen der Münchener Entomologischen Gesellschaft 94: 55–62.

Horstmann, K. 2006. Revisionen einiger europäischer Mesochorinae (Hymenoptera, Ichneumonidae). – Linzer Biologische Beiträge 38: 1449–1492.
Jussila, R. 1978. Ichneumonidae (Ins.: Hymenoptera) from the mouth part of the River Angeran. – Fauna Norrlandica 8: 1–6.
Jussila, R. 2011. Lisäyksiä Suomen ja muun länsipalearktisen alueen *Mesochorus*-lajistoon (Hymenoptera, Ichneumonidae, Mesochorinae). – Sahlbergia 17: 32–55.
Kemner, N.A. 1927. Jordgubbsvecklaren *Acalla comariana* Zell. ett betydande skadedjur på jordgubbsplantor i Skåne. – Meddelande Centralanstalten Försöks. Stockholm..
Nordenström, H. 1903. Om några fynd af Parasitsteklar fran södra Östergötland och Hallandås år 1902. – Entomologisk Tidskrift 24: 220–224.
Nordström, F. 1916. Lepidopterologiska notiser. – Entomologisk Tidskrift 37: 115–130, 175–195.
Riedel, M. 2015. Revision of the European species of the genus *Astiphromma* Förster, 1869. – Spixiana 38: 85–132.
Riedel, M. 2018a. Contribution to the Palaearctic species of *Mesochorus* Gravenhorst (Hymenoptera, Ichneumonidae, Mesochorinae): 1. The *M. fulvus*-group. – Linzer Biologische Beiträge 50: 687–716.
Riedel, M. 2018b. The types of *Mesochorus* Gravenhorst (Hymenoptera, Ichneumonidae, Mesochorinae) described by W. Schwenke in the Senckenberg Deutsches Entomologisches Institut. – Contributions to Entomology 68: 1–29.
Riedel M. 2019. The holotypes of *Mesochorus* Gravenhorst at the Zoologische Staatssammlung München described by W. Schwenke (Hymenoptera, Ichneumonidae, Mesochorinae). – Spixiana 42: 61–131.
Riedel, M. & Kolarov, J. 2020. Contribution to the Mesochorinae of Bulgaria and North Macedonia. – Acta Zoologica Bulgarica, in press.
Riedel, M. & Magnusson, P. 2014. A contribution to the Swedish fauna of Ichneumoninae (Hymenoptera, Ichneumonidae), with descriptions of the female of *Cratichneumon armillatops* Rasnitsyn, 1981 and the male of *Aoplus biannulatorius* (Thunberg, 1824). – Entomofauna 35: 433–448.
Riedel, M. & Magnusson, P. 2017. The genus *Adelognathus* Holmgren (Hymenoptera, Ichneumonidae: Adelognathinae) in Sweden - Second contribution to the Swedish Malaise trap project. – Entomofauna 38: 513–528.
Roman, A. 1909. Ichneumoniden aus dem Sarekgebirge. – Naturwissenschaftliche Untersuchungen des Sarekgebirges in Schwedisch-Lappland (Zool.) 4 (3): 199–374.
Roman, A. 1913. Neubeschreibungen und Synonyme zur nördlichen Ichneumonidenfauna Schwedens. – Entomologisk Tidskrift 34: 112–132.
Roman, A. 1917. Skånska parasitsteklar. – Entomologisk Tidskrift 38: 260–284.
Roman, A. 1931. Insektenfaunen inom Abisko nationalpark: II. Studier under ledning av Yngve Sjostedt, 4. Parasitsteklar-Ichneumonidae. – Kongliga Svenska Vetenskapsakademiens Skrifter i Naturskyddsarenden 17: 4–54.
Schwenke, W. 1999. Revision der europäischen Mesochorinae (Hymenoptera, Ichneumonoidea, Ichneumonidae). – Spixiana Supplement 26: 1–124.
Schwenke, W. 2002. Neue europäische Mesochorinae-Arten (Hymenoptera, Ichneumonidae, Mesochorinae). – Entomofauna 23: 85–92.
Schwenke, W. 2004. Eine neue Gattung und 19 neue Arten und Geschlechter europäischer Mesochorinae (Hymenoptera, Ichneumonidae). – Entomofauna 25: 81–88.
Thomson, C.G. 1886. Notes hyménoptèrologiques. Deuxième partie (Genre *Mesochorus*). - Annales de la Société Entomologique de France (6) 5: 327–344.
Vikberg, V. & Vårdal, H. 2017. Taxonomy of some European species of *Mesochorus*, including three new species from Finland and Sweden (Hymenoptera: Ichneumonidae: Mesochorinae). – w-album 20: 3–42.
Wahl, D.B. 1993: Cladistics of the genera of Mesochorinae (Hymenoptera: Ichneumonidae). – Systematic Entomology 18: 371–387.
Yu, D., van Achterberg, C. & Horstmann, K. 2016: Taxapad 2016 - World Ichneumonoidea 2015. Taxonomy, Biology, Morphology and Distribution. On USB Flash drive. www.taxapad.com. Nepean, Ontario, Canada.

Svensk sammanfattning

I den här studien undersöktes material av underfamiljen Mesochorinae (Hymenoptera: Ichneumonidae) insamlat genom Svenska Malaisefälleprojektet (SMTP). I materialet kunde 97 olika arter av Mesochorinae identifieras, varav 31 är nya för Sverige. Fyra arter är nya för vetenskapen, *Mesochorus albofacies* **sp. nov**., *Mesochorus longivalvator* **nov.sp.**, *Mesochorus nigritor* **sp. nov.** and *Mesochorus nigroclypeatus* **sp. nov.**, vilka beskrivs i detalj och avbildas. För *Mesochorus frigidus* Schwenke, 1999 och *Mesochorus macrophyae* Schwenke, 1999 var hanarna tidigare okända, vilka även de beskrivs här. *Mesochorus skanensis* Vikberg, 2017 synonymiseras med *Mesochorus terebratus*

Schwenke, 1999 och *Mesochorus acutus* Schwenke, 1999 återupprättas som distinkt art från *Mesochorus suomiensis* Schwenke, 1999. *Stictopisthus* Thomson anses vara ett undersläkte till *Mesochorus* Gravenhorst. Det här är det tredje bidraget till den svenska faunan av Ichneumonidae från Svenska Malaisefälleprojektet, och följer de två tidigare; Riedel & Magnusson (2014) och Riedel & Magnusson (2017).

Appendix 1

Locations of the mentioned traps

Trap 1: **Sö**, Tyresö kommun, Åva, Spirudden, mixed coastal oak forest, N 59°10.313´ E 18°22.197´.

Trap 2: **Sö**, Haninge kommun, Tyresta, Ungfars mosse/bog, N 59°10.698´ E 18°13.766´.

Trap 3: **Sö**, Haninge kommun, Tyresta, Urskogesslingan, flat-rock and pine forest, N 59°10.608´ E 18°14.816´.

Trap 4: **Sö**, Haninge kommun, Tyresta, Urskogesslingan, Norway spruce wood w. blueberry, N 59°10.554´ E 18°14.855´.

Trap 5: **Sö**, Huddinge kommun, Sofielunds återvinningsanläggning, pine forest with garbage, N 59°10.592´ E 17°59.631´.

Trap 6: **Up**, Älvkarleby kommun, Marma skjutfält, dry meadow w. birch, N 60°31.456´ E 17°27.089´.

Trap 7: **Up**, Älvkarleby kommun, Båfors. pine forest w. blueberry, N 60°27.639´ E 17°19.069´.

Trap 8: **Up**, Håbo kommun, Biskops-Arnö, northern beach. Elm grove. N 59°40.328´ E 17°30.051´

Trap 9: **Up**, Knivsta kommun, Rickebasta alsumpskog, alder swamp wood, N 59°44.061´ E 17° 43.225´.

Trap 10: **Sr**, Säters kommun, Säterdalen, Näsåkerspussen, alder wood ravine, N 60°22´E 17°43`.

Trap 11: **Vs**, Sala kommun, Västerfärnebo, Nötmyran (Östermyran), birches at Islingby, Hay meadow. N 59°56.517´ E 16°18.567´.

Trap 12: **Sö**, Trosa kommun, Hunga Södergård nr 1. Tall grass close to pile of manure behind stable. N 58°55.244´ E 17°31.274´

Trap 13: **Ög**, Ödeshögs kommun, Omberg, Stocklycke äng. lime meadow, N 58°18.452´ E 14°37.859´.

Trap 15: **Ög**, Ödeshögs, Omberg, Storpissan, old Norway spruce wood, N 58°20.095´ E 14°39.300´.

Trap 16: **Ög**, Ödeshögs kommun, Omberg, Bokskogsreservatet. Beech forest, N 58°17.831´E 14°38.089´.

Trap 17: **Sm**, Gränna kommun, Lönnemålen, next to old cellar in Norway spruce forest w. big harvested ashes, N 58°02.935´ E 14°34.382´.

Trap 18: **Sm**, Högsby kommun, Hornsö kronopark, birch fen, N 57°00.393´ E 16°06.561´.

Trap 20: **Öl**, Mörbylånga kommun, Södra lunden (Ottenby), military radar station, nemoral grove, N 56°13.161´ E 16°25.341´.

Trap 21: **Öl**, Mörbylånga kommun, Södra lunden (Ottenby), military radar station. Nemoral grove. N 56°13.161´ E 16°25.341´.

Trap 22: **Öl**, Mörbylånga, Gamla Skogsby (Kakstad), „diversitetsängen“, meadow with bushes, N 56°37.002´ E 16°30.457´.

Trap 23: **Bl**, Ronneby kommun, Tromtö nabb. Beech and oak forest. N 56°08.944´ E 15°28.801´.

Trap 24: **Sm**, Älmhults kommun, Stenbrohult, Djäknabygds bokbacke, heath with old beeches, N 56°36.548´ E 14°11.583´.

Trap 27: **Up**, Uppsala kommun, Ekdalens naturreservat, tall herbs and young trees mixed with old oaks, N 59°58.291´ E 18°21.299´.

Trap 28: **Go**, Gotlands kommun, Roleks, grazed calcareous pine forest, N 57°32.207´ E 18°20.273´.

Trap 29: **Go**, Gotlands kommun, Rembs, lichen pine forest, N 56°56.036´ E 18°16.127´.

Trap 31: **Bo**, Stenungsunds kommun, Kolhättan (Ödsmål), Hällsberget, broad-leaved decidous forest, N 58°08.456´ E 11°51.372´.

Trap 32: **Bo**, Tanums kommun, Hamburgsund, Stora Snixholmen, semi-exposed coastal flat-rock, N 58°33.865´ E 11°15.104´.

Trap 34: **Ha**, Laholms kommun, Mästocka ljunghed, northeastern edge. N 56°36.831´ E 13°14.026´

Trap 35: **Ha**, Halmstad kommun, Gårdshult, Buskastycket, moist hay meadow, N 56°41.693´ E 13°09.030´.

Trap 37: **Sk**, Klippans kommun, Skäralid, valley below northern Lierna, rich beech forest, N 56°01.633´ E 13°13.406´.

Trap 38: **Sk**, Tomelilla kommun, Drakamöllan, Agrostis capillaris heath, N 55°45.706´ E 14°07.068´.

Trap 39: **Sk**, Simrishamns kommun, Stenshuvuds nationalpark, broad-leaved deciduous forest, N 55°39.618´ E 14°16.532´.

Trap 40: **Sk**, Simrishamns kommun, Stenshuvuds nationalpark, Hornbeam forest. N 55°39.683´ E 14°16.124´

Trap 41: **Sm**, Gnosjö kommun, Store mosse, Kittlakull, bog, N 57°17.234´ E 13°55.148´.

Trap 42: **Hr**, Härejdalens kommun, Sånfjället, Nyvallens fäbod, Alpine birch and spruce wood. N 62°19.001´ E 13°34.113´.

Trap 43: **Hs**, Hudiksvalls kommun, Stentsjön-Lomtjärn, Stensjön, marsh pine wood close to bog, N 62°08.420´ E 16°17.166´.

Trap 44: **Ån**, Önsköldsviks kommun, Skuleskogen, Långrå, brook ravine in mixed forest, N 63°05.323´ E 18°29.903´.

Trap 45: **Vb**, Umeå kommun, Holmön, blueberry spruce forest next to pasture. N 63°47.379´ E 20°50.921´.

Trap 46: **Ly**, Sorsele kommun, Ammarnäs, Vindelfjällens naturreservat, Tjulträsklaspen, Alpine birch wood. N 65°58.007´E 16°03.6301´.

Trap 47: **Lu**, Jokkmokks kommun, Muddus nationalpark, Blueberry spruce forest. N 66°46.172´ E 20°06.683´

Trap 48: **Lu**, Gällivare kommun, Ätnarova försökspark, Pelttovaara, Vaccinium vitis-idaea pine wood. N 67°03.103´E 20°23.154´.

Trap 49: **To**, Pajala kommun, Vasikkavuoma, mowable bog, N 67°13.778´E 22°11.200´.

Trap 50: **To**, Kiruna kommun, Abisko nationalpark, dry alpine birch wood, N 68°21.232´ E 18°46.929´.

Trap 51: **Nb**, Skellefteå kommun, Brännbergets naturreservat. Mixed boreal forest. N 64°54.768´ E 20°29.984´.

Trap 53: **Vb**, Vindelns kommun, Kulbäckslidens försökspark, Degerö stormyr, Kronmyran, bog. N 64°10.903‘ E 19°33.369‘.

Trap 54: **Vb**, Vindelns kommun, Kulbäcken meadow, birch wood on fine alluvial sediments, N 64°11.413´ E 19°36.342´.

Trap 55: **Vb**, Vindelns kommun, Kulbäckslidens försökspark, Granliden, 80+ yr old spruce foreset, N 64°11.554´ E 19°19.017´.

Trap 57: **Vb**, Vindelns kommun, Kulbäckslidens försökspark, 15 yr spruce plantation with blueberry, N 64°09.270´ E 19°35.591´.

Trap 58: **Vb**, Vindelns kommun, Kulbäckslidens försökspark, 4050 yr blue-berry pine forest, N 64°10.716´ E 19°192´.

Trap 60: **Vb**, Vindelns kommun, Kulbäckslidens försökspark. Dense 20–25 yr old mixed coniferous forest, N 64°10.716‘ E 19°35.192‘.

Trap 1000: **Sm**, Nybro kommun, Bäckebo, Grytsjöns naturreservat, old aspen forest in boulder terrain, N 63°10.596´ E 15°18.027´.

Trap 1001: **Sm**, Nybro kommun, Bäckebo, Grytsjöns naturreservat, old moisty haymaking meadow in forest edge, N 62°11.678´E 15°17.066´.

Trap 1002: **Vr**, Munkfors kommun, Ransäter, Rudstorp, sandy railway embarkment through pasture-land, N 66°36.454´ E 13°69.030´.

Trap 1003: **Vr**, Munkfors kommun, Ransäter, Ransbergs herrgård, old mixed deciduous forest in stream ravine, N 66°32.516´ E 13°65.816´.

Trap 1005: **Sk**, Ystads kommun, Sandhammaren strand, Järahusen, border between forest and sandhill dunes, N 61°42.074´ E 13°98.890´.

Trap 1006: **Sk**, Ystad kommun, Sandhammren, Järahusen. Mixed forest, N 61°42.723´ E 13°98.306´.

Trap 1007: **To**, Kiruna kommun, Abisko NP. Bare mountain above tree limit, 900 m.a.s.l. RT 90 7588337, 1620014

Trap 1008: **Sm**, Nybro kommun, Alsterbro/Alsterån, mixed forest, N 63°12.220´ E 15°00.6997´.

Trap 2003: **Sö**, Huddinge kommun, Sofielunds kadaverdeponi, cadaver dump, N 59°10.592´ E 17°59.631´.

Trap 2006: **Öl**, Mörbylånga kommun, Ölands Skogsby, Ecological Research Station ESÖ Garden, N 56°37.786´ E 16°29.5121´.