



## Review of North European species of the genus *Lathrolestes* (Hymenoptera, Ichneumonidae) with description of one new species from Öland (Sweden)

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### Abstract

The genus *Lathrolestes* Förster (Hymenoptera: Ichneumonidae) from Northern Europe is reviewed. A new species, *L. oelandinus* sp. n. from Öland (Southern Sweden) is described. Illustrated diagnoses for 23 Northern European species are provided. *Lathrolestes soperi* Reshchikov, 2010 is recorded for the first time in the Palaearctic region (from the UK) and *L. bipunctatus* (Bridgman, 1886), *L. citreus* (Brischke, 1878), *L. clypeatus* (Zetterstedt, 1838) are new records for Denmark, and *L. moravicus* Habermehl, 1923 is a new record for Finland, France and Russia. Additionally *L. ensator* recorded newly from Belarus, *L. erythrocephalus* from Azerbaijan, *L. macropygus* and *L. pictilis* from Austria. Trophic interactions of the genus are discussed.

**Key words:** Ctenopelmatinae, Perilissini, parasitoid wasps, Scandinavia, Fårö, trophic interactions, host switch, ovipositor morphology

## Introduction

One of the poorly known ichneumonid subfamilies, Ctenopelmatinae (Hymenoptera, Ichneumonidae) specialized on sawflies (Hymenoptera, Symphyta) includes the genus *Lathrolestes* Förster, 1869. It is a large genus within the tribe Perilissini, with 103 previously known distinct species (Reshchikov *et al.* 2010, 2012, Reshchikov 2010, 2011a, 2011b, 2011c, 2012a, 2012b, 2013a, 2013b, 2015) 38 of them from the Nearctic region (including 1 introduced Palaearctic species and 1 Holarctic species); 49 species from the Palaearctic region, 2 from the Afrotropical (Yu *et al.* 2012, Reshchikov 2013b), 10 from the Neotropical (Reshchikov *et al.* 2012, Reshchikov 2015) and 7 from the Oriental (Reshchikov 2010a, 2011c,) regions. The extremely low number of Holarctic species or even transpalaearctic species is noticeable, as well as the absence of the genus in the Australasian and Oceanic regions. Poor diversity of the genus in the tropics was believed to be associated with poor diversity of hosts (Gauld 1997). However, according to recent work, South East Asia is considered as one of the hotspots for Symphyta (Wei & Niu 2009, Smith 2011).

The genus *Lathrolestes* was established by Förster (1869) but several species were previously described in other genera: *L. luteolator* (Gravenhorst, 1829) in *Mesoleptus*, *L. orbitalis* (Gravenhorst, 1829), *L. erythrocephalus* (Gravenhorst, 1829) and one of the species with smallest body size, *L. clypeatus* (Zetterstedt, 1838).—in *Tryphon*; *L. buccinator* (Holmgren, 1857), *L. lucidulus* (Holmgren, 1857), *L. macropygus* (Holmgren, 1857) and *L. pictilis* (Holmgren, 1857)—in *Perilissus*. "Bidrag till kännedom om Skandinaviens Tryphoner" by Carl Gustaf Thomson (1883) includes description of Perilissini and seven species of *Lathrolestes*: *L. caudatus* (Thomson, 1883), *L. frontator* (Thomson, 1883), *L. luteolus* (Thomson, 1883), *L. nigricollis* (Thomson, 1883), *L. pleuralis* (Thomson, 1883), *L. unguularis* (Thomson, 1883) and *L. marginatus* (Thomson, 1883) (minor synonym of *L. verticalis* (Brischke, 1871). Before this work the North European fauna contained 22 species (Reshchikov 2013a).

The scope of this paper is to show and describe Northern European diversity of the genus *Lathrolestes* belonging to one of the poorly known ichneumonid subfamilies, Ctenopelmatinae (Hymenoptera, Ichneumonidae) specialized on sawflies (Hymenoptera, Symphyta). A new species from Öland (Southern Sweden), *L. oelandinus* **sp. n.** is described and several new records are presented. An identification key to European species was provided in a previous paper (Reshchikov 2013a).

## Material and methods

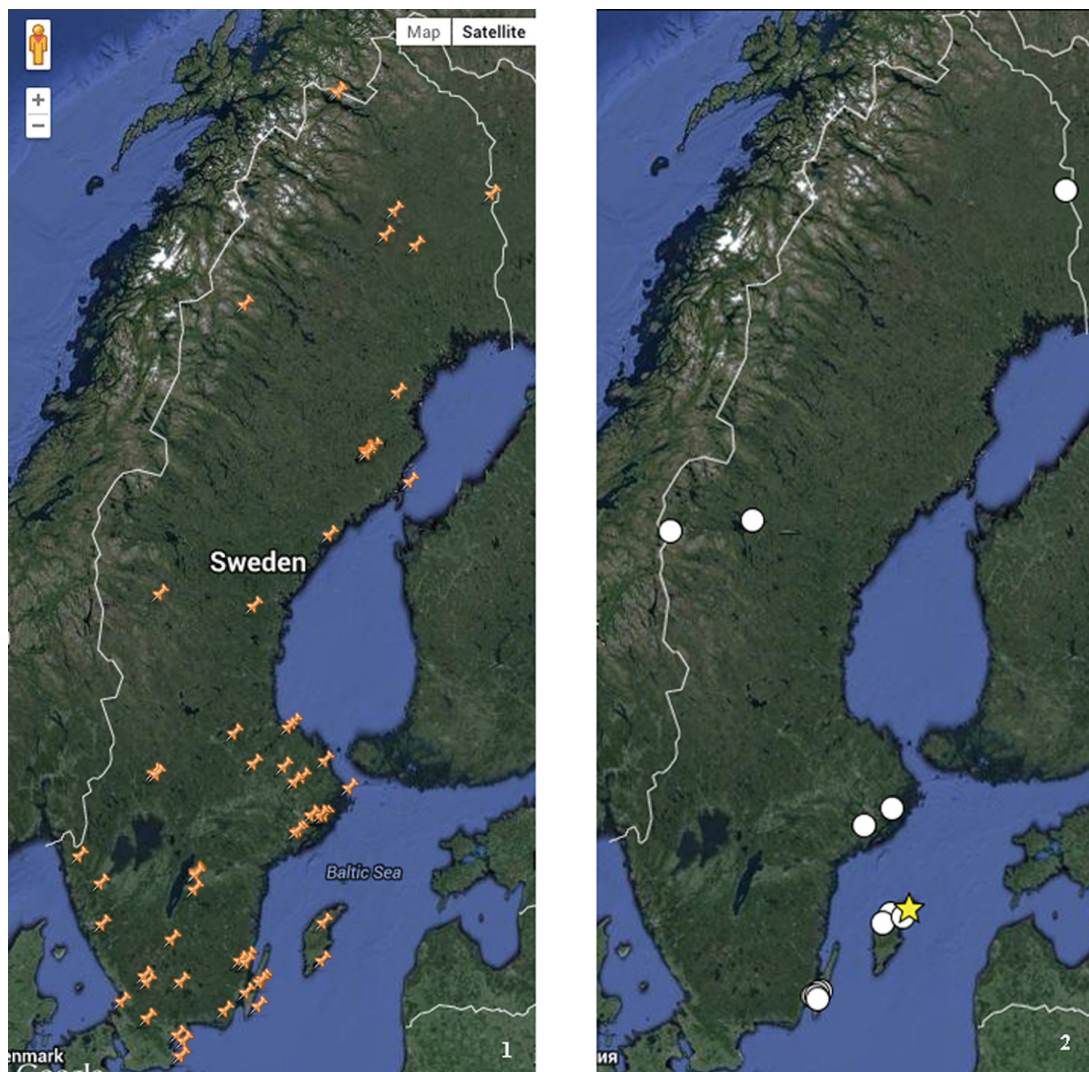
Specimens. Northern Europe is considered here as the following: UK, Fennoscandia, Baltic region and North West of Russia. Additional material from other parts of the Palaearctic region was used but as this study is part of the project "Ctenopelmatinae, a poorly known group of parasitic wasps in Sweden" funded by the Swedish Taxonomy Initiative (<http://www.slu.se/en/collaborative-centres-and-projects/artdatabanken/the-swedish-taxonomy-initiative>) the most important source of material was the Swedish Malaise Trap Project (SMTP), a large-scale, national survey of insects (Station Linné, Öland, Sweden, <http://stationlinne.se/smf.html>) (Fig. 1). The most interesting samples came from trap 22 that was set in Gamla Skogsby, Öland (just a few hundreds meters from the Station Linné) on a meadow with shrub vegetation. This trap yielded the new species *L. oelandinus* **sp. n.**

More than 5000 specimens of Ctenopelmatinae from the Swedish Malaise Trap Project were processed. Also material from the following collections were examined:

MZH	Finnish Museum of Natural History, Helsinki, Finland;
MZLS	Musée de Zoologie, Lausanne, Switzerland;
MZLU	Zoologiska Museet, Lunds universitet, Lund Sweden;
NCMK	Norwich Castle Museum, Norwich, UK;
HNHM	Hungary, Budapest, Hungarian Natural History Museum;
NHRS	Naturhistoriska Riksmuseet, Stockholm, Sweden;
NTNU	Norwegian University of Technical Science and Natural History, Trondheim, Norway;
RMNH	Naturalis Biodiversity Centre, Leiden, Netherlands;
RSME	National Museums of Scotland, Edinburgh, United Kingdom;
SMF	Natur-Museum Senckenberg, Frankfurt, Germany;
UUZM	Museum of Evolution, Uppsala University, Uppsala, Sweden;
ZIN	Zoological Institute, Saint Petersburg, Russia;

ZMUC Natural History Museum of Denmark;  
 ZMUM Zoological Museum of Moscow University, Moscow, Russia;  
 ZMUN Natural History Museum, University of Oslo, Norway;  
 ZMUT Zoological Museum University of Turku, Finland;  
 ZSM Zoologisches Staatsammlung, München, Germany.

Additional material was collected in Sweden (Fig. 2). Sweep net, Malaise traps (Malaise, 1937; Townes, 1962) and yellow pan traps (Campbell *et al.* 2007, Frank & Dirrigl 2012) were used. All the material was preserved in 70% ethanol. The type specimens are databased and the data is available on [www.naturarv.se](http://www.naturarv.se) and [www.gbif.org](http://www.gbif.org).



**FIGURES 1–2.** 1, sampling by Swedish Malaise Trap Project (list of sampling sites and map are available at <http://www.stationlinne.se/en/research/the-swedish-malaise-trap-project-smtp/traps/>); 2, sampling by author (map is available at <https://www.google.com/maps/d/edit?mid=zdSsRooS-iS4.kHQkqoUpeMBc>).

**Figures.** Most images were acquired digitally using Canon EOS 5D digital camera and combined using Zerene®. All images were further processed using various minor adjustment levels in Adobe Photoshop® such as image cropping and rotation, adjustment of contrast and brightness levels, colour saturation, and background enhancement. Stacked images are available in colour and high resolution at <http://www.morphbank.net>. Several of the images were previously published (Reshchikov 2013a).

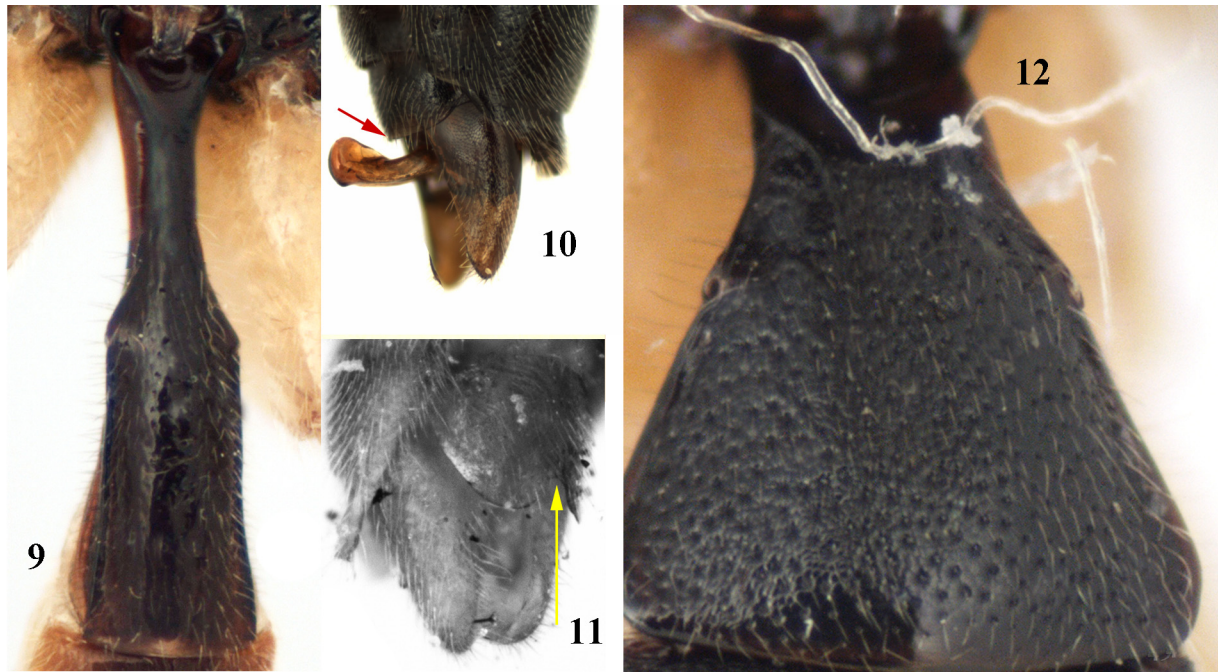
**Terminology and measurements.** Terminology (Figs. 3–42) is essentially that used in previous papers (Reshchikov *et al.* 2010, 2012, Reshchikov 2010, 2011a, 2011b, 2011c, 2012a, 2012b, 2013a, 2013b), and is generally adapted from Gauld (1991, 1997) and more selectively from Karlsson & Ronquist (2012).



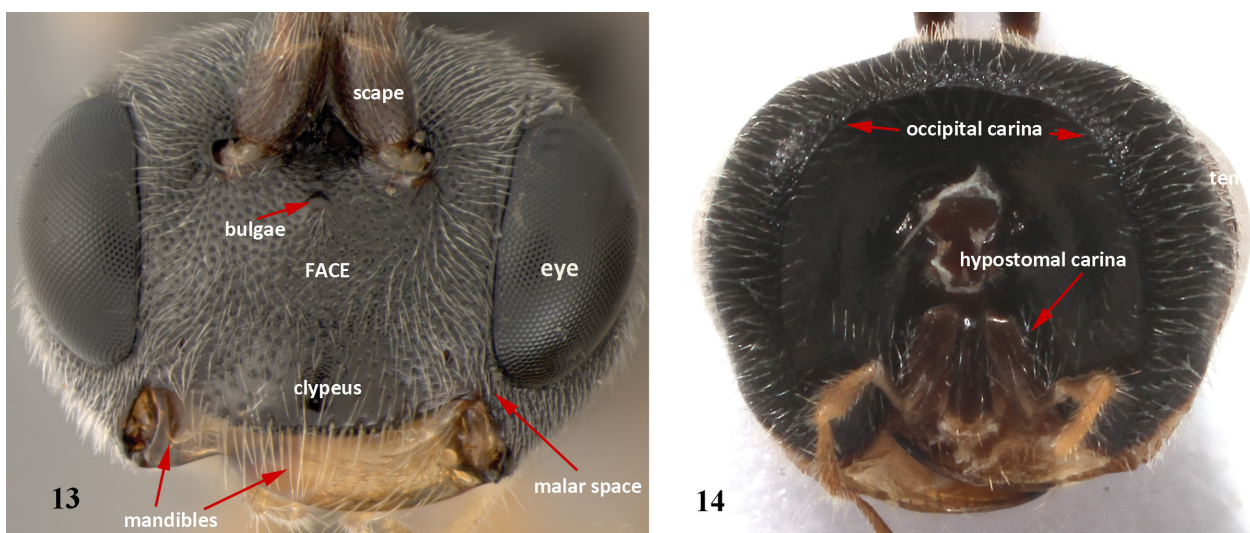
**FIGURES 3–8.** Variety of colouration and body size in the genus *Lathrolestes*; 3, *L. fumipennis* Reshchikov, 2012; 4, *L. tripunctator* (Thunberg, 1824); 5, *L. laevipleuris* Reshchikov, 2013; 6, *L. norrae* Reshchikov, 2013; 7, *L. buccinator* (Holmgren, 1857); 8, *L. tolstoyi* Reshchikov, 2012.



Adults of *Lathrolestes* range in body length from 3 to 15 mm, and vary widely in colour (Fig. 3). They can be recognized by the occipital carina not intercepting the hypostomal carina (Fig. 14) and can be distinguished from *Priopoda* Holmgren, 1856 (Figs. 9, 11): 1) by that the first tergite is not elongate, its length is less than twice as long as broad (Fig. 12) and 2) by the hind margin of the last visible sternite that is without notches in males (Fig. 10). There is, however, one exception, *L. fissus* Reshchikov, 2010 (Reshchikov et al. 2010) in which the last visible sternite is notched. Also, there is a defined sexual dimorphism represented by differences in colouration (Figs. 92–95). Often males have lighter colouration e.g. yellow face or lower part of mesopleuron.



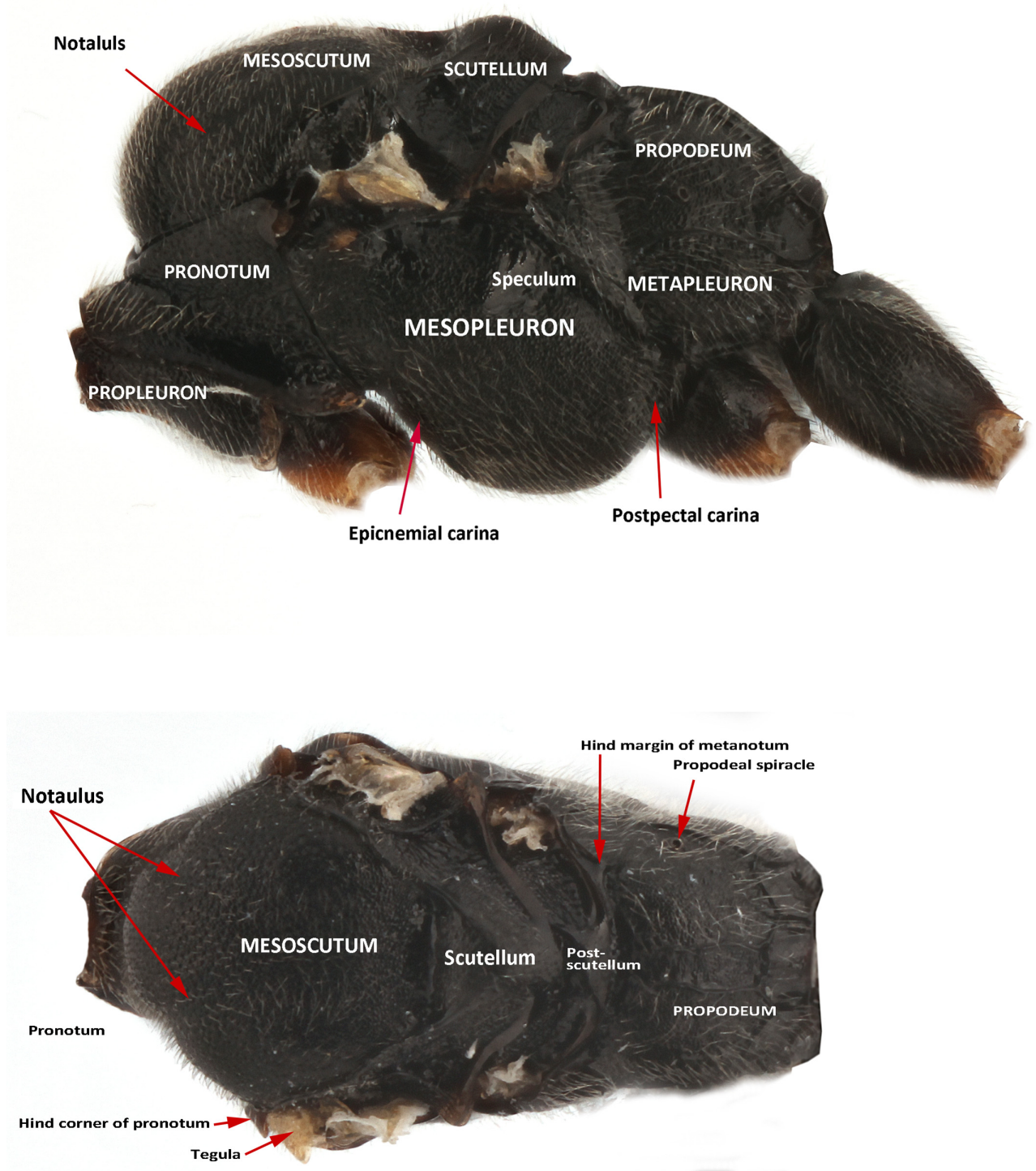
**FIGURES 9–12.** 9, First metasomal tergite of *Priopoda impressa* Reshchikov, 2012; 10, last visible sternite of *Lathrolestes aitmatovi* Reshchikov, 2012; 11, last visible sternite of *Priopoda lisanevichi* Reshchikov, 2012; 12, first metasomal tergite of *Lathrolestes sparsus* Reshchikov, 2012.



**FIGURES 13–14.** Head of *Lathrolestes*. 13, anterior view, *L. buccinator*; 14, posterior view, *L. orbitalis*.

Head of the members of the genus is orthognathous as in Ichneumonidae in general. Length of malar space is widely in use for identification of species. Some of the species have a rather elongate malar space, e.g. malar space of *Lathrolestes luteolus* Thomson 1883, or short malar space as in *Lathrolestes obliquus* Reshchikov, 2012. Another important character state is the separation of clypeus from face; almost a third of the *Lathrolestes* species

has the clypeus separated from the face by a deep groove and the rest of the species have clypeus separated from the face by a shallow impression or in rare cases may be hardly separated (Fig. 13). The face can be either flat or projecting. The occipital carina is another important character. It can be complete (Fig. 14) or interrupted in the middle (Figs. 79, 83).



FIGURES 15–16. Mesosoma of *Lathrolestes orbitalis*. 15, lateral view; 16, dorsal view.

*Mesosoma*. Sculpture of mesopleuron is widely used as a species-diagnostic character. The mesopleuron can be densely, sparsely, finely and roughly punctate. Propodeum has a system of carinae dividing areas (Fig. 28). A complete system includes: three pairs of longitudinal carinae (medial, lateral and pleural) and two transverse carinae (basal and apical). This system is variously developed from absent to complete. It is widely used in the



systematics of the genus. The propodeal carinae are absent in *L. verticalis* (Brischke, 1871) and *L. ensator* (Brauns, 1898) and complete in *L. luteolator* (Gravenhorst, 1829). The wings of *Lathrolestes* provide some important characters (Fig. 17). The areolet (A) can be petiolate or non-petiolate. Another important character is the position of Rs-2r relatively to the pterostigma. The following features of the legs are important character states: enlarged fifth tarsomere of *L. unguularis* (Thomson, 1883) and *L. zeugophorae* Barron, 1994. The tarsal claw can be pectinate, simple, or with a basal lobe (Fig. 18–27). The members of *tripunctator* species group have elongate claw with hair-like teeth (Reshchikov, 2012a).

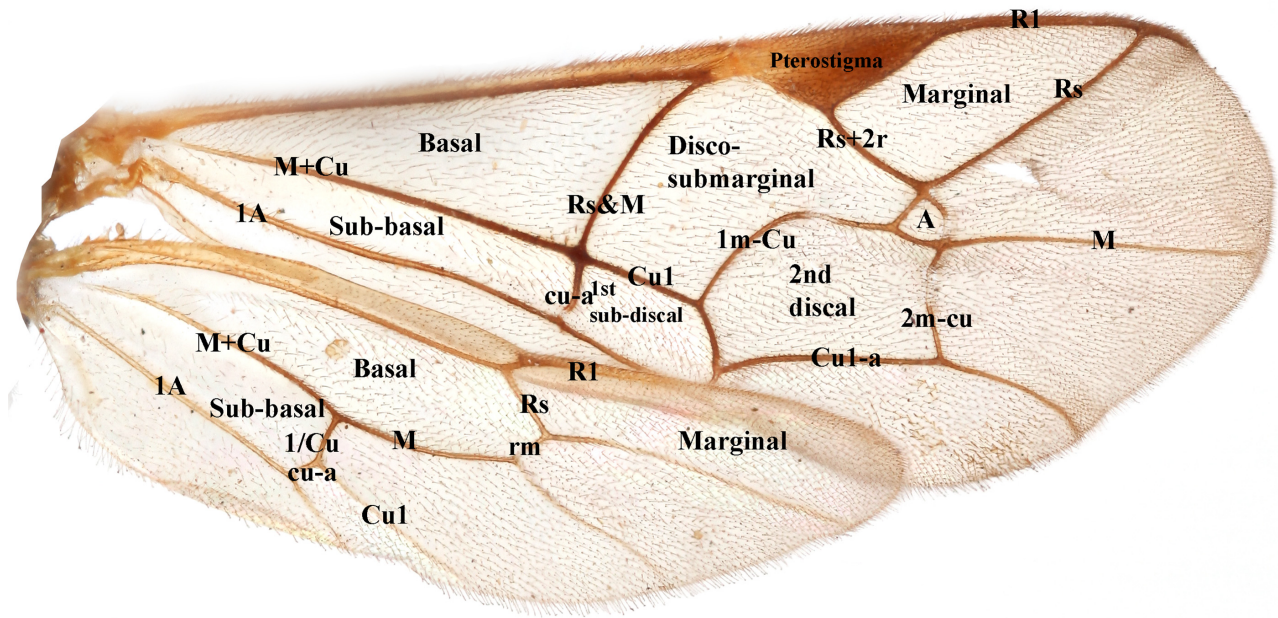
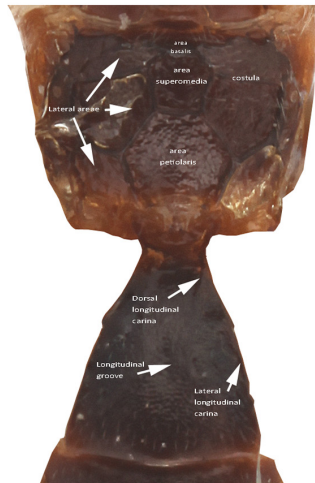


FIGURE 17. Wing venation nomenclature, *Lathrolestes ensator*.



FIGURES 18–27. Claws. 18, *L. bipunctatus*; 19, *L. clypeatus*; 20, *L. buccinator*; 21, *L. ensator*; 22, *L. luteolator*; 23, *L. normae*; 24, *L. oelandinus*; 25, *L. erythrocephalus*; 26, *L. orbitalis*; 27, *L. kozlovi*.

The *metasoma* of *Lathrolestes* provides many important characters. Longitudinal dorsal and dorsomedial carinae of the first metasomal tergite are defined to different degrees in different species or may be absent. A longitudinal impression between the longitudinal dorsal carinae is also used as species-diagnostic character. The first metasomal tergite proportions vary from short to elongate, almost twice the length of the apical width. The second tergite can be almost square or elongate. Normally no important characters may be found on the tergites from the third tergite and posteriorly except for laterotergites not separated from tergites in *L. kozlovi* Reshchikov, 2012 and *L. aytmatovi* Reshchikov, 2012. The shape of the last visible sternite edge is used to differentiate males of the genera *Priopoda* and *Lathrolestes*. Males of *Priopoda* have notched edge (Fig. 11), whereas in *Lathrolestes* it is simple, except for in *L. fissus* Reshchikov, 2010.

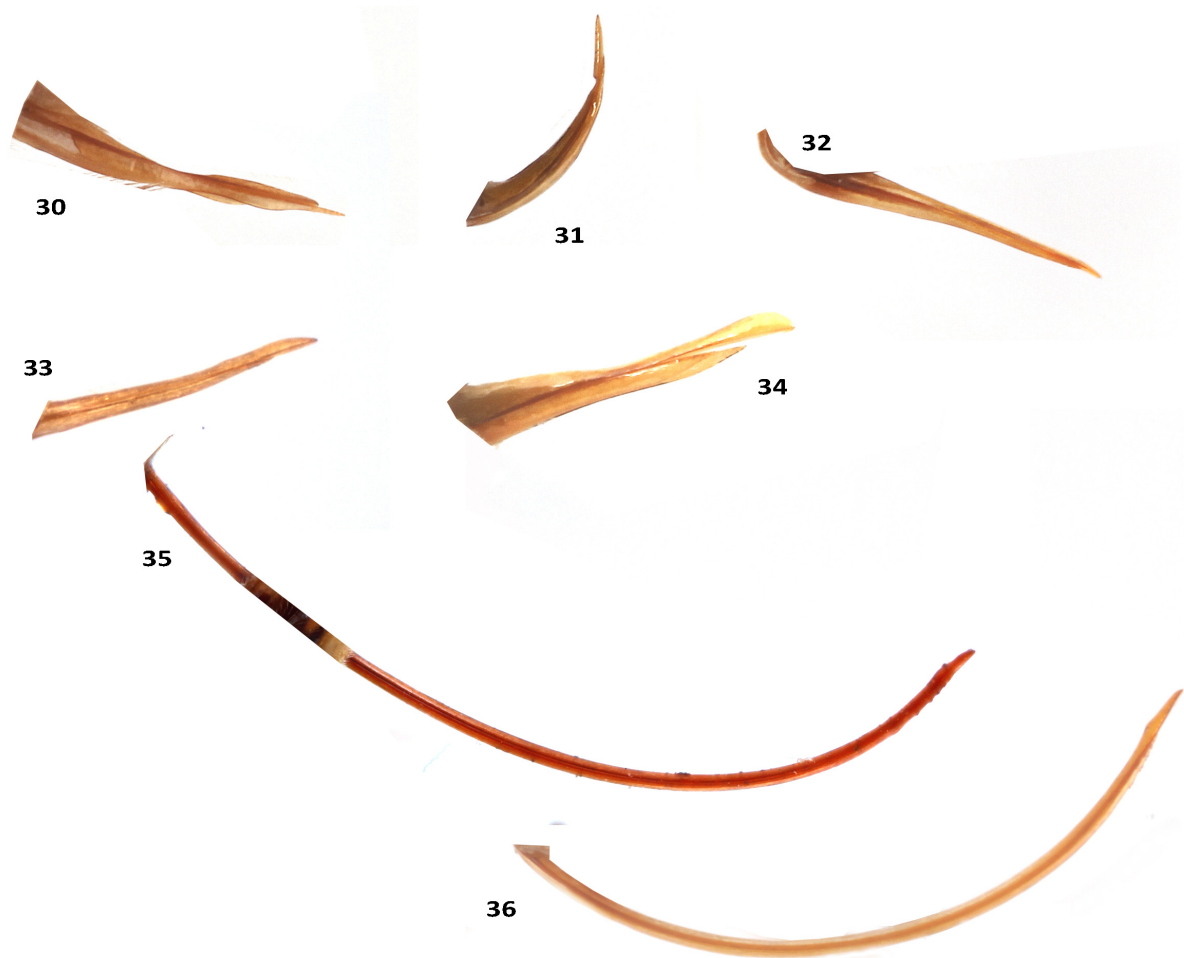


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FIGURES 28–29. Propodeum and metasoma of *Lathrolestes*. 28, propodeum of *L. luteolator*; 29, metasoma of *L. orbitalis*.



FIGURES 30–36. Types of ovipositor of *Lathrolestes*. 30, *L. luteolator*, with shallow notch before apex, stout at base; 31, *L. clypeatus*, with shallow notch before apex, curved upwards; 32, *L. bipunctatus*, stout in basal half, with gradually narrowing apical half, without shallow notch before apex; 33, *L. luteolus*, thin, gradually narrowing towards apex; 34, *L. orbitalis*, swollen dorsally, without notch; 35, *L. ensator*; 36, *L. oelandinus* sp. nov., elongate, curved upwards, without notch, with nodus and apical teeth.



Members of the genus have very differently shaped ovipositors. The lengths of ovipositors vary from very short in *Lathrolestes occultor* Aubert, 1984, to rather elongate in *L. ensator* (Brauns, 1898), in which it is longer than the metasoma. Several ovipositor types are distinguished during this study (Figs. 30–36).

Male genitalia are usually not used for systematics of Ichneumonidae, however they were studied and used for members of the genus *Lathrolestes*. Here several types of male genitalia are distinguished (Figs. 37–42).



**FIGURES 37–42.** Types of male genitalia of *Lathrolestes*. 37, *L. oelandinus* sp. nov.; 38, *L. buccinator*; 39, *L. caudatus*; 40, *L. citreus*; 41, *L. verticalis*; 42, *L. tripunctor*.

## Taxonomy

### *Lathrolestes*

*Lathrolestes* Förster, 1869: 196. Type-species: *Tryphon clypeatus* Zetterstedt.  
*Camporychus* Förster, 1869. Type-species: *Lathrolestes marginatus* Thomson;  
*Culmina* Benoit, 1955. Type-species: *Culmina ruwenzorica* Benoit;  
*Ecclinops* Förster, 1869. Type-species: *Tryphon orbitalis* Gravenhorst;  
*Homalomma* Förster, 1869. Type-species: *Homalomma caliroae* Rohwer;  
*Laphyrosopus* Förster, 1869. Type-species: *Tryphon gorskii* Ratzeburg;  
*Lathrolestes* Thomson, 1883. Type-species: *Lathrolestes clypeatus* Zetterstedt  
*Laphyrosopus* Thomson, 1883. Type-species: *Laphyrosopus gorskii* Ratzeburg  
*Ritzemabosia* Smits van Burgst, 1912. Type-species: *Ritzemabosia meridionalis* Smits van Burgst;  
*Tryphonopsis* Brauns, 1898. *Tryphonopsis ensator* Brauns

**Diagnosis.** Small to medium sized species, 4.0–7.5 mm. Occipital carina not intercepting hypostomal carina. Clypeus profile flat, its apical margin thick. Mandibles with lower tooth distinctly longer than the upper. Areolet petiolate, oblique. Second recurrent vein with a single bulla. Nervellus intercepted below or at its middle. Tarsal claws pectinate, with 1 or 3 teeth or with basal lobe. Glymmae deep. Apex of subgenital plate of male not incurved on hind margin. Tip of aedeagus somewhat decurved and swollen, its apex rounded. Ovipositor sheath 0.3 to 15 × as long as metasomal height.

**Biology.** Their larvae are koinobont endoparasitoids usually on leafmining sawfly larvae of the tribe Fenusini (Hymenoptera, Tenthredinidae); these feed on foliage of deciduous trees or shrubs (Pschorn-Walcher & Altenhofer 1989) excluding *Metallus gei*, feeding on *Geum urbanum*. A few species are known to attack leafmining lepidopteran larvae of the family Eriocraniidae—*L. clypeatus* (Zetterstedt 1838) and *L. mnemonicae* (Rohwer 1914) (Rohwer 1914; Heath 1961; Carlson 1979) and leafmining beetle larvae of the family Megalopodidae—*L. zeugophorae* Barron, 1994. Some *Lathrolestes* species attack sawflies with a different lifestyle such as

*Lathrolestes ensator*, which is a parasitoid of the carpophagous, *Hoplocampa testudinea* (Nematinae, Hoplocampini). *Lathrolestes caudatus* attacks larvae of *Ardis brunniventris* (Blennocompinae, Blennocompini), which feeds within branches of dog rose. *Lathrolestes luteolator* attacks larvae of slug sawflies, *Caliroa* (Heterarthrinae, Caliroini) (Carl, 1976). Data on trophic interactions of the genus *Lathrolestes* is provided in Table 1.

**TABLE 1.** Trophic interactions of the genus *Lathrolestes*.

№	<i>Lathrolestes</i> species	Host species	Host plant
1.	<i>Lathrolestes bipunctatus</i> (Bridgman, 1886)	Heterarthrinae, Fenusini: <i>Fenusa pusilla</i> (Lepetelier) [Zirngiebl, 1961] <i>F. ulmi</i> (Sundevall, 1847) [Hedwig, 1962]	<i>Betula pendula</i> [Lorenz & Kraus, 1957] <i>Ulmus glabra</i> ; <i>U. minor</i> [Liston, 1993]; <i>U. foliacea</i> [Scobiola-Palade, 1974]; <i>U. americana</i> , <i>U. elliptica</i> , <i>U. glabra</i> , <i>U. rubra</i> [Smith, 1995]
2.	<i>L. caudatus</i> (Thomson, 1883)	Blennocompinae, Blennocompini: <i>Ardis brunniventris</i> (Hartig, 1837) [Evenhuis, 1973; Hinz, 1996]	<i>Rosa rugosa</i> [Evenhuis, 1973]
3.	<i>L. citreus</i> (Brischke, 1878)	Heterarthrinae, Fenusini: <i>Parna tenella</i> (Klug, 1816) [Ozols, 1961]	<i>Tilia cordata</i> [Kontuniemi, 1960]; <i>T. vulgaris</i> [Liston, 1995]
4.	<i>L. clypeatus</i> (Zetterstedt, 1838)	<b>Lepidoptera</b> , Eriocraniidae: <i>Eriocrania salopiella</i> (Stainton, 1854); <i>E. sangii</i> (Wood, 1891); <i>E. semipurpurella</i> (Stephens, 1835); <i>E. sparrmannella</i> (Bosc, 1791); <i>E. unimaculella</i> (Zetterstedt, 1839) [Heath, 1961]	<i>Betula</i> sp. [Kutenkova, 1999]
5.	<i>L. constrictus</i> (Provancher, 1882)	Heterarthrinae, Fenusini: <i>Metallus rohweri</i> MacGillivray, 1909 [Barron, 1994]	<i>Rubus</i> [Barron, 1994]
6.	<i>L. ensator</i> (Brauns, 1898)	Nematinae, Hoplocampini: <i>Hoplocampa testudinea</i> (Klug) [Zapryanov, 1985; Zijp & Blommers, 1993; Babendreier, 1996; Boeve, 1996; Vincent <i>et al.</i> , 2002; Zijp & Blommers, 2002a; 2002b.]	<i>Malus pumila</i> ; <i>Malus sylvestris</i> [Zijp & Blommers, 1993; Babendreier, 1996; Boeve, 1996; Vincent <i>et al.</i> , 2002; Zijp & Blommers, 2002a; 2002b.]
7.	<i>L. luteolator</i> (Gravenhorst, 1829)	Heterarthrinae, Caliroini: <i>Caliroa annulipes</i> (Klug, 1816) [Hinz, 1961; Schönrogge, 1991]  <i>C. cerasi</i> L. [Carl, 1976]	<i>Betula pendula</i> , <i>Fagus sylvatica</i> , <i>Quercus robur</i> , <i>Q. petraea</i> , <i>Q. cerris</i> , <i>Q. palustris</i> , <i>Q. rubra</i> , <i>Salix caprea</i> , <i>Tilia cordata</i> , <i>Vaccinium oxycoccus</i> [Schönrogge, 1991]; <i>Vaccinium vitis-idaea</i> [Verzhutskii, 1981];  <i>Cydonia oblonga</i> , <i>Mespilus germanica</i> , <i>Rubus</i> [Benson, 1962], <i>Crataegus laevigata</i> [Chevin, 1974], <i>Quercus robur</i> , <i>Q. petraea</i> , <i>Q. cerris</i> , <i>Q. palustris</i> , <i>Q. rubra</i> , <i>Rosa canina</i> , <i>Salix caprea</i> , [Schönrogge, 1991]; <i>Prunus avium</i> , <i>P. duclis</i> , <i>Pyrus</i> [Buczacki & Harris, 1998]

.....continued on the next page

TABLE 1. (Continued)

No	<i>Lathrolestes</i> species	Host species	Host plant
		<i>C.cinxia</i> [Schönrogge, 1991]	<i>Quercus robur</i> , <i>Q. petraea</i> , <i>Q. cerris</i> , <i>Q. palustris</i> , <i>Q. rubra</i> , [Schönrogge, 1991];
		Heterarthrinae, Heterarthrini: <i>Heterarthrus vagans</i> (Fallén, 1808) [Aubert, 2000]	<i>Alnus</i> sp. [Benson, 1952]
		Argidae, Sterictophorinae: <i>Sterictiphora geminate</i> (Gmelin, 1790) [Aubert, 2000]	<i>Rosa</i> sp. [Benson, 1952]
8.	<i>L. luteolus</i> (Thomson, 1883)	Heterarthrinae, Fenusini: <i>Fenusia carpiniifoliae</i> (Liston, 1993) [Horstmann, 2004]	<i>Ulmus carpiniifolia</i> [Horstmann, 2004]
9.	<i>L. macropygus</i> (Holmgren, 1857)	Heterarthrinae, Fenusini: <i>Fenusia pusilla</i> (Lepelletier) [Hedwig, 1950]	<i>Betula pubescens</i> [Benson, 1952]
		<i>Parna tenella</i> (Klug, 1816) [Györfi, 1947]	<i>Tilia cordata</i> , <i>T. platyphylla</i> [Liston, 1993]
		<i>Scolioneura betuleti</i> (Klug, 1816) [Hedwig, 1962]	<i>Betula pendula</i> [Hedwig, 1962]
		Blennocampinae: <i>Periclista albida</i> (Klug, 1814) [Aubert, 2000]	<i>Quercus petraea</i> , <i>Q. robur</i> [Lorenz & Kraus, 1957]
10.	<i>L. messae</i> Barron, 1994	Heterarthrinae, Fenusini: <i>Messa populifoliella</i> (Townsend, 1893) [Barron, 1994]	<i>Populus</i> [Barron, 1994]
11.	<i>L. mnemonicae</i> (Rohwer, 1914)	<b>Lepidoptera</b> , Eriocraniidae: <i>Dyseriocrania auricyanea</i> (Walsingham, 1882) [Rohwer, 1914]	<i>Quercus</i> [Barron, 1994]
		<i>D. griseocapitella</i> (Walsingham, 1882) [Carlson, 1979]	<i>Quercus</i> [Barron, 1994]
12.	<i>L. morator</i> Aubert, 1984	Heterarthrinae, Fenusini: <i>Scolioneura betuleti</i> (Klug, 1814) [Aubert, 1984]	<i>Betula pendula</i> [Viramo, 1969]
13.	<i>L. nigricollis</i> (Thomson, 1883)	Heterarthrinae, Fenusini: <i>Fenusia pusilla</i> (Lepelletier, 1823) [Pschorn-Walcher & Altenhofer, 1989]	<i>Betula populifolia</i> [Barron, 1994]
14.	<i>L. occultor</i> Aubert, 1984	Heterarthrinae, Fenusini: <i>Messa nana</i> (Klug, 1814) [Aubert, 1984]	<i>Betula pendula</i> , <i>B. pubescens</i> [Kontuniemi, 1960]
15.	<i>L. periclistae</i> Barron, 1994	Blennocampinae: <i>Periclista albicollis</i> (Norton, 1872) [Barron, 1994]	<i>Quercus alba</i> ; <i>Q. ilicifolia</i> ; <i>Q.</i> <i>macrocarpa</i> ; <i>Q. rubra</i> ; [Barron, 1994]
16.	<i>L. pictilis</i> (Holmgren, 1857)	Heterarthrinae, Fenusini: <i>Fenusia dohrnii</i> (Tischbein, 1846) [Pschorn-Walcher & Altenhofer, 1989]; <i>F. pusilla</i> (Lepelletier, 1823), <i>Profenusia pygmaea</i> (Klug, 1814) [Aubert, 2000]	<i>Alnus glutinosa</i> [Ozols, 1959]

.....continued on the next page

**TABLE 1.** (Continued)

№	<i>Lathrolestes</i> species	Host species	Host plant
17.	<i>L. platynus</i> (Davis, 1897)	Heterarthrinae, Fenusini: <i>Profenusa alumna</i> (MacGillivray, 1923) [Barron, 1994]	<i>Quercus rubra</i> [Barron, 1994]
18.	<i>L. profenusae</i> Barron, 1994	Heterarthrinae, Fenusini: <i>Profenusa</i> sp. [Barron, 1994]	<i>Quercus rubra</i> [Barron, 1994]
19.	<i>L. soperi</i> Reshchikov, 2010	Heterarthrinae, Fenusini: <i>Profenusa thomsoni</i> [Reshchikov et al., 2010]	<i>Betula pendula</i> ; <i>B. papyrifera</i> [Reshchikov et al., 2010]
20.	<i>L. thomsoni</i> Reshchikov, 2010	Heterarthrinae, Fenusini: <i>Profenusa thomsoni</i> [Reshchikov et al., 2010]	<i>Betula pendula</i> ; <i>B. papyrifera</i> [Reshchikov et al., 2010]
21.	<i>L. tomostethi</i> (Cushman, 1935)	Blennocampinae: <i>Tomostethus multicinctus</i> (Rohwer, 1909) [Barron, 1994]	<i>Fraxinus americana</i> ; <i>F. oregona</i> [Barron, 1994]
22.	<i>L. tripunctor</i> (Thunberg, 1824)	Blennocampinae: <i>Rhadinoceraea micans</i> (Klug, 1814) [Giraud, 1872] <i>Tomostethus nigrinus</i> [Hinze, 1961]	<i>Iris laevigatus</i> , <i>I. pseudacorus</i> , <i>I. spuria</i> , <i>Fraxinus excelsior</i> [Lorenz & Kraus, 1957] <i>Fraxinus excelsior</i> [Lorenz & Kraus, 1957]
23.	<i>L. truncatus</i> (Provancher, 1888)	Heterarthrinae: <i>Metallus rohweri</i> MacGillivray, 1909 [Barron, 1994] Blennocampinae: <i>Periclista albicollis</i> [Barron, 1994]	<i>Rubus</i> [Barron, 1994] <i>Quercus rubra</i> [Barron, 1994]
24.	<i>L. unguularis</i> (Thomson, 1883)	Heterarthrinae, Fenusini: <i>Fenusia pusilla</i> (Lepeletier, 1823) [Pschorn-Walcher & Altenhofer, 1989; Schönrogge & Altenhofer, 1992] <i>Profenusa pygmaea</i> (Klug, 1814) [Pschorn-Walcher & Altenhofer, 1989; Schönrogge & Altenhofer, 1992]	<i>Betula pendula</i> , <i>Castanea sativa</i> [Lorenz & Kraus, 1957] <i>Quercus robur</i> [Kontuniemi, 1960]
25.	<i>L. verticalis</i> (Brischke, 1871)	Heterarthrinae, Fenusini: <i>Fenusia pusilla</i> (Lepeletier, 1823) [Rudow, 1919] <i>Metallus gei</i> (Brischke, 1883) [Pschorn-Walcher & Altenhofer, 1989] <i>M. pumilus</i> [Pschorn-Walcher & Altenhofer, 1989] <i>Scolioneura betuleti</i> [Aubert, 2000] <i>Hoplocampa testudinea</i> [Jaworska, 1992]	<i>Betula pendula</i> [Lorenz & Kraus, 1957] <i>Geum urbanum</i> [Chevin, 1980]; <i>G. rivale</i> [Kontuniemi, 1960] <i>Rubus fruticosus</i> [Lorenz & Kraus, 1957] <i>Betula pendula</i> [Viramo, 1969] <i>Malus sylvestris</i> , <i>Pyrus communis</i> [Lorenz & Kraus, 1957]
26.	<i>L. zeugophorae</i> Barron, 1994	<b>Coleoptera</b> , Megalopodidae: <i>Zeugophora</i> sp. [Barron, 1994]	<i>Betula</i> sp., <i>Populus tremula</i> [Bullock, 1992; Cox, 2007]



**Biological control.** The leaf mining sawfly *Fenusa pusilla* is a pest of birch in Northern America (Coulson 1992, Barron 1994, van Driesche *et al.* 1997). This species was brought from Europe (Friend 1933) and became an important pest (Fuester *et al.* 1984). *Lathrolestes nigricollis* has been successfully used against this species of sawfly (Raske & Jones, 1975, Guevremont & Quednau, 1977, van Driesche *et al.*, 1997, Langor *et al.*, 2000, Casagrande *et al.*, 2009). An attempt was made to use the same species of *Lathrolestes* against another invasive birch pest, *Profenusa thomsoni* (Langor *et al.*, 2000). However, during the successful biological control studies of *P. thomsoni*, two new species of the genus were discovered (Reshchikov *et al.*, 2010), *L. thomsoni* and *L. soperi* and both these species are used against *P. thomsoni* successfully (Soper *et al.* 2015).

***Lathrolestes oelandinus* sp. nov.**

Figs. 24, 36, 37, 43–48.

**Material: Holotype:** 1♀, SWEDEN, Öland, Mörbylånga kommun, Gamla Skogsby (Kalkstad), "diversitetsängen", Meadow with bushes, N56°37.002' E16°30.457' (=TrapID 22), 01.vi–15.vi.2005 (=coll. event ID 1313), leg. SMTP, NHRS-SMTP14340001, NHRS; **Paratypes:** 4♀, 4♂, the same as in holotype, NHRS-SMTP14340002-9, NHRS; 4♂, SWEDEN, Öland, Mörbylånga kommun, Gamla Skogsby (Kalkstad), "diversitetsängen", Meadow with bushes, N56°37.002' E16°30.457' (=TrapID 22), 20.v–01.vi.2005 (=coll. event ID 1312), leg. SMTP, NHRS-SMTP143400010-13, NHRS; 1♀, 1♂, SWEDEN, Öland, Mörbylånga kommun, Gamla Skogsby (Kalkstad), "diversitetsängen", Meadow with bushes, N56°37.002' E16°30.457' (=TrapID 22), 20.v–28.vi.2006 (=coll. event ID 1725), leg. SMTP, NHRS-SMTP13120001-2, NHRS; 15♂, the same collecting event, NHRS-SMTP13120003-16, SMTP.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) occipital carina complete, 2) head slightly narrowed behind eyes (Fig. 47), 3) propodeum without carinae, 4) ovipositor longer than metasoma, curved, upper valve with nodus and without subapical dorsal notch at apex; lower valve with distinct teeth at apex (Figs. 36, 43), 5) female with yellow-reddish orbits on sides from frons, maculae around clypeal fossae and temple, and reddish-brown hind margins of metasomal tergites (Fig. 43).



**FIGURES 43–44.** Habitus views of *Lathrolestes oelandinus* sp. nov.; 43, female; 44, male.

**Description. Female** (Fig. 43). *Body length* 3.5 mm. Antenna with 24 flagellomeres. Scape 1.75 × as long as broad.

*Head* narrowed behind eyes, matt. Maximum length of temple equal transverse eye diameter; minimum length of temple 0.7 × transverse eye diameter. Face as broad as 0.8 × eye height, rather convex, bulging (Fig. 45). Clypeus distinctly separated from face, at apex projecting anteriorly; apical margin of clypeus thick. Clypeal fovea small. Malar space 0.6 × basal mandible width. Occipital carina medially complete. Lower mandible tooth longer than upper.



**FIGURES 45–48.** *Lathrolestes oelandinus* sp. nov. 45, female face; 46, male face; 47, male head dorsally; 48, female metasoma dorsally.

*Mesosoma* matt, without punctures. Notaulus shallowly impressed at base. Mesopleuron impunctate, granulated. Claws pectinate (Fig. 24). R intercepting pterostigma just before its middle. Areolet not petiolate. 2m-cu with single bulla. Nervulus slightly postfurcal. Hind wing with cu-a intercepted by Cu1 below middle. Propodeal carinae absent.

*Metasoma* slightly shining, impunctate (Fig. 48). First metasomal tergite 1.1 × as long as broad apically, rather convex, without longitudinal dorsal carinae and medial impression (Fig. 48). Second metasomal tergite transverse, trapezoidal. Following tergites also transverse. Ovipositor longer than metasoma, slightly curved upwards with nodus and preapical ventral teeth (Figs. 36, 45).

*Colour* (Figs. 43, 45, 48). Face (except maculae under antennal sockets and around clypeal fovea), front (except orbits), temple partly and occiput completely, pronotum (except upper hind edge), mesoscutum, mesoscutellum, mesopleurae (except upper fore edge), propodeum, first metasomal tergite, hind coxae entirely and middle coxae basally black. Antennal flagellum (except basal flagellomeres ventrally), clypeus, tips of mandibles, malar space, pterostigma, basal part of metasomal tergites 2–7 dark brown. Apical part of clypeus and metasomal tergites 2–7, tarsi reddish-brown. Scape, pedicellus, basal flagellomeres ventrally, maculae under antennal sockets and around clypeal fovea, orbits on sides from frons, upper anterior and lower anterior parts of temple, legs (except basal part of middle coxae and entire hind coxae) reddish-yellow. Tegulae and closed edges of pronotum and mesopleuron whitish.

**Male.** Essentially as in female except as follows: first metasomal tergites 1.7 × as long as broad. Parameres broad medially (Fig. 37).

*Colour* (Figs. 44, 46, 47). Face, temple, mandible except its tips, scape, pedicellum, flagellomeres

ventrally, propleuron, hind part of pronotum close to tegulae and fore coxae, bands on mesoscutum in front of tegulae, top of scutellum, fore edge of mesopleuron, trochanters, fore coxa completely and middle and hind coxae apically yellow. Femora, tibiae, sternites and hind margins of metasomal tergites 2–7 laterally, parameres yellow-reddish. Tarsi reddish-brown. Occiput, pronotum, mesoscutum, mesopleuron, propodeum and first metasomal tergite black. Flagellomeres dorsally, middle and hind coxae, metasomal tergites dark brown.

**Comments.** Ovipositor structure similar to ovipositor of *L. ensator*, elongated and curved upwards (Fig. 35), an adaptation to hunt for larvae inside fruits. *Lathrolestes oelandinus* sp. nov. was collected in Gamla Skogsby, Öland on a meadow with shrub vegetation. It is likely this species is a parasitoid of carpophagous sawflies with small body size. The type locality has a lot of remains of human settlement from the past centuries (Rasch & Ring, 2009). I recognized different species of Rosaceae when I visited the place for collecting.

**Distribution.** Sweden.

**Etymology.** The species epithet refers to Öland.

## NORTH EUROPEAN SPECIES OF *LATHROLESTES*

New records for countries marked with “\*”.

### *Lathrolestes bipunctatus* (Bridgman, 1886)

Figs. 18, 32, 49–51.

*Grypocentrus bipunctatus* Bridgman, 1886: 358–359. Holotype ♀, NCMK [examined]. Type locality: UK (Wimbledon, Surrey).

**Material:** 1♀, 1♂, DENMARK, Saltrup, 18.ix.1892, ZMUC; 1♀, NORWAY, Hordaland, Eidfjord, Rjoto, lok. D, 23.VII.1968, leg. T. Nielsen et al., (ZMBN); 2♂, RUSSIA, Sverdlovsk Oblast, Polevskoy, ex. Fenusini on *Rosa*, 4–11.viii.1986, leg. Zinovev, ZIN; 1♀, SWEDEN, Uppland, Djurgården, leg. R. Malaise, NHRS; 2♀, SWEDEN, Värmland, Munkfors kommun, Ransäter, Rudstorp, Sandy railway embankment through pasture-land. N66°36.454' E13°69.030' (=TrapID 1002), 12.viii–24.viii.2005 (=coll. event ID 1379), leg. SMTP, NHRS.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) face and clypeus separated by a distinct transverse groove, 2) complete occipital carina, 3) reddish-yellow spots at upper part of temple, 4) dark coloration of hind femur, 5) propodeum with complete carinae.

**Distribution.** Belarus, Denmark\*, Finland, Germany, Norway, Poland, Russia (Murmansk Oblast, Sverdlovsk Oblast, Chita Oblast, Kamchatka Krai, Kunashir), Sweden (Uppland, Värmland), UK.

### *Lathrolestes buccinator* (Holmgren, 1857)

Figs. 7, 13, 20, 38, 52–56.

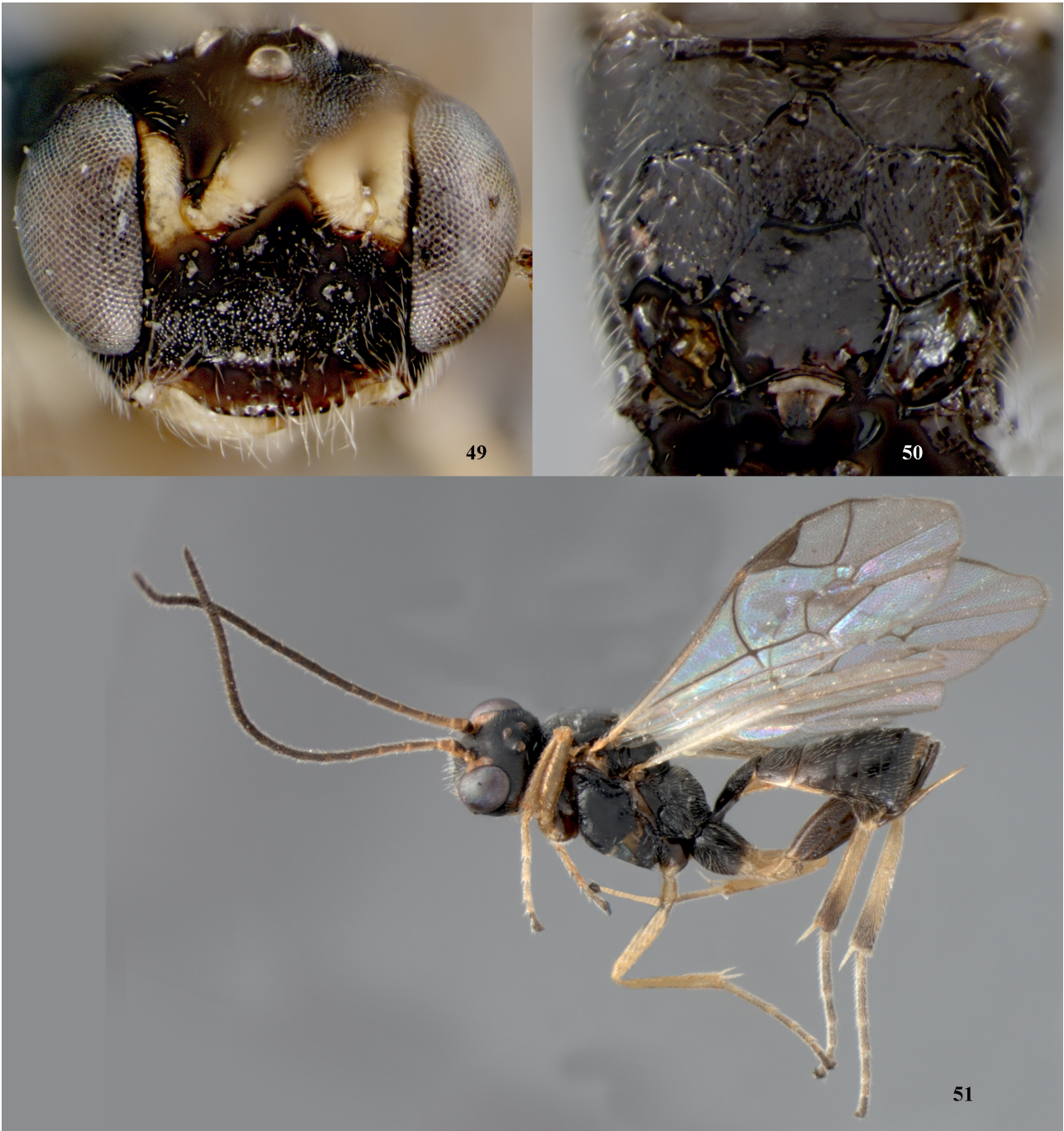
*Perilissus buccinator* Holmgren, 1857: 122. Holotype ♀, NHRS [examined, NHRS-HEVA00003819]. Type locality: Sweden (Småland).

*Perilissus vollenhoveni* Gribodo, 1880: 7. Holotype ♂, Museo Civico di Storia Naturale, Genoa, Italy [not examined]. Type locality: Italy (Nicotera, Calabria).

**Material.** 1♂, SWEDEN, Södermanland, Tyresö kommun, Åva, Spirudden, mixed coastal oak forest. N59°10.313' E18°22.197' (=Trap ID 1), 17.vi–02.vii.2003 (=coll. event ID 79), leg. SMTP, SMTP; 1♂, SWEDEN, Småland, Nybro kommun, Bäckebo, Grytsjöns naturreservat Old moist haymaking meadow in forest edge, N63°11'678 E15°17'066 (=TrapID 1001), 18.v–15.vi.2006 (=coll. event ID 1728), leg. SMTP, NHRS.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) face and clypeus separated by impression, 2) face in female black, 3) head and mesopleuron matt, coarsely, densely and rather evenly punctate, 4) occipital carina complete, 5) tegulae yellow, 6) second recurrent vein intercepting areolet behind its middle, 7) propodeum with carinae complete, 8) first metasomal tergite twice as long as wide, large, very swollen.

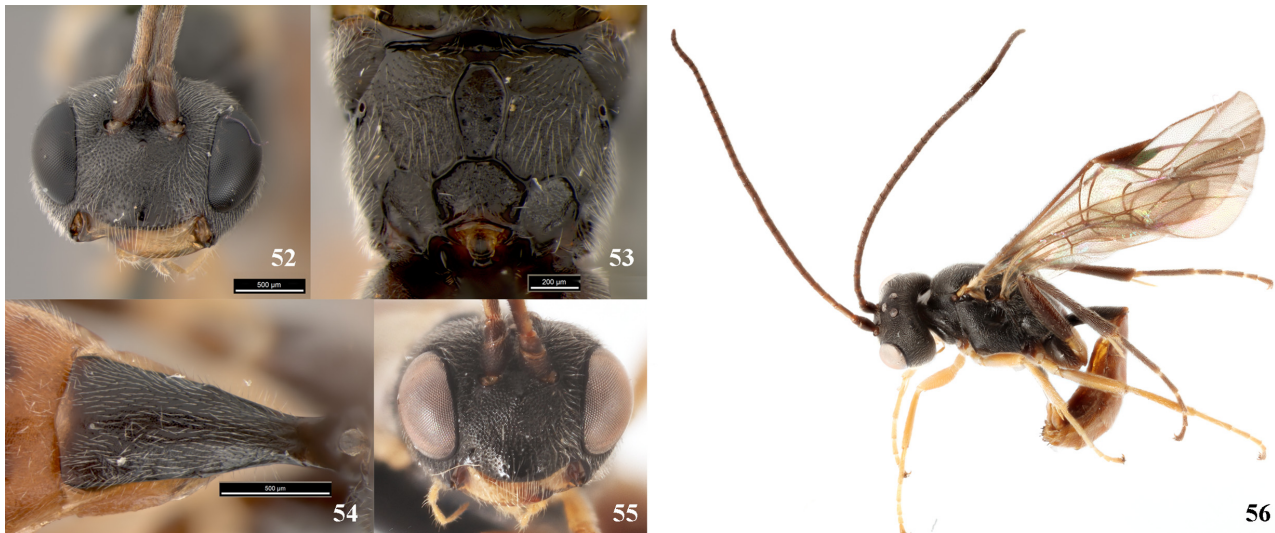




FIGURES 49–51. *Lathrolestes bipunctatus*. 49, face; 50, propodeum; 51, habitus.

**Distribution.** Afganistan, Armenia, Azerbaijan, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxemburg, Netherlands, Poland, Romania, Russia (Buryatia, Kamchatska Krai, Khabarovsk Krai, Krasnodarsk Krai, Krasnoyarsk Krai, Leningrad, Primorsky Krai, Sakhalin, Smolensk), Slovenia, Spain, Sweden (Södermanland, Småland), Switzerland, Ukraine, UK.





**FIGURES 52–56.** *Lathrolestes buccinator* (Holmgren, 1857), 52) female face, 53) propodeum, 54) first metasomal tergum, 55) male face, 56) male habitus.

***Lathrolestes caudatus* (Thomson, 1883)**

Figs. 39, 57–60.

*Lathrolestes caudatus* Thomson, 1883: 917. Holotype ♀, lost, Type locality: Sweden (Skåne, Fågelsång).

*Lathrolestes nasoni* Davis, 1897: 264. Holotype ♂, ANSP [examined]. Type locality: USA (Algonquin, Illinois).

*Lathrolestes similis* Davis, 1897: 265. Lectotype ♀, ANSP [examined]. Type locality: USA (Colorado).

**Material.** 2♀, SWEDEN, (NHRS); 1♀, SWEDEN, Södermanland, Kolmården, sydsluttning, leg. R.Malaise, (NHRS); 1♀, SWEDEN, Blekinge, (NHRS); 1♀, SWEDEN, Småland, leg. C. Boheman, (NHRS); 1♂, SWEDEN, Stockholm, (NHRS); 1♀, SWEDEN, Dalarna, Malung-Sälen, Lima, leg. T. Tjeder, (NHRS); 1♀, SWEDEN, Dalarna, (NHRS); 1♀, SWEDEN, Norrbotten, (NHRS); 1♀, SWEDEN, Hälsingland, (NHRS).

**Additional material.** 1♀, KYRGYZSTAN, Sary-Chelek, 2000 m., 20.vi.1979, leg. D.Kasparyan, (ZIN); 1♀, KAZAKHSTAN, Almaty, ravine Dalan, foothills, 6.vi.1979, leg. D.Kasparyan, (ZIN); 1♀, KAZAKHSTAN, Almaty Reg., Talgar distr., 5km SE from Talgar, foothills, 6.vi.1979, leg. D.Kasparyan, (ZIN); 1♀, KAZAKHSTAN, South Kazakhstan Region, Tulkibas, left tributary of Djabagly, 1.vii.1979, leg. D.Kasparyan, (ZIN); 1♀, RUSSIA, Karachay-Cherkess Republic, Teberda Reserv., Alibek, 22.vi.1972, leg. D.Kasparyan, (ZIN); 1♀, UZBEKISTAN, Tashkent Prov., Chatkal Reserv., field station, 1200 m., 16.v.1980, leg. D.Kasparyan, (ZIN).

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) face not strongly convex, 2) occipital carina incomplete, 3) claws pectinate, 4) metasoma mostly black, 5) ovipositor elongate and slightly up-curved, tip of its upper valve with nodus, 6) parameres elongate but wide.

**Distribution.** Belgium, Canada (Alberta, British Columbia, Ontario, Saskatchewan), Finland, France, Germany, Latvia, Netherlands, Russia (Buryatia, Kamchatka, Khabarovsk Krai, Sakhalin), USA (Arizona, California, Colorado, Illinois, Minnesota, Montana).

***Lathrolestes citreus* (Brischke, 1878)**

Fig. 40.

*Perilissus citreus* Brischke, 1878: 75–76. Type lost. Type locality: Poland.

**Material:** 2♂, DENMARK, Sjælland, Korsør, ZMUC.

**Distribution.** Bulgaria, Denmark\*, Finland, Germany, Latvia, Moldova, Poland, Russia (Bryansk Oblast), Switzerland.

**Comments.** The type specimen was lost. The status of this taxon is not clear. Material from the ZMUC determined by Habermehl is similar to *L. saliceti*. The specimen from the NHRS (NHRS-HEVA000002033) was misidentified, <http://www.gbif.org/occurrence/787271937> and belongs to *L. pleuralis*. However *L. saliceti* is known only by males (Figs. 106, 107) which are morphologically rather similar to *L. lucidulus* (Fig. 70), but the latter species has a petiolate areolet (Fig. 73).



**FIGURES 57–60.** *Lathrolestes caudatus* (Thomson, 1883). 57, female face; 58, male face; 59, propodeum; 60, habitus.

***Lathrolestes clypeatus* (Zetterstedt, 1838)**

Figs. 19, 21, 31, 61, 62.

*Tryphon clypeatus* Zetterstedt, 1838: 399. Holotype ♀, MZLU [examined]. Type locality: Sweden (Lapland).

*Lathrolestes eriocraniaie* Seyrig, 1928: 201. Holotype ♀, MNHN [not examined]. Type locality: France.

**Material.** 2♀, DENMARK, Strandmølle, Boserup, ZMUC; 3♂, DENMARK, Sjælland, Korsør, ZMUC; 1♀, FINLAND, Lapland, Enontekis, mt. Saana, 27.vi.1962, leg. K.Åhman, (ZMUT, Jussila coll.); 1♀, FINLAND, Lapland, mt. Siilaskoski, 27.vi.1962, leg. K.Åhman, (ZMUT, Jussila coll.); 1♀, FINLAND, Turku, Paattinen, Krouvintie, 92 6787:3244, Malaise trap, 1–31.5.2004, leg. R. Jussila leg., (ZMUT, Jussila coll.); 1♀, NORWAY, Troms, Storfjord, Skibotn, 29.vi.1962, leg. M.Meinander, (ZMUT, Jussila coll.); 1 ♀, NORWAY, Sør-Trøndelag, Oppland, Kongsvoll, Raubekken, 900m., Øvre, Malaise trap, 03.VII.1980, leg. J.O. Solem, (NTNU); 1♀, NORWAY, Hedmark, Stor-Elvdal, Solbakken, Malaise trap, 24.VI.1986, leg. E. Stur, (NTNU); 1♀, NORWAY, Akerhus, Fetsund, Asak grustak, 25.V.2007, leg. O. Sørlibråten, (ZMUN); 5♀, SWEDEN, Stockholm, NHRS; 10♀, SWEDEN, Torne lappmark, Torneträsk, leg. R.Malaise, NHRS; 11♀, SWEDEN, Lapland, NHRS; 1♀, SWEDEN, Småland, Nybro kommun, Bäckebo, Grytsjöns naturreservat, Old moisty haymaking meadow in forest edge N6311678 E1517066 (=TrapID 1001), 18.v–15.vi.2006 (=coll. event ID 1728), leg. SMTP, NHRS; 1♀,



SWEDEN, Uppland, Norrtälje kommun, Svartlöga, Matkrok, Maritime deciduous wood. N59°34.167' E19°03.180' (=Trap ID 26), 27.v–26.vi.2005 (=coll. event ID 1690), leg. SMTP, NHRS; 1♂, SWEDEN, Uppland, Älvkarleby kommun, Marma skjutfält, dry meadow with birch, N60°31.456' E17°27.089' (Trap ID 6), 06.xii.2004–03.vi.2005 (=coll. event ID 1578), leg. SMTP, NHRS; 2♀, UK, Scotland, Amat, Easter Ross, NH4689 Malaise trap, native pinewood, 5.89 I. MacGowan, NMSZ, 1992.144; 1♀, UK, Lancashire, Silverdale, Gait Barrows National Nature Reserve, 13.v.1989, leg. M.R.Shaw, RSME; 11♀, UK, 5♂, Cumbria, Witherslack, Strickland Hill, ex. *Eriocrania semipurpurella/haworthi*, 1958–24.iv.1959, leg. J. Heath, RSME.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) clypeus strongly projecting anteriorly, 2) clypeus separated from face by a distinct transverse groove, 3) occipital carina complete, 4) apical lateral fields of propodeum absent, 5) ovipositor up-curved.

**Distribution.** Denmark\*, Finland, France, Germany, Ireland, Lithuania, Netherlands, Norway, Poland, Russia (Arkhangelskaya Oblast, Khabarovsk Krai, Leningradskaya Oblast), Sweden, UK.



**FIGURES 61–62.** *Lathrolestes clypeatus* (Zetterstedt, 1838). 61, face; 62, habitus.

***Lathrolestes ensator* (Brauns, 1898)**

Figs. 17, 35, 63–66.

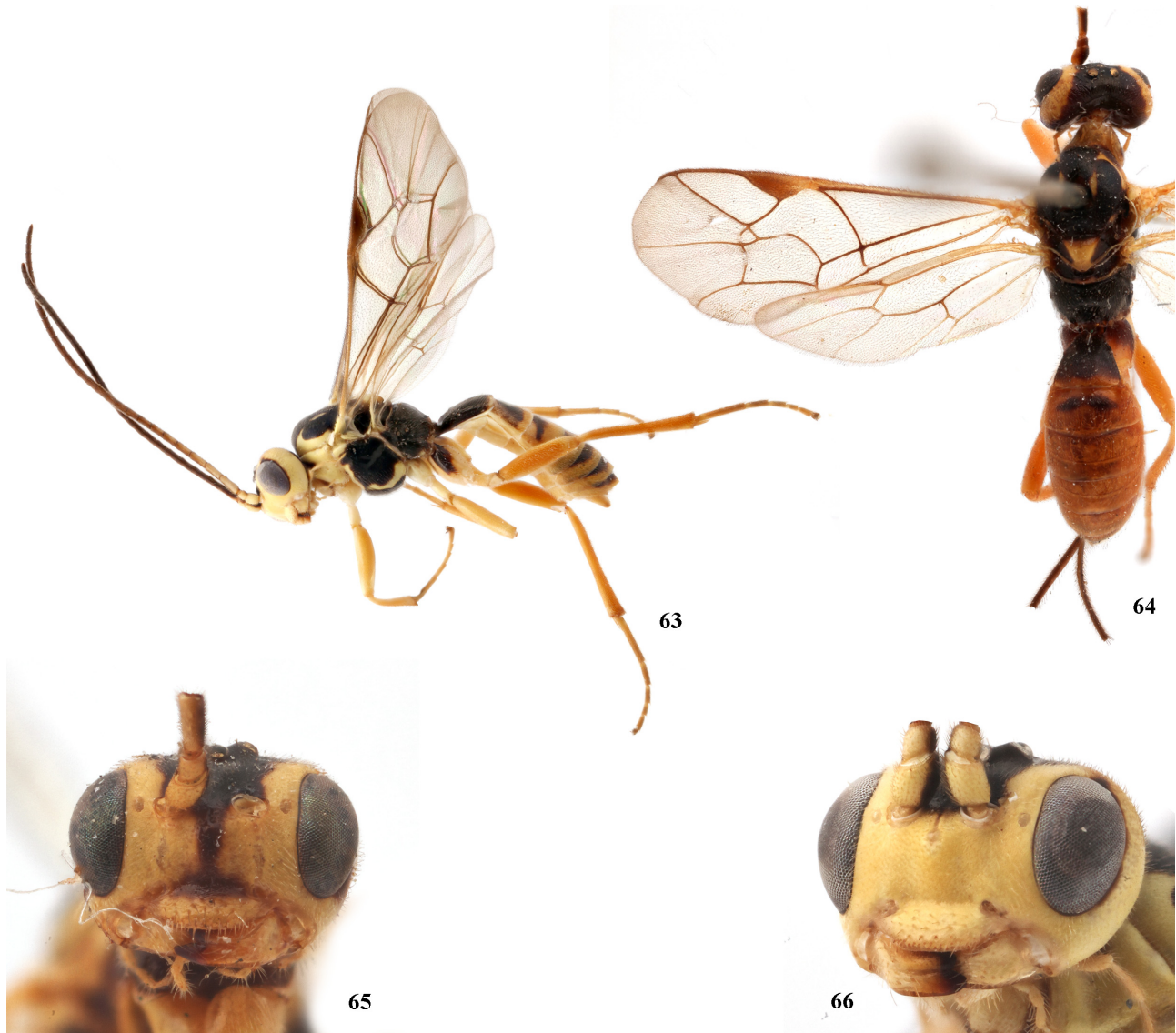
*Tryphonopsis ensator* Brauns, 1898: 63. Holotype ♀, ZMHU [examined]. Type locality: Germany (Teschendorf, Mecklenburg-Vorpommern).

*Lathrolestes dilatatus* Nordenström, 1905: 207. Holotype ♀, MZLU [examined]. Type locality: Sweden (Halland).

**Material.** 1♂, SWEDEN, Småland, Torsås kommun, Söderåkra, Påboda. Malaise trap in garden N625636, E151637 (=TrapID 2046) 2008.vi.01–2008.vi.15 (=coll. event ID 2052), leg. SMTP, NHRS; 1♀, SWEDEN, Halland, Karup, 30.vi.1904, leg. Bengtsson, NHRS-HEVA000002035, NHRS; 1♀, SWEDEN, Halland, MZLU.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) clypeus distinctly separate from face, 2) malar space as long as basal mandibular width, 3) head broad behind eyes, 4) occipital carina complete, 5) propodeum without carinae, 6) ovipositor longer than metasoma, curved upwards, upper valve with nodus and without subapical dorsal notch at apex, lower valve with distinct teeth at apex.

**Distribution.** Austria, Belgium, Bulgaria, Belarus\*, Canada (introduced in Quebec), Czech Republic, Germany, Iran, Netherlands, Serbia, Sweden, Switzerland, UK.



**FIGURES 63–66.** *Lathrolestes ensator* (Brauns, 1898). 63, male habitus laterally; 64, female habitus dorsally; 64, female face; 66, male face.

### *Lathrolestes erythrocephalus* (Gravenhorst, 1829)

Figs. 25, 67–69.

*Tryphon erythrocephalus* Gravenhorst, 1829: 220. Holotype ♀, lost, Type locality: Germany

*Perilissus subcinctus horvathi* Kiss, 1926: 266. Holotype ♀, HNHM [examined]. Type locality: Hungary (Pápa, Veszprém).

**Material.** 3♀, DENMARK, ZMUC; 1♀, SWEDEN, Skåne, NHRS; 4♀, 4♂, SWEDEN, Småland, NHRS; 1♂,



SWEDEN, Jönköping, Nobynäs, NHRS; 4♂, SWEDEN, Öland, NHRS; 1♂, SWEDEN, Gotland, NHRS; 1♀, SWEDEN, Västergötland, NHRS; 1♀, 2♂, SWEDEN, Bohuslän, NHRS; 2♂, SWEDEN, Stockholm, NHRS; 2♂, SWEDEN, Stockholm, NHRS; 2♂, SWEDEN, Uppland, NHRS;

**Additional material:** 1♂, AZERBAIJAN, Qazakh Region, Alpout, 20–21.v.1960, leg. G.Viktorov, ZMUM; 1♂, KYRGYZSTAN, 5 km NW Takhtagul, flood-plain forest, 07.viii.1982, S. Belokobylskij, ZIN; 1♀, KAZAKHSTAN, Kustanay Prov., Karabalyk Distr., st. Koster, ex: *Aprosthema* sp., 27.vi.–25.vii.1960., ZIN.



**FIGURES 67–69.** *Lathrolestes erythrocephalus* (Gravenhorst, 1829). 67, face; 68, propodeum; 69, habitus.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) face and clypeus separated by impression, 2) occipital carina complete, 3) head mostly orange, 4) head is large, very, 5) tegulae brownish, 6) second recurrent vein intercepting areolet at its middle, 7) head and mesopleuron matt, coarsely, densely and rather evenly punctate, 8) propodeum with carinae complete.

**Distribution.** Austria, Azerbaijan\*, Belarus, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy, Kazakhstan, Kyrgyzstan, Latvia, Netherlands, Poland, Romania, Russia (Kursk Oblast, Ryazan Oblast, Yaroslavl Oblast), Serbia, Sweden, Switzerland, Ukraine, UK.



**FIGURES 71–73.** *Lathrolestes lucidulus* (Holmgren, 1857). 70, male face; 71, female face; 72, propodeum; 73, female habitus laterally.

### ***Lathrolestes laevipleuris* Reshchikov, 2013**

Fig. 5.

*Lathrolestes laevipleuris* Reshchikov, 2013: 70. Holotype ♂, MZH [examined]. Type locality: Finland (Åland archipelago, Kökar).

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) face and clypeus separated by impression, 2) occipital carina complete, 3) polished and weakly punctate mesopleuron, 4) basal parts of longitudinal propodeal carinae obliterated, 5) area superomedia narrow, 6) body brownish, face entirely brownish, legs yellowish.

**Distribution.** Finland.

### ***Lathrolestes lucidulus* (Holmgren, 1857)**

70–73.

*Perilissus lucidulus* Holmgren, 1857: 127. Lectotype ♀, NHRS [examined, NHRS-HEVA000002030]. Type locality: Sweden (Anneberg, Småland).

**Material.** 1♂, FINLAND, Turku, Paattinen, 627.24, 16.ix.1968, leg. R.Jussila, ZMUT; 2♀, 2♂, SWEDEN, Norrbotten, Luleå, NHRS; 1♀, SWEDEN, Norrbotten, Pajala kommun, Vasikkavuoma, N67°13.778', E23°11.200' (=TrapID 49) 22.viii–14.ix.2003 (=coll. event ID 709), leg. SMTP, NHRS.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) face strongly convex, 2) clypeus strongly projecting, concave, 3) occipital carina incomplete dorsally, 4) epomiae present, 5) claws not pectinate 6) metasomal tergites with very narrow yellow margin, 7) hypopigium triangle, black, with hind margin more or less broadly yellow, 8) ovipositor very short, 9) parameres narrow.

**Distribution.** Finland, Germany, Poland, Russia (Chita Oblast, Khabarovsk Krai, Ussuriysk Krai), Sweden, Turkey.

**Comments.** This species is described by females only as diagnosing males is difficult. Examined material suggests that the proposed males of this species are similar to *L. saliceti* (Fig. 106, 107), but the latter has a rhombic and open areolet. In females *L. lucidulus* is rather similar with *L. occultor* Aubert, 1991 described from France. But *L. occultor* has no defined yellow stripes on hind margin of tergites and last sternite (photo of type specimen of *L. occultor* Aubert, 1991 can be accessed from <https://drive.google.com/folderview?id=0BxXMktnC3Ub2SWIHVUIkSkhvQ0U&usp=sharing>).

### ***Lathrolestes luteolator* (Gravenhorst, 1829)**

Figs. 22, 28, 29, 30, 74–77.

*Mesoleptus luteolator* Gravenhorst, 1829: 42. Type lost. Type locality: Switzerland (Siegershausen, Thurgau).

*Tryphon gorskii* Ratzeburg, 1852: 126–127. Type lost. Type locality: Lithuania (Vilnius).

**Material.** 12♂, GERMANY, Schleswig-Holstein, Kiel, ex. *Coliroa annulipes*, vii–viii.1982, leg. H.Pschorn-Walcher, SMF; 1♂, NORWAY, Akerhus, Oslo, Hengsenga, 26.VI–8.VIII.2007, leg. A. Endrestøl, (ZMUN); 1♂, RUSSIA, Murmansk Oblast, Pasvik NR, mt Kalkupya, birch forest, Malaise trap, 30.vii.–11.x.2007, leg. A. Humala, ZIN; 1♂, SWEDEN, Småland, NHRS; 1♂, SWEDEN, Bohuslän, NHRS; 1♂, SWEDEN, Stockholm, Freskati, NHRS; 8♂, SWEDEN, NHRS; 1♂, SWEDEN, Gotland, Lärbro, Fardumeträsk, N57°47.655' E18°55.711', 6m., 5.vi.–25.vii.2013, Malaise trap, leg. Alexey Reshchikov, NHRS; 1♂, SWEDEN, Skåne, Ystads kommun, Sandhammaren, Järahäusen, Mixed forest. N61°42.723' E13°98.306' (= TrapID 1006), 22.v–15.vii.2005 (=coll. event ID 1424), leg. SMTP, NHRS; 1♀, SWEDEN, Västerbotten, Vindelns kommun, Kulbäckslidens försökspark, bog edge of Degerö stormyr N64°10.899', E19°33.548' (=TrapID 59), 01.viii–18.viii.2003 (=coll. event ID 211), leg. SMTP, NHRS; 1♂, SWEDEN, Öland, Mörbylånga kommun, Frösslunda alvar, north eastern part, alvar pasture. N56°32.847' E16°34.635' (=TrapID 20), 20.vii–12.viii.2003 (=coll. event ID 234), leg. SMTP,





74



75

**FIGURES 74–75.** *Lathrolestes luteolator* (Gravenhorst, 1829), 74, female habitus; 75, male habitus.





**FIGURES 76, 77.** *Lathrolestes luteolator* (Gravenhorst, 1829), 76, female face; 77, male face.

NHRS; 1♂, SWEDEN, Öland, Mörbylånga kommun, Gamla Skogsby (Kalkstad), "diversitetsängen", Meadow with bushes, N56°37.002' E16°30.457' (=TrapID 22), 20.vii–15.viii.2006 (=coll. event ID 1731), leg. SMTP, NHRS-SMTP143400020, SMTP; 1♀, SWEDEN, Västmanland, Sala kommun, Västerfärnebo, Nötmyran (Östermyran), birches at Islingby, Hay meadow, N59°56.517' E16°18.567' (=Trap ID 11), 23.vii–04.viii.2003 (=coll. event ID 411), leg. SMTP, NHRS; 1♀, SWEDEN, Uppland, Uppsala kommun, Ekdalens naturreservat, Tall herbs and young trees mixed with old oaks. N59°58.291' E18°21.299' (=Trap ID 27), 04.viii–18.viii.2003 (=coll. event ID 468), leg. SMTP, NHRS; 1♀, SWEDEN, Västerbotten, Vindelns kommun, Kulbäckslidens försökspark, Gammnybränna, spruce and larch trees, 10–15 yr after cutting, N64°08.688', E19°35.335' (=TrapID 56), 05.viii–20.viii.2004 (=coll. event ID 1268), leg. SMTP, SMTP; 1♂, SWEDEN, Småland, Älmhults kommun, Stenbrohult, Djäknabygds bokbacke, Heath with old beeches. N56°36.548' E14°11.583' (=TrapID 24) 01.viii–18.viii.2003 (=coll. event ID 818), leg. SMTP, SMTP; 1♂, SWEDEN, Småland, Nybro kommun, Alsterbro/Alsterån. Mixed forest N6312220, E1506997 (=TrapID 1008) 04.vii–10.vii.2006 (=coll. event ID 1741), leg. SMTP, SMTP; 1♂, SWEDEN, Småland, Älmhults kommun, Stenbrohult, Djäknabygds bokbacke, Heath with old beeches. N56°36.548' E14°11.583' (=TrapID 24) 26.vi–15.vii.2003 (=coll. event ID 816), leg. SMTP, SMTP; 1♀, SWEDEN, Södermanland, Haninge kommun, Tyresta, Urskogsslingan, flat-rock and pine forest, N59°10.608', E18°14.816' (=Trap ID 3), 11.viii–07.ix.2004 (=coll. event ID 800), leg. SMTP, SMTP; 1♀, SWEDEN, Uppland, Knivsta kommun, Rickebasta alsumpskog, Alder swamp wood, N59°44.061' E17°43.225' (=Trap ID 9), 16.vii–06.viii.2005 (=coll. event ID 1611), leg. SMTP, SMTP; 1♀, SWEDEN, Småland, Älmhults kommun, Stenbrohult, Djäknabygds bokbacke, Heath with old beeches, N56°36.548' E14°11.583' (=TrapID 24), 20.vii–05.ix.2005 (=coll. event ID 1674), leg. SMTP, SMTP; 1♀, UK, Lancashire, Silverdale, Gait Barrows National Nature Reserve, 13.v.1989, leg. M. Shaw, RSME.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) face and clypeus separated by impression, 2) head narrowed behind eyes, 3) occipital carina complete, 4) shiny smooth surface of mesopleuron and deep distinct punctures, 5) hind tibia reddish-yellow with dark apex, 6) propodeum with carinae complete.

**Distribution.** Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy, Netherlands, Norway, Poland, Russia (St Petersburg), Serbia, Sweden, Switzerland, Ukraine, UK.



***Lathrolestes luteolus* (Thomson, 1883)**

Figs. 33, 78–81.

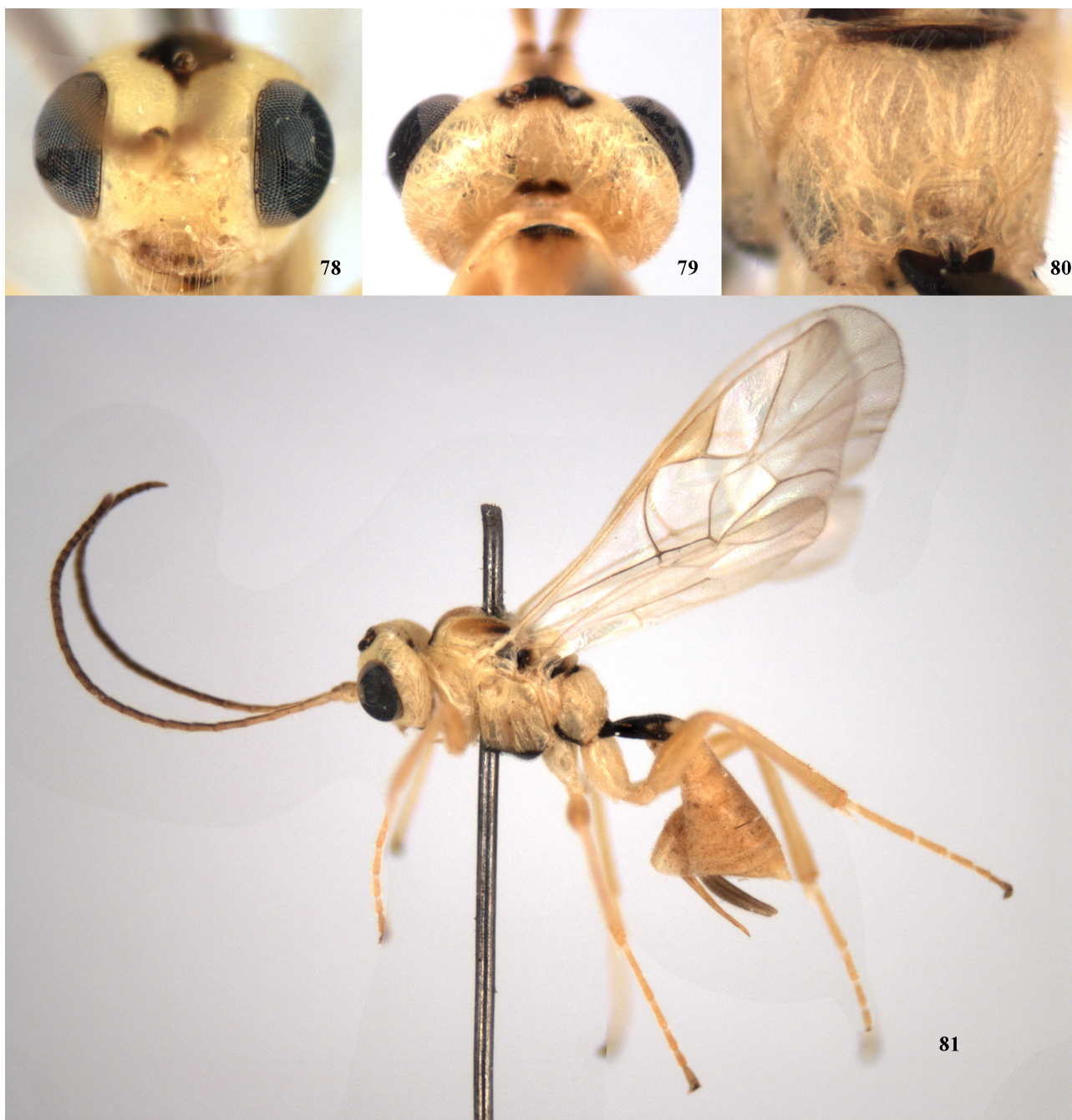
*Lathrolestes luteolus* Thomson, 1883: 917. Holotype ♂, MZLU [examined]. Type locality: Sweden (Lund, Skåne).

**Material.** 1♂, NETHERLANDS, Haarlem, Bolwerk, 11.vi.1878, leg. C. Ritsema; 2♀, SWEDEN, Gotlands kommun, Fårö, near Fårö kyrka, 57.915668, 19.131789 = 57°54'55.27"N 19° 7'57.58"E, 16m., 5.vi.2013, sweep netting, *Ulmus*, leg. Alexey Reshchikov, NHRS.

**Additional material.** 1♀, FRANCE, leg. Hinz, ZSM.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) malar space as long as width of base of mandibles, 2) occipital carina incomplete dorsally, 3) body mostly pale yellow except black first metasomal tergite, 4) mostly yellow colouration.

**Distribution.** Czech Republic, France, Moldova, Netherlands, Poland, Sweden.



**FIGURES 78–81.** *Lathrolestes luteolus* (Thomson, 1883), 78, face; 79, head dorsally; 80, propodeum; 81, habitus.





**FIGURES 82–86.** *Lathrolestes macropygus* (Holmgren, 1857). 82, female face; 83, head dorsally; 84, propodeum; 85, female habitus; 86, male habitus.



### ***Lathrolestes macropygus* (Holmgren, 1857)**

Figs. 82–86.

*Perilissus macropygus* Holmgren, 1857: 126. Lectotype ♂, NHRS [examined, NHRS-HEVA000001989]. Type locality: Sweden (Småland), Norway (Dovre, Oppland).

*Perilissus soleatus* Holmgren, 1857: 126. Lectotype ♀, NHRS [examined]. Type locality: Sweden (Öland, Småland, Uppland, Dalarna).

**Material.** 1♀, FINLAND, Åboland, Pargas, leg. E.Reuter, MZH; 2♀, 3♂, POLAND, Gdańsk, leg. Brieschke, ZMUC; 1♀, RUSSIA, Leningrad Oblast, Kanneljärvi, 3.vi.1943, leg. A. Saarinen, MZH; 2♀, SWEDEN, Småland, leg. C. Boheman, ZMUC; 1♀, SWEDEN, Skåne, viii.1908, leg. A.Roman, NHRS; 2♂, SWEDEN, Skåne, leg. C. Boheman, NHRS; 1♀, SWEDEN, Stockholm, leg. C. Boheman, NHRS; 1♀, SWEDEN, Stockholm, viii.1926, leg. A.Roman, NHRS; 1♂, SWEDEN, Norrbotten, Luleå, viii.1916, leg. R. Malaise, NHRS; 2♂, SWEDEN, Torne lappmark, Torneträsk, viii.1910, leg. R. Malaise, NHRS; 1♀, SWEDEN, Småland, Älmhults kommun, Stenbrohult, Djäkånbygds bokbacke, Heath with old beeches, N56°36.548' E14°11.583' (=TrapID 24), 22.vii–25.ix.2004 (=coll. event ID 1310), leg. SMTP, NHRS.

**Additional material.** 1♀, 1♂, AUSTRIA, Styria, Admont, vi.1959, leg. H.Pschorn-Walcher, SMF; 2♀, 4♂, AUSTRIA, Styria, Soboth, 10.ix.1974, leg. H.Pschorn-Walcher, SMF; 1♀, AUSTRIA, Salzburg, airport, ex. *Scelioneura betuleti* on *Betula verrucosa*, 09.vi.1975–12.01.1976, leg. H.Pschorn-Walcher, SMF; 1♀ 1♂, AUSTRIA, Salzburg, Hallein, ex. *Scelioneura betuleti* on *Betula verrucosa*, 09.vi.1974–20.iii.1975, leg. H. Pschorn-Walcher, SMF; 3♀, GERMANY, Baden-Württemberg, Schwarzwald, ex. *Scelioneura betuleti* on *Betula verrucosa*, ix.1970–9.vii.1971, leg. H. Pschorn-Walcher, SMF.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) clypeus projecting distinctly anteriorly, but not strongly, and not incurved, 2) head narrowed behind eyes, 3) occipital carina incomplete dorsally, 4) areolet petiolate, 5) carinae of propodeum absent, 6) third metasomal tergite reddish-yellow at base and at apex, 7) ovipositor slightly up-curved or straight and stout, 8) parameres elongate and wider apically.

**Distribution.** Austria\*, Belgium, Finland, France, Germany, Hungary, Ireland, Netherlands, Norway, Poland, Russia (Chita Oblast, Kunashir, Leningrad Oblast, Primorsky Krai, Yakutia), Sweden, Ukraine, UK.

### ***Lathrolestes moravicus* (Habermehl, 1923)**

Figs. 87–91.

*Perilissus moravicus* Habermehl, 1923: 379. Holotype ♀, SMF [examined]. Type locality: Germany (Weiskirchen, Mähren).

**Material.** 1♂, FINLAND, EH, Hattula, Hattula Pyhän Ristin Kirkko, 6774:359, 16.vi.2007, leg. R.Jussila, (ZMUT, Jussila coll.).

**Additional material.** 1♀, FRANCE, Dordogne, Saint-Marcel-du-Périgord, 16–31.v.2008, leg. R.R. Askew, RSME.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) middle of face in male yellow, 2) face and clypeus separated by impression, 3) occipital carina complete, 4) mesopleuron sparsely and distinctly punctuate, and matt, 5) area superomedia elongate, narrowed anteriorly, separate from area basalis, area apicalis short.

**Distribution.** Czech Republic, Finland\*, France\*, Russia\* (St Petersburg), UK.

### ***Lathrolestes nigricollis* (Thomson, 1883)**

Figs. 92–95.

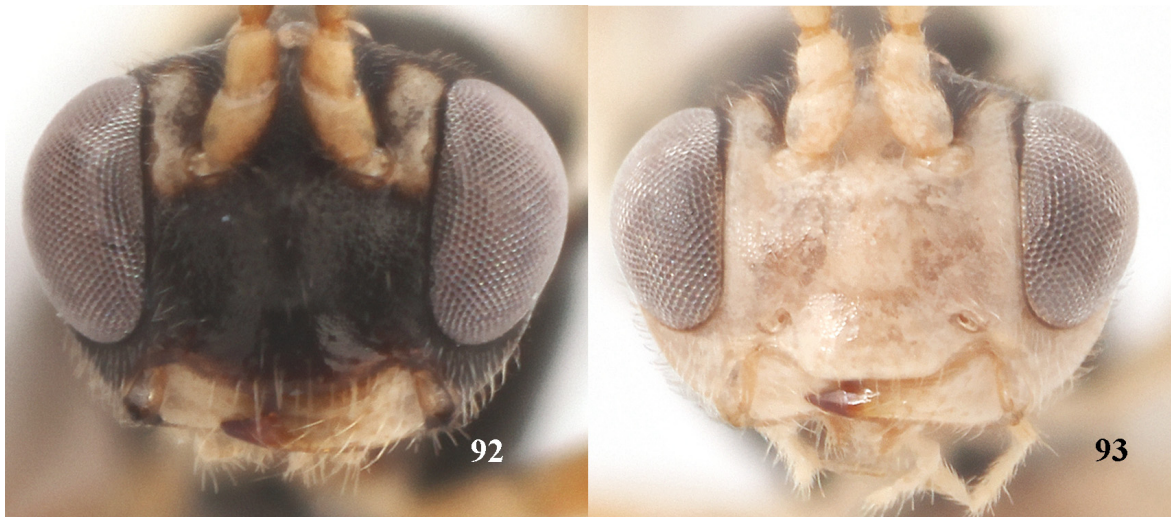
*Perilissus nigricollis* Thomson, 1883: 915–916. Holotype ♂, MZLU [examined]. Type locality: Sweden (Skåne).

*Perilissus minutus* Bridgman, 1887: 370. Holotype ♀, NCMK [examined]. Type locality: UK (Shiere)

**Material.** 4♀, FINLAND, Åboland, Korpo, Utö, 664:18, 28.viii.–8.ix.1999, leg. O.Blomster & O.Elo, (ZMUT, Jussila coll.); 1♂, FINLAND, Åboland, Salmis, 670:18, 18–25.vii.1999, leg. V.Sigfridsson, (ZMUT, Jussila coll.);



**FIGURES 87–91.** *Lathrolestes moravicus* (Habermehl, 1923). 87, female face; 88, male face; 89, propodeum; 90, male habitus; 91, female habitus.



**FIGURES 92–95.** *Lathrolestes nigricollis* (Thomson, 1883), 92, female face; 93, male face; 94, female habitus laterally; 95, male habitus dorsally.



1♀, FINLAND, Lappland, Inari, 29.vii.1987, leg. T.Lammens, (ZMUT, Jussila coll.); 1♀, GERMANY, Northern Germany, ex. *Fenusa pusilla*, 25.ix.1969, leg. H.Pschorn-Walcher, SMF; 3♀, NORWAY, Akerhus, Ullensaker, Sessvollmoen, Autjernet W, 26.VI–25.VIII.2007, L.O. Hansen, ZMUN; 1♀, 1♂, POLAND, Gdańsk ("Danzig"), leg. Brieschke, ZMUC; 19♂, SWEDEN, Uppland, NHRS; 2♀, SWEDEN, Dalarna, Ludvika, Sörvik, 28.v.1938, leg. E.Wieslander, NHRS; 3♂, SWEDEN, Lappland, NHRS; 1♀, SWEDEN, Västerbotten, Skellefteå kommun, Brännbergets naturreservat, Mixed boreal forest, N64°54.768' E20°29.984' (=TrapID 51), 21.vii–12.viii.2004 (=coll. event ID 1233), leg. SMTP, NHRS; 1♀, SWEDEN, Uppland, Håbo kommun, Biskops-Arnö, northern beach, elm grove, N59°40.328' E17°30.051' (=Trap ID 8), 20.vi–18.vii.2005 (=coll. event ID 1602), leg. SMTP, NHRS; 1♀, SWEDEN, Södermanland, Tyresö kommun, Åva, Spirudden, mixed coastal oak forest, N59°10.313' E18°22.197' (=Trap ID 1), 17.vi–02.vii.2003 (=coll. event ID 79), leg. SMTP, NHRS; 1♀, SWEDEN, Västerbotten, Vindelns kommun, Kulbäckslidens försökspark, 15 yr spruce plantation with blueberry, N64°09.270' E19°35.591' (=TrapID 57), 01.ix–22.ix.2003 (=coll. event ID 205), leg. SMTP, NHRS; 1♂, SWEDEN, Södermanland, Tyresö kommun, Åva, Spirudden, mixed coastal oak forest. N59°10.313' E18°22.197' (=Trap ID 1) 28.v–16.vi.2004 (=coll. event ID 316), leg. SMTP, NHRS; 6♀, 5♂, SWEDEN, Uppland, Håbo kommun, Biskops-Arnö, northern beach, elm grove, N59°40.328' E17°30.051' (=Trap ID 8), 19.viii–07.ix.2003 (=coll. event ID 393), leg. SMTP, SMTP; 1♀, SWEDEN, Stockholm Archipelago, Nämdö, 59°12'9.67"N 18°42'14.38"E, sweeping net, 15.ix.2013, leg. Alexey Reshchikov, NHRS.

**Additional material.** 1♀, 2♂, AUSTRIA, Ottenschlag, Niederösterreich, ex. *Fenusa pusilla*, 01.ix.1974–v.1975, leg. H.Pschorn-Walcher, SMF; 1♂, AUSTRIA, Rohrbach, Kollerschlag, ex. *Fenusa pusilla*, 13.vii–ix.1974, leg. H.Pschorn-Walcher, SMF; 1♂, FRANCE, Vosges, ex. *Fenusa pusilla*, 5.ix.1974, leg. H.Pschorn-Walcher, SMF; 1♀, GERMANY, Baden-Württemberg, Rastatt, ex. *Scolioneura betuleti* on *Betula verrucosa*, vi–vii.1964, leg. H.Pschorn-Walcher, SMF; 1♀, GERMANY, Baden-Württemberg, Schwarzwald, ex. *Fenusa dohrnii*, 11.ix.–20.x.1969, leg. H. Pschorn-Walcher, SMF; 5♂, GERMANY, Baden-Württemberg, Schwarzwald, ex. *Fenusa pusilla*, 11.ix.–20.x.1969, leg. H. Pschorn-Walcher, SMF.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) clypeus separated from face by a distinct transverse groove, 2) occipital carina complete, 3) tarsus mostly dark, apical tarsal segments slightly enlarged, 4) apical lateral fields of propodeum absent, 5) last visible metasomal tergite not modified, 6) ovipositor straight.

**Distribution.** Austria, Finland, France, Germany, Ireland, Netherlands, Norway, Russia (Kuril islands, Saint Petersburg), Sweden, Switzerland, UK

### *Lathrolestes nornae* Reshchikov, 2013

Figs. 6, 23.

*Lathrolestes nornae* Reshchikov, 2013: 70. Holotype ♀, ZMUN [examined]. Type locality: Norway (Vestre Slidre, Slidre, Heimdalen).

**Material.** 1♀, SWEDEN, Torne lappmark, Vassijaure, 1918, leg. R.Malaise

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) clypeus projecting distinctly anteriorly, but not strongly, and not incurved, 2) head narrowed behind eyes, 3) occipital carina incomplete dorsally, 4) areolet petiolate, 5) tarsal claws pectinate, teeth as long as apical tooth, 6) hind femur black, 7) carinae of propodeum absent, 8) metasomal tergites black, 9) parameres elongate and wider apically.

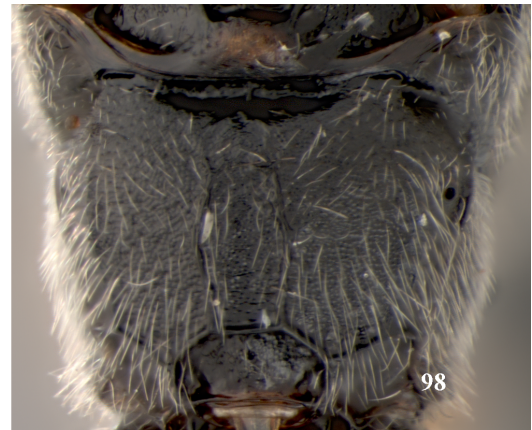
**Distribution.** Norway, Russia (Yakutia Republic, Yamalo-Nenets Autonomous Okrug), Sweden\*.

### *Lathrolestes orbitalis* (Gravenhorst, 1829)

Figs. 14–16, 26, 34, 96–100.

*Tryphon orbitalis* Gravenhorst, 1829: 2554. Type lost. Type locality: Poland (Wrocław).

*Perilissus bucculentus* Holmgren, 1857: 123. Lectotype ♀, NHRS [examined, NHRS-HEVA000003820]. Type locality: Sweden (Småland).



**FIGURES 96–100.** *Lathrolestes orbitalis* (Gravenhorst, 1829). 96, male face; 97, female face; 98, propodeum; 99, male habitus; 100, female habitus.

**Material.** 19, DENMARK, ZMUC 1♂, FINLAND, Åboland, Pernå, 26.vi.1944, leg. Å. Nordström, MZH; 2♀, 5♂, NORWAY, Sør-Trøndelag, Selbu, Rotla, MT, 21.VI–20.VII.1986, leg. J. Solem, NTNU; 1♀, 3♂, NORWAY, Hedmark, Stor-Elvdal, Solbakken, Malaise trap, 24.VI.1986, leg. E. Stur, NTNU; 7♂, NORWAY, Hedmark, Stor-Elvdal, Atnaelv, Solbakken, Malaise trap, 17.VII.1986, NTNU; 1♀, SWEDEN, Skåne, NHRS; 1♀, SWEDEN, Blekinge, NHRS; 2♂, SWEDEN, Östergötland, NHRS; 1♂, SWEDEN, Jämtland, Åre, Duved, Storulvån, 63°10'19.47"N 12°21'46.31"E, 754m, mountains birch, Malaisae trap, 3.vii.–20.viii.2013, leg. Alexey Reshchikov & Lars-Åke Bäckström, NHRS; 1♀, SWEDEN, Öland, Mörbylånga kommun, Gamla Skogsby, N56°37.001' E16°30.686', 23–25.05.2013, Malaise trap, leg. Alexey Reshchikov, NHRS; 1♀, 6♂, SWEDEN, Stockholm, NHRS; 2♀, SWEDEN, Småland, Älmhults kommun, Stenbrohult, Djäknabygds bokbacke, Heath with old beeches, N56°36.548' E14°11.583' (=TrapID 24), 31.v–20.vii.2005 (=coll. event ID 1673), leg. SMTP, NHRS; 1♂, SWEDEN, Småland, Nybro kommun, Alsterbro/Alsterån, Mixed forest N6312220, E1506997 (=TrapID 1008) 20.iv–25.iv.2005 (=coll. event ID 1027), leg. SMTP, NHRS; 1♂, SWEDEN, Småland, Nybro kommun, Alsterbro/

Alsterån. Mixed forest N6312220, E1506997 (=TrapID 1008) 05.vi–10.vi.2005 (=coll. event ID 1339), leg. SMTP, NHRS; 1♀, SWEDEN, Småland, Nybro kommun, Alsterbro/Alsterån. Mixed forest N6312220, E1506997 (=TrapID 1008) 05.vii–10.vii.2005 (=coll. event ID 1345), leg. SMTP, NHRS; 2♂, SWEDEN, Uppland, Älvkarleby kommun, Båtfors. Pine forest with blueberry, N60°27.639' E17°19.069' (=Trap ID 7), 17.vi–03.vii.2003 (=coll. event ID 378), leg. SMTP, SMTP; 1♀, SWEDEN, Södermanland, Tyresö kommun, Åva, Spirudden, mixed coastal oak forest. N59°10.313' E18°22.197' (=Trap ID 1) 08.vi–17.vi.2003 (=coll. event ID 78), leg. SMTP, SMTP; 1♂, SWEDEN, Dalarna, Sätters kommun, Säterdalen, Näsåkerspussen, alder wood ravine. N 60°22' E 15°43' (=TrapID 10) 23.vi–08.vii.2003 (=coll. event ID 396), leg. SMTP, SMTP; 2♀, 1♂, SWEDEN, Dalarna, Sätters kommun, Säterdalen, Näsåkerspussen, alder wood ravine. N 60°22' E 15°43' (=TrapID 10) 13.v–18.vi.2004 (=coll. event ID 408), leg. SMTP, SMTP; 1♀, SWEDEN, Östergötlands, Ödeshögs kommun, Omberg, N58°18.452' E14°37.859' (=Trap ID 13), 08.vi–23.vi.2004 (=coll. event ID 910), leg. SMTP, SMTP; 1♀, SWEDEN, Öland, Mörbylånga kommun, Gamla Skogsby (Kalkstad), "diversitetsängen", Meadow with bushes, N56°37.002' E16°30.457' (=TrapID 22), 20.v–01.vi.2005 (=coll. event ID 1312), leg. SMTP, SMTP; 1♂, SWEDEN, Öland, Mörbylånga kommun, Gamla Skogsby (Kalkstad), "diversitetsängen". Meadow with bushes. N56°37.002' E16°30.457' (=TrapID 22) 20.v–28.vi.2006 (=coll. event ID 1725), leg. SMTP, SMTP; 1♂, SWEDEN, Öland, Mörbylånga kommun, Gamla Skogsby (Kalkstad), "diversitetsängen". Meadow with bushes. N56°37.002' E16°30.457' (=TrapID 22), 01.v–01.vi.2004 (=coll. event ID 775), leg. SMTP, SMTP; 6♂, SWEDEN, Öland, Mörbylånga kommun, Gamla Skogsby (Kalkstad), "diversitetsängen", Meadow with bushes, N56°37.002' E16°30.457' (=TrapID 22), 01.vi–23.vi.2004 (=coll. event ID 776), leg. SMTP, SMTP; 1♀, 3♂, SWEDEN, Öland, Mörbylånga kommun, Gamla Skogsby (Kalkstad), "diversitetsängen", Meadow with bushes, N56°37.002' E16°30.457' (=TrapID 22), 01.vi–15.vi.2005 (=coll. event ID 1313), leg. SMTP, SMTP; 1♂, SWEDEN, Öland, Mörbylånga kommun, Gamla Skogsby (Kalkstad), "diversitetsängen". Meadow with bushes. N56°37.002' E16°30.457' (=TrapID 22) 15.vi–29.vi.2005 (=coll. event ID 1314), leg. SMTP, SMTP; 1♀, SWEDEN, Småland, Nybro kommun, Bäckebo, Grytsjöns naturreservat. Old moisty haymaking meadow in forest edge N6311678 E1517066 (=TrapID 1001), 18.v–15.vi.2006 (=coll. event ID 1728), leg. SMTP, SMTP; 1♂, SWEDEN, Skåne, Klippans kommun, Skärälid, valley below northern Lierna, Rich beech forest. N56°01.633' E13°13.406' (= TrapID 37), 14.vii–06.viii.2004 (=coll. event ID 834), leg. SMTP, SMTP; 2♂, SWEDEN, Uppland, Håbo kommun, Biskops-Arnö, northern beach. elm grove, N59°40.328' E17°30.051' (=Trap ID 8), 19.viii–07.ix.2003 (=coll. event ID 393), leg. SMTP, SMTP.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) face entirely yellow in both sexes, 2) face and clypeus separated by impression, 3) occipital carina complete, 4) area super-omedia elongate, narrow and fused with area basalis, area apicalis short.

**Distribution.** Austria, Belarus, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Hungary, Ireland, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Russia (Dagestan, Irkutsk Oblast, Khabarovsk Krai, Krasnoyarsky Krai, Leningrad Oblast, Moscow Oblast, Pskov Oblast, Primorsky Krai, Sakha Yakutia, Sverdlovsk Oblast, Tomsk Oblast, Yaroslavl Oblast), Sweden, Switzerland, Ukraine, UK.

### *Lathrolestes pictilis* (Holmgren, 1857)

Figs. 101–103.

*Perilissus pictilis* Holmgren, 1857: 125. Lectotype ♀, NHRS [examined, NHRS- HEVA000003818]. Type locality: Sweden (Småland).

**Material.** 6♀, 3♂, DENMARK, leg. Schiødte, ZMUC; 1♂, FINLAND, old label "Hatulla", "L.v. Essen", "2252", MZH; 3♀, GERMANY, Baden-Württemberg, Schwarzwald, ex. *Fenusa dohrnii*, 11.ix.–20.x.1969, leg. H. Pschorn-Walcher, SMF; 1♂, NORWAY, Oppland, Dovre, leg. C. Boheman, ZMUC; 1♀, RUSSIA, Leningrad Oblast, Susanino, 6.viii.1972, leg. D.Kasparyan, ZIN; 2♀, RUSSIA, Murmansk Oblast, Kirovsk, botanical garden, 1.viii.1974, leg. D.Kasparyan, ZIN; 1♂, RUSSIA, Irkutsk Oblast, Listvyanka, B. Koty, Baikal Lake, 21.vi.1970, leg. D.Kasparyan, ZIN; 1♂, SWEDEN, Småland, leg. C. Boheman, ZMUC; 3♀, 1♂, SWEDEN, Skåne, leg. C. Boheman, NHRS; 1♀, SWEDEN, Stockholm, leg. C. Boheman, NHRS-HEVA000001990, NHRS; 6♀, 1♂, SWEDEN, Stockholm, leg. C. Boheman, NHRS; 5♀, 6♂, SWEDEN, Småland, leg. C. Boheman, NHRS; 1♀, SWEDEN, Östergötland, leg. C. Boheman, NHRS; 1♀, SWEDEN, Västergötland, leg. C. Boheman, NHRS; 1♀,



SWEDEN, Bohuslän, leg. C. Boheman, NHRS; 1♀, SWEDEN, Uppland, leg. C. Boheman, NHRS; 4♀, SWEDEN, Dalarna, leg. C. Boheman, NHRS; 3♀, SWEDEN, Västerbotten, leg. C. Boheman, NHRS; 1♀, SWEDEN, Lappland, leg. C. Boheman, NHRS; 1♀, SWEDEN, Småland, Nybro kommun, Bäckebo, Grytsjöns naturreservat, Old aspen forest in boulder terrain N6310596 E1518027 (=TrapID 1000), 24.viii–12.ix.2005 (=coll. event ID 1362), leg. SMTP, NHRS; 1♂, SWEDEN, Småland, Nybro kommun, Bäckebo, Grytsjöns naturreservat Old moisty haymaking meadow in forest edge N6311678 E1517066 (=TrapID 1001), 12.vii–18.vii.2005 (=coll. event ID 1333), leg. SMTP, NHRS.



**FIGURES 101–103.** *Lathrolestes pictilis* (Holmgren, 1857). 101, face; 102, propodeum; 103, habitus.

**Additional material.** 4♀ 8♂, AUSTRIA, Bad Leonfelden, ex. *Fenusa dohrnii*, 02.ix.1974–02.v.1975, leg. H. Pschorn-Walcher, SMF; 2♀ 1♂, AUSTRIA, Salzburg, Hallein, ex. *Fenusa dohrnii* on *Alnus glutinosa*, 22.vi.1975–07.viii.1975, leg. H. Pschorn-Walcher, SMF; 1♀, AUSTRIA, Melk, Emmersdorf an der Donau, ex. *Fenusa dohrnii*, 17.ix.1974–25.vi.1975, leg. H. Pschorn-Walcher, SMF; 7♀ 10♂, AUSTRIA, Salzburg, Hallein, Kuchl, ex. *Fenusa dohrnii*, 11.vi.1976–26.vii.1976, leg. H. Pschorn-Walcher, SMF; 4♂, AUSTRIA, Salzburg, ex. *Fenusa dohrnii* on *Alnus glutinosa*, 03.viii.1975–09.ix.1975, leg. H. Pschorn-Walcher, SMF; 2♀ 3♂, AUSTRIA, Tirol, Europabrücke, ex. *Fenusa ulmi*, 01.06.1975–07.03.1976, leg. H. Pschorn-Walcher, SMF; 1♀ 1♂, AUSTRIA, Salzburg, Elsbethen (Glasenbach), ex. *Fenusa dohrnii* on *Alnus glutinosa*, 19.vi.1975–05.viii.1975, leg. H. Pschorn-Walcher, SMF; 1♂, AUSTRIA, Sankt Pölten-Land, Asperhofen, ex. *Fenusa dohrnii* on *Alnus glutinosa*, 20.vii.1975–25.viii.1975, leg. H. Pschorn-Walcher, SMF.



**FIGURES 104–105.** *Lathrolestes pleuralis* (Thomson, 1883). 104, face; 105, habitus.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) orbits entirely yellow, 2) face and clypeus separated by a distinct transverse groove, 3) occipital carina complete, 4) hind femur yellow-reddish, 5) propodeum with complete carinae.

**Distribution.** Austria\*, Belarus, Belgium, Czech Republic, Denmark\*, Finland, France, Germany, Hungary, Latvia, Lithuania, Netherlands, Norway, Poland, Russia (Buryatia, Chita Oblast, Khabarovsk Krai, Primorsky Krai, Sakha Yakutiya), Sweden, Switzerland, Ukraine, UK.

### ***Lathrolestes pleuralis* (Thomson, 1883)**

Figs. 104–105.

*Lathrolestes pleuralis* Thomson, 1883: 916–917. Lectotype ♀, MZLU [examined]. Type locality: Sweden (Norrbotten).

**Material.** 1♀ 1♂, DENMARK, ZMUC; 1♀, NORWAY, Akershus, Ullensaker, Sessvollmoen, Aurtjernet W, 26.VI–25.VIII.2007, leg. L.O. Hansen, ZMUN; 1♀, SWEDEN, Gästrikland, NHRS; 4♀, SWEDEN, Lappland, Sorsele kommun, Ammarnäs, Vindelfjällens naturreservat, Tjulträsklaspen, Alpine birch wood. N65°58.007, E16°03.630 (=TrapID 46) 26.vii–15.viii.2004 (=coll. event ID 1201), leg. SMTP, NHRS; 2♀, SWEDEN, Uppland, Älvkarleby kommun, Båtfors. Pine forest w. blueberry. N60°27.639' E17°19.069' (=Trap ID 7), 17.vi–03.vii.2003 (=coll. event ID 378), leg. SMTP, NHRS; 1♀, SWITZERLAND, NHRS-HEVA000002033, NHRS.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) clypeus projecting distinctly anteriorly, but not strongly, and not incurved, 2) head narrowed behind eyes, 3) occipital carina incomplete dorsally, 4) areolet petiolate, 5) tarsal claws pectinate, teeth shorter than apical tooth, 6) hind femur yellowish, 7) carinae of propodeum absent, 8) parameres elongate and wider apically.

**Distribution.** Denmark\*, Finland, Germany, Latvia, Norway, Russia (Chita Oblast, Kamchatka, Khabarovsk Krai, Primorsky Krai, Sakha Yakutiya), Sweden, UK.

### ***Lathrolestes saliceti* (Roman, 1909)**

Figs. 106–107.

*Lathrolestes saliceti* Roman, 1909: 104. Lectotype ♂, NHRS [examined, NHRS-HEVA000001981]. Type locality: Sweden (Sarek, Lapland).

**Material.** 1♂, RUSSIA, Murmansk Oblast, Pasvik NR, mt Kalkupya, birch forest, Malaise trap, 30.vii.–11.x.2007, leg. A. Humala, ZIN; 1♂, SWEDEN, Torne lappmark, Vassijaure, 1918, leg. R. Malaise, NHRS-HEVA000001982, NHRS.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) occipital carina incomplete dorsally, 2) areolet rhombic and open, 3) area petiolaris present, 4) parameres broad apically.

**Distribution.** Norway, Russia, Sweden.

**Comments.** Only males are known of this species. It is similar with *L. lucidulus*, but it has open areolet.

### ***Lathrolestes soperi* Reshchikov, 2010**

Figs. 108–109.

*Lathrolestes soperi* Reshchikov, 2010: 11–12. Holotype ♀, USNM, [examined]. Type locality: USA (Anchorage, Alaska).

**Material.** 1♀, UK, Oxfordshire, Taynton, Malaise trap, 16.viii.–8.ix.1989, leg. K. Porter, RSME.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) face and clypeus separated by transverse distinct groove, 2) occipital carina complete dorsally, 3) tarsal claws pectinate with three teeth, 4) area basalis and area superomedia present, costula absent, 5) 2nd metasomal tergum reddish.

**Comments.** This is first record of the species from Palaearctic.

**Distribution.** USA (Alaska), UK\*.





FIGURES 106–107. *Lathrolestes saliceti* Roman, 1909, 106) face, 107) habitus.

***Lathrolestes tripunctor* (Thunberg, 1824)**

Figs. 4, 110–116.

*Ichneumon tripunctor* Thunberg, 1824: 280. Holotype ♀, UUZM [examined]. Type locality: Sweden.

*Ichneumon distichor* Thunberg, 1822: 272. Holotype ♂, UUZM [examined]. Type locality: Sweden.

*Perilissus (Polyoncus) grandiceps* Thomson, 1883: 913. Holotype ♂, MZLU [examined]. Type locality: Sweden (Arrie, Skåne).

*Perilissus longicornis* Brischke, 1871: 72. Type lost. Type locality: Poland.

*Perilissus luteocephalus* Giraud, 1872: 397–399. Lectotype ♀, MNHN [examined]. Type locality: France (Grenoble, Rhône-Alpes).

*Perilissus singularis* Vollenhoven, 1878: 45. Lectotype ♂, RMNH [examined]. Type locality: Netherlands.

**Material.** 8♀, 1♂, DENMARK, Strandmølle, ZMUC; 1♀, RUSSIA, Pskov Oblast, Chudskoe Lake, vii.2003, leg. A.Reshchikov, ZIN; 1♀, SWEDEN, Kimstad, NHRS; 1♂, SWEDEN, NHRS.

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) face in female yellow, 2) face and clypeus separated by impression, 3) occipital carina complete, 4) head and mesopleuron matt, coarsely, densely and rather evenly punctate, 5) tegulae yellow, 6) second recurrent vein intercepting areolet behind its middle, 7) propodeum with carinae complete, 8) first metasomal tergite  $1.6 \times$  as long as wide.

**Distribution.** Czech Republic, Denmark\*, Finland, France, Germany, Italy, Lithuania, Netherlands, Poland, Russia (Pskov Oblast), Sweden, Switzerland.



**FIGURES 108–109.** *Lathrolestes soperi* Reshchikov, 2010. 108, face; 109, habitus.

***Lathrolestes unguaris* (Thomson, 1883)**

Figs. 117–119.

*Lathrolestes unguaris* Thomson, 1883: 918. Holotype ♂, MZLU [examined]. Type locality: Sweden (Pålsjö, Skåne).

*Lathrolestes citrofrontalis* Schmiedeknecht, 1912: type lost. Type locality: Germany.

**Material.** 1♀, SWEDEN, Öland, leg. C. Boheman, NHRS; 1♀, UK, Cheshire, Delamere Forest, Abbots Moss NR, 3.vii.1977, leg. M.Shaw, RSME;

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) face and clypeus separated by a distinct transverse groove, 2) maculae on face and behind eyes, 3) occipital carina complete, 4) mesopleuron and metasoma shagreened, matt, 5) fifth article of tarsus dark and enlarged, 6) teeth of claws not slanted, 7) only one transverse propodeal carina present (basal transverse carina of propodeum evenly arched, area supeomedia absent, apical area open anteriorly), 8) propodeum with rough sculpture, 9) last visible tergite of metasoma modified in projection, 10) ovipositor straight.

**Distribution.** Austria, Azerbaijan, Germany, Moldova, Netherlands, Poland, Sweden, Turkey, Ukraine, UK.

***Lathrolestes verticalis* (Brischke, 1871)**

Figs. 41, 120–123.

*Perilissus verticalis* Brischke, 1871: 71. Type lost. Type locality: Poland.

*Perilissus abdominalis* Brischke, 1878: 74. Type lost. Type locality: Poland.

*Lathrolestes marginatus* Thomson, 1883: 917. Holotype ♂, MZLU [examined]. Type locality: Sweden (Skåne, Lund).



**FIGURES 110–116.** *Lathrolestes tripunctor* (Thunberg, 1824). 110, habitus dorsally; 111, habitus laterally; 112, head dorsally and fore wing; 113, face and first metasomal tergite; 114, mesopleuron; 115, propodeum; 116, male habitus laterally.

**Material.** 1♀, DENMARK, Jutland, Sønderborg, ZMUC; 5♀, 7♂, DENMARK, leg Schiødte, ZMUC; 1♂, FINLAND, Uusikaupunki (“Nystad”), leg. Hellen, MZH; 1♀, FINLAND, Åboland, Pernå, 9.viii.1944, leg Å.Nordström, MZH; 7♀, GERMANY, Northern Germany, ex. *Metallus pumilus*, xi.1970, leg H.Pschorn-Walcher, SMF; 1♂, RUSSIA, Republic of Karelia, Sortavala, “L.v. Essen”, “3461”, MZH; 1♂, RUSSIA, Leningrad Oblast, Boksitogorsky reg., 20 km S Boksitogorsk, Rgusha riv., viii.2002, leg. A.Reshchikov, NHRS; 2♀, SWEDEN, Skåne, 1907, leg. A. Roman, NHRS; 2♀, SWEDEN, Halland, viii.1922, leg. A. Roman, NHRS; 2♀, 1♂,



SWEDEN, Stockholm, leg. C. Boheman, NHRS; 1♀, SWEDEN, Gotland, Visby, Själso, N57°41.582' E18°21.530', 18m., 30.v.–vii.09.2013, Malaise trap, leg. Alexey Reshchikov & Niklas Apelqvist, NHRS; 1♀, SWEDEN, Småland, Torsås kommun, Söderåkra, Påboda. Malaise trap in garden N625636, E151637 (=TrapID 2046), 2008.viii.01–2008.viii.16 (=coll. event ID 2056), leg. SMTP, NHRS; 2♀, SWEDEN, Småland, Torsås kommun, Söderåkra, Påboda. Malaise trap in garden N625636, E151637 (=TrapID 2046) 2008.vii.16–2008.viii.01 (=coll. event ID 2055), leg. SMTP, SMTP; 3♀, SWEDEN, Sm, Torsås kommun, Söderåkra, Påboda. Malaise trap in garden N625636, E151637 (=TrapID 2046) 2008.viii.16–2008.ix.01 (=coll. event ID 2057), leg. SMTP, SMTP; 1♀, 3♂, SWEDEN, Skåne, Klippans kommun, Skärålid, valley below northern Lierna, Rich beech forest. N56°01.633' E13°13.406' (= TrapID 37), 14.vii–06.viii.2004 (=coll. event ID 834), leg. SMTP, NHRS; 1♂, SWEDEN, Småland, Nybro kommun, Bäckebo, Grytsjöns naturreservat, Old aspen forest in boulder terrain, N6310596 E1518027 (=TrapID 1000), 02.viii–13.viii.2005 (=coll. event ID 1359), leg. SMTP, SMTP; 2♂, SWEDEN, Småland, Nybro kommun, Bäckebo, Grytsjöns naturreservat Old moisty haymaking meadow in forest edge N6311678 E1517066 (=TrapID 1001), 24.viii–12.ix.2005 (=coll. event ID 1361), leg. SMTP, SMTP; 1♂, SWEDEN, Småland, Nybro kommun, Bäckebo, Grytsjöns naturreservat, Old moisty haymaking meadow in forest edge, N6311678 E1517066 (=TrapID 1001), 02.viii–13.viii.2005 (=coll. event ID 1354), leg. SMTP, SMTP; 4♂, SWEDEN, Värmland, Munkfors kommun, Ransäter, Ransbergs herrgård, Old mixed deciduous forest in stream ravine, N66°32.516' E13°65.816' (=Trap ID 1003), 24.vii–12.ix.2005 (=coll. event ID 1389), leg. SMTP, SMTP; 1♀, SWEDEN, Småland, Nybro kommun, Alsterbro/Alsterån. Mixed forest N6312220, E1506997 (=TrapID 1008) 10.viii–15.viii.2005 (=coll. event ID 1352), leg. SMTP, SMTP; 1♀, SWEDEN, Småland, Nybro kommun, Alsterbro/Alsterån. Mixed forest N6312220, E1506997 (=TrapID 1008), 08.viii–19.viii.2006 (=coll. event ID 1746), leg. SMTP, SMTP; 1♀, SWEDEN, Västmanland, Sala kommun, Västerfärnebo, Nötmyran (Östermyran), birches at Islingby, Hay meadow, N59°56.517' E16°18.567' (=Trap ID 11), 23.vii–04.viii.2003 (=coll. event ID 411), leg. SMTP, SMTP; 1♀, 1♂, SWEDEN, Skåne, Klippans kommun, Skärålid, valley below northern Lierna, Rich beech forest. N56°01.633' E13°13.406' (= TrapID 37), 15.viii–21.ix.2003 (=coll. event ID 571); leg. SMTP, SMTP; 1♀, SWEDEN, Småland, Torsås kommun, Söderåkra, Påboda. Malaise trap in garden, N625636, E151637 (=TrapID 2046), 2008.ix.01–2008.x.03 (=coll. event ID 2058), leg. SMTP, SMTP; 1♂, SWEDEN, Öland, Mörbylånga kommun, Västerstads almlunds naturreservat, old elm forest, N56.427648 E16.421110 (=TrapID 3001) , 2014.vii.10–2014.viii.05 (coll. event ID 3054), leg. SMTP, NHRS-SMTP143400019, SMTP; 1♂, SWEDEN, Öland, Mörbylånga kommun, Västerstads almlunds naturreservat, old elm forest, N56.427307 E16.421942 (=TrapID 3002), 2014.vii.10–2014.viii.05 (=coll. event ID 3055), leg. SMTP, NHRS-SMTP143400018, SMTP.

**Additional material.** 2♀, 1♂, AUSTRIA, Niederösterreich, Neulengbach, ex. *Metallus pumilus*, 03.v.1975–15.xi.1975, leg H.Pschorn-Walcher, SMF;

**Diagnosis.** This species differs from other species of the genus by the following character states: 1) head narrowed behind eyes, 2) yellow spots on orbits near antennal sockets and on top of eyes, 3) rounded apical margin of clypeus, 3) occipital carina complete, 4) open areolet, 5) propodeum with only area petiolaris obliterated anteriorly, 6) ovipositor as long as first metasomal tergite, without nodus, with subapical dorsal notch and lower valve without teeth at apex.

**Distribution.** Austria, Czech Republic, Denmark\*, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Russia (Saint Petersburg), Sweden, Switzerland, Ukraine, UK.

## Dicsussion

As a result of this study, 24 Northern European species are recorded of which 23 are known from Sweden including *L. oelandinus* **sp. n.** described here and collected by the SMTP just few hundred meters from the Station Linné and the rare *L. luteolus* (Thomson, 1883) collected on Fårö on *Ulmus*. The first finding shows the poor state of the knowledge for the group. *L. citreus* (Brischke, 1878), *L. bipunctatus* (Bridgman, 1886), *L. clypeatus* (Zetterstedt, 1838), and *L. pleuralis* (Thomson, 1883) were recorded for the first time in Denmark, and *L. moravicus* Habermehl, 1923 in Finland, France and North Western Russia. During this study *L. soperi* Reshchikov, 2010 is recorded for the first time in the Palaearctic region (from the UK). Previously only *L. caudatus* (Thomson, 1883) was considered to be distributed in both Nearctic and Palaearctic regions (Reshchikov *et al.*, 2010) apart from *L. nigricollis* (Thomson, 1883), which is introduced in North America (Langor *et al.* 2002). *L. norrae* Reshchikov, 2013 is recorded for the first time in Sweden.



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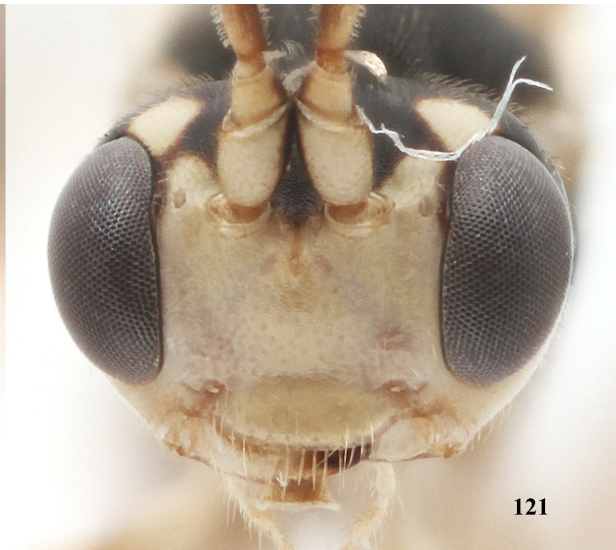
119

**FIGURES 117–119.** *Lathrolestes unguularis* (Thomson, 1883), 117, face; 118, propodeum; 119, habitus.

Data on trophic interactions of the genus *Lathrolestes* are gathered in Table 1 and shows a high level of specialization to hosts with a variety of lifestyles. The members of *Lathrolestes* are mostly known to be koinobont endoparasitoids, usually on leafmining sawfly larvae of the tribe Fenusini (Hymenoptera, Tenthredinidae). However *L. clypeatus* (Zetterstedt 1838) and *L. mnemonicae* (Rohwer 1914) attack leafmining lepidopteran larvae of the family Eriocraniidae (Rohwer 1914; Heath 1961; Carlson 1979) and *L. zeugophorae* Barron, 1994 attacks leafmining beetle larvae of the family Megalopodidae. These hosts have a similar leafmining lifestyle and are associated with deciduous trees. Such a transition into other groups of hosts with similar lifestyle also occurs in the subfamily Tryphoninae (Hymenoptera, Ichneumonidae). Several species of the genus *Grypocentrus*, attacking mainly leafmining sawflies, were also reared from Eriocraniidae (Heath, 1961; Jordan, 1998). In the genus *Lathrolestes* such a host switch probably took place twice: in European *L. clypeatus*, and in American *L. mnemonicae*. *Lathrolestes ensator* is parasitoid of the carpophagous *Hoplocampa testudinea* (Nematinae, Hoplocampini) feeding on apples. The ovipositor of this species of *Lathrolestes* is elongate and curved upwards



120



121



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123

**FIGURES 120–123.** *Lathrolestes verticalis* (Brischke, 1871), 120, female face; 121, male face; 122, female habitus; 123, male habitus.



(Fig. 35). It is likely that this is an adaptation to hunt for larvae inside fruits. Similar structure of the ovipositor occurs in *L. oelandinus* sp. n. Based on this feature as well as the type locality with its antropogenic influences may indicate a similar lifestyle as parasitoid of carpophagous insects for *L. oelandinus* sp. n. Another example of specialization and modification of the ovipositor can be observed in *L. caudatus*, attacking larvae of *Ardis brunniventris* (Blennocompinae, Blennocompini), which feeds within branches of dog rose. The ovipositor of this wasp is elongate and has a nodus at its apex instead of notch. This feature is unusual for endoparasitoids and the modification of the ovipositor is considered here as an adaptation for species with larvae living inside hard substrate as fruits and branches. Another species, *Lathrolestes luteolator* attacks larvae of slug sawflies, *Caliroa* (Heterarthrinae, Caliroini) (Carl, 1976). Attacking these sawflies requires narrow specialization since larvae of slug sawflies have specific defensive strategies which includes having a cover of mucus (Boevé & Müller 2005). The ovipositor of this species of *Lathrolestes* is stout at base and has a shallow notch (Fig. 30). This structure of the ovipositor probably is an adaptation to pierce the mucus cover of the sawfly larva. Most of the *Caliroa* parasitoids have similar ovipositor with a shallow notch (Kasparyan 1973, 1990), including *Hodostates* Förster, 1869 which differs from other Pionini in having slender needle-like ovipositors lacking a notch (Cameron & Wharton 2011).

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