



Monograph

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West Palaearctic species of *Euura* Newman, 1837 (Hymenoptera, Tenthredinidae)

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Abstract. Excluding 102 species of the previously revised West Palaearctic species groups of *Euura* Newman, 1837 (gall-making groups, 84 species; *amentorum* group, 8 species; *bergmanni* group, 8 species; and *oligospila* group, 2 species), we treat here the remaining 164 West Palaearctic species of the genus. 145 new synonymies are proposed (one in *Platycampus*, one in *Nematus*, two in *Pristiphora*, and the rest in *Euura*: see Table 4 for details). 153 lectotypes are designated (see Table 4). Four nominal

species are reinstated (valid name in square brackets): *Pteronidea fuscарima* Benson, 1933 [*E. fuscарima* (Benson, 1933) comb. nov.], *P. fuscodorsata* Lindqvist, 1949 [*Euura fuscodorsata* (Lindqvist, 1949) comb. nov.], *Pachynematus perkioemaekii* Lindqvist, 1960 [*E. perkioemaekii* (Lindqvist, 1960) comb. nov.], and *Pontania poppii* Konow, 1904 [*Euura poppii* (Konow, 1904) comb. nov.]. *Euura tiliae* (Zinovjev, 1998) comb. nov. and *E. wuyishanica* (Wei, 2003) comb. nov. are transferred from *Nematus*. *Euura memoriakaszabi* (Harris, 2002) comb. nov. is transferred from *Pristiphora*. Five new species are described: *Euura halo* Prous, Liston & Mutanen sp. nov., *E. histriato* Prous, Liston & Mutanen sp. nov., *E. minivittata* Prous & Mutanen sp. nov., *E. polepso* Prous & Mutanen sp. nov., and *E. serela* Prous & Mutanen sp. nov. *Euura telos* Liston & Prous nom. nov. (an East Palaearctic species) is proposed for *Amauronematus terminalis* Malaise, 1931, a secondary homonym of *Pontania terminalis* Marlatt, 1896 [*Euura terminalis* (Marlatt, 1896)]. Three treated putative species based on single males (*E. bergmanni* and *E. clitellata* group) and a female (*E. bipartita* group) remain unidentified pending further research. An identification key is provided to separate the genus *Euura* from the other similar genera. Host plants are now known for 80% (132) of the treated species (88% for all West Palaearctic *Euura*). Genetic data (at least mitochondrial COI and nuclear NaK and POL2) are reported for 91% (151) of the treated species. The genetic data were obtained with Sanger and Nanopore sequencing. In numerous cases, identification of one sex of a species remains difficult using morphological characters but is clear when using genetic data. In a few cases, however, identification based on morphology is reliable, while support from available genetic data is weak. Often, large morphological and genetic variability makes species delimitation ambiguous. Within-species genetic diversity, as estimated from diploid females (i.e., within-individual genetic diversity, which is an underestimate of within-species diversity), is large in *Euura*, on average with 0.3% divergence between the haplotypes (max 1.4%), while between-species divergence for a given species group is often only slightly higher (on average varies between 0.5–2.1%). Strong mito-nuclear discordance is observed within most species groups, but in some cases even between species groups. Over 50% of the species cannot be reliably identified based on mitochondrial COI barcodes. While nuclear DNA is significantly more congruent with morphology, identification of about 15% of the species can be ambiguous due to large genetic variability. Remarkably, two or more apparently functional COI variants are frequently observed within the same individual, with variants diverging by up to 9.6% in *Euura lappo* (for the 658 bp barcoding region).

Keywords. Taxonomy, Symphyta, sawflies, phylogeny, DNA sequencing, revision.

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Introduction

The Holarctic genus *Euura* Newman, 1837 is the largest in the Nematinae Thomson, 1871 (Tenthredinidae), containing about 560 species or nearly half of the subfamily (Taeger *et al.* 2010, 2018; this work). The generic concept was significantly broadened in 2014 as a result of phylogenetic analyses of genetic data (Prous *et al.* 2014). Species level taxonomy of the genus has remained problematic due to the large number of species and a high degree of morphological similarity. The reversed latitudinal gradient in species richness in sawflies (Kouki *et al.* 1994) is largely driven by Nematinae and especially by *Euura*, which is the most abundant and species-rich sawfly genus in boreal and arctic habitats. Accordingly, significant sharing of species is expected between the Palaearctic and Nearctic. The scope of the revision of the genus would therefore ideally have been Holarctic, but because of the large number of nominal species involved (almost 1300, but probably more as *Nematus* Panzer, 1801 would need to be considered as well) and the pressing need for revised taxonomy for an upcoming handbook of Fennoscandian sawflies, only

the West Palaearctic species are revised here. We have examined types of most of the more relevant East Palaearctic taxa, as far as this was possible, but considered only a small number of Nearctic taxa.

The West Palaearctic species of three groups of *Euura* were recently revised in separate publications by Prous *et al.* (2021) (the *bergmanni* and *oligospila* groups) and Liston *et al.* (2023) (the *amentorum* group), while the north-west European species of the gall-making groups were revised by Liston *et al.* (2017). To provide a complete overview of the known West Palaearctic fauna, the names of species previously treated in these revisions are listed here, together with brief treatments of the small number of West Palaearctic gall-making species not already covered by Liston *et al.* (2017).

Other difficulties, apart from the large number of similar species in *Euura*, have been uncertainty about within-species variability and the association of males with females. Here we have relied on extensive DNA sequencing of thousands of specimens and several genes (one mitochondrial and several nuclear) to better address these questions. For 16 species, host plant records are corrected or recorded for the first time.

Material and methods

Specimens examined or mentioned are deposited in the following collections:

ANSP	=	Academy of Natural Sciences of Drexel University, Philadelphia, USA
BIOF	=	BioFokus, Oslo, Norway
BIOUG	=	Centre for Biodiversity Genomics, University of Guelph, Canada
BMNH	=	The Natural History Museum, London, United Kingdom
CAS	=	Collection of the California Academy of Sciences, San Francisco, USA
CEH	=	Collection of Erik Heibo, Lierskogen, Norway
CFRB	=	Chinese Academy of Forestry, Forest Research Institute, Beijing, China
CHS	=	Collection of Henri Savina, Toulouse, France
CKB	=	Collection of Karel Beneš, Prague, Czech Republic
CNC	=	Canadian National Collection of Insects, Ottawa, Canada
COL	=	Collection of Ole Lønnve, Oslo, Norway
CSFU	=	Central South Forestry University, Zhuzhou, Hunan, China
CTN	=	Collection of Thierry Noblecourt, Quillan, France
CUIC	=	Cornell University Insect Collection, Ithaca, USA
CVV	=	Collection of Veli Vikberg, Turenki, Finland
HNHM	=	Hungarian Natural History Museum, Budapest, Hungary
INHS	=	Illinois Natural History Survey, Champaign, USA
MNCN	=	Museo Nacional de Ciencias Naturales, Madrid, Spain
MNHN	=	Muséum national d'Histoire naturelle, Paris, France
MNHW	=	University of Wrocław, Poland
MRSN	=	Museo Regionale di Scienze Naturali, Turin, Italy
MZAT	=	Museum Zoologicum Åbo Academi, Turku, Finland
MZFN	=	Museo Zoologico dell'Università Federico II, Naples, Italy
MZH	=	Finnish Museum of Natural History, Helsinki, Finland
MZLU	=	Biological Museum, Lund University, Lund, Sweden
NFVG	=	Niedersächsische Forstliche Versuchsanstalt, Göttingen, Germany
NHMD	=	Zoological Museum of the University of Copenhagen, Denmark
NHRS	=	Naturhistoriska Riksmuseet, Stockholm, Sweden
NIBIO	=	Norwegian Institute of Bioeconomy Research, Svanhovd, Norway
NMPC	=	National Museum (Natural History), Prague, Czech Republic
NMW	=	Naturhistorisches Museum Wien, Vienna, Austria
NSMT	=	National Museum of Nature and Science, Tokyo, Japan

NUORTJ	=	Collection of Juoko Nuorteva, Helsinki, Finland
OLML	=	Oberösterreichisches Landesmuseum, Linz, Austria
RMNH	=	Nationaal Natuurhistorische Museum, Leiden, Netherlands
ROV	=	Museo Civico di Rovereto, Rovereto, Italy
RSME	=	National Museums of Scotland, Edinburgh, United Kingdom
SDEI	=	Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany
SMH	=	Senckenberg Museum und Forschungsinstitut, Frankfurt a.M., Germany
SNMC	=	Natural Science Museum of Slovak National Museum, Bratislava, Slovakia
TROM	=	Tromsø University Museum, Tromsø, Norway
TUZ	=	Natural History Museum, University of Tartu, Tartu, Estonia
UAM	=	University of Alaska Museum of the North, Fairbanks, USA
USNM	=	National Museum of Natural History, Smithsonian Institution, Washington D.C., USA
UTKI	=	collection of Mohammad Khayrandish, University of Tehran, Iran
YNUC	=	Animal Systematic Laboratory of Yeungnam University, Gyeongsan, South Korea
ZIN	=	Russian Academy of Sciences, Zoological Institute, St Petersburg, Russia
ZMAN	=	Universiteit van Amsterdam, Instituut voor Taxonomische Zoologie, Zoologisch Museum, Amsterdam, Netherlands
ZMHB	=	Museum für Naturkunde der Humboldt-Universität, Berlin, Germany
ZMMU	=	Zoological Museum of the Moscow State University, Moscow, Russia
ZMUN	=	Zoological Museum, University of Oslo, Norway
ZMUO	=	Zoological Museum, University of Oulu, Finland
ZMUT	=	Zoological Museum, University of Turku, Finland
ZSM	=	Zoologische Staatssammlung, München [= Munich], Germany

Collection methods

In order to obtain fresh material of as large a number of species as possible, in numbers sufficient to assess variability, some of the authors have spent several weeks in the field in northern Fennoscandia, at least once every year since 2012. Adults were mainly collected with sweep nets. During earlier field work, most specimens were killed in the field with ethyl acetate and usually pinned, or otherwise prepared, within the same day. Later, we favoured freezing to kill the specimens, which has the advantage that the females often push out their lancets from the sawsheath. A majority of specimens were pinned, but many also immediately transferred to ethanol (usually 96%). Alternatively, and particularly for interesting-looking specimens, the specimen was pinned but one or two legs were detached and stored in ethanol for sequencing. Free-living larvae on trees and shrubs were usually collected using a conventional beating tray, or by spreading a large sheet on the ground and jarring the overhanging branches with a heavy stick. In recent years, most of this work was carried out by MM, but VV has previously been very active. Free-living larvae on low plants were sometimes searched for visually, but it proved much more effective to hold an inverted frisbee as close as possible to the base of the plant and sweep briskly through the plant towards the frisbee with one's fingers. Endophytic larvae were searched for visually.

Taxonomic approach

As far as possible, our approach to species delimitation integrated the results of gene sequencing with the study of morphological characters of adults. Constraints on available time and resources did not permit extensive studies of larval morphology and biological traits. Initially, our main goal was to segregate the recently collected material into putative species, and associate their sexes. To this end, many thousands of these specimens have been sequenced.

A greater challenge was to correlate these “segregates” with the type specimens of existing nominal species. For practical reasons this primarily relied on morphological comparison, but a minority of type specimens were also sequenced, with the intention of obtaining some corroboration for taxonomic

decisions. Apparently high variability in external morphology was evident in many species, particularly in size, colour pattern and surface sculpture. Accordingly, relatively great importance was attached to examination of genitalic characters. In order to make the decision process behind new synonymies more understandable, the species commentaries include many references to recent specimens, with genetic data, which are morphologically closely similar to primary types. Although not usually explicitly stated, the types of newly synonymized nominal species in all cases agree with the diagnosis presented for each species treated here as valid. Even when the type specimens were in very poor condition, it was nearly always possible to check at least genitalia characters.

Morphological methods

To prepare penis valves and lancets (valvula 1 or ventral part of the saw) for photography, genital capsules and ovipositors were separated from the specimen and macerated in KOH (10–15%) for 6–10 hours at room temperature, or treated with proteinase during DNA extraction. Temporary slide preparations of dissected lancets and penis valves in glycerine were made, and after photography, the parts were glued (Berlese's fluid) on a piece of cardboard, which was pinned with the corresponding specimen. In addition, relevant permanent slide preparations borrowed from institutional or personal collections were photographed. Photos were taken with a digital camera attached to a microscope. Composite images with an extended depth of field were created from stacks of images using Helicon Focus ver. 7.6.4 or 7.6.6. Most of the lancets were photographed in two overlapping parts and a single image was created using the program Image Composite Editor (Microsoft) or with plugin MosaicJ (Thévenaz & Unser 2007) implemented in ImageJ (Wayne Rasband; <https://imagej.nih.gov/ij/>). Morphological terminology follows Vikberg (1978, 2006) and Viitasaari (2002). Body lengths are given in 0.5 mm steps, with smaller value rounded down and larger value rounded up, except for the specimens of the species newly described here and some other specific specimens, for which measurements are given in 0.1 mm steps.

Rearing

Unless otherwise stated, host plant data are based on our own rearings (mostly MM and VV). Plant species chosen for ovipositing experiments by VV were mainly those from which females were collected in the field or from which larvae had already been reared. Our main intention was to find at least one acceptable host plant for rearing particular species. Oviposition experiments were carried out indoors, at room temperature. Suitable parts of plants were cut, the cut end put in water or wrapped in moistened filter paper (or a paper towel), and the leaves offered to the sawfly in a closed container. Larvae were fed with fresh leaves that were changed every day or every second day. Cocoons were placed in glass vials and overwintered outdoors in a wooden chest (rearings by VV).

In addition, large numbers of specimens were reared from larvae at the University of Oulu during 2016–2023 (MM). Field-collected larvae were morphologically sorted to minimise the risk of rearing different species in the same pot, which was however often not possible. Each rearing was given a rearing code that is composed of: 1) the running number and 2) the year of collection (e.g., 53/2021). Usually, the larvae were reared in 0.52 l pots (RPC Superfos Product no: 5012), with height of 114 mm and diameter 75 mm, but occasionally larger pots or buckets were used, particularly for gregarious species. An oval hole was cut to the lid of the rearing pots; the hole was covered with a dense mesh that was hot glued in place. This was done to ensure sufficient ventilation and prevent excess humidity inside the pots. Larger buckets were covered with a tight mesh cap. Inside the rearing pot, some twigs of food plant were put in small jars filled with water. The plant twigs were put to water through a tight hole to protect larvae from drowning. Food plants were kept in water to keep them as fresh as possible, because poor-quality food increases the mortality rate or produces miniature adults. New plants and water were frequently added. The rearing pots were supplied with a layer of fine sand of a few cm at the bottom and a layer of moist *Sphagnum* Dillen moss on it. In the later years, these substrates were kept for a few days in a freezer to avoid contaminant species appearing from the rearing pots. The larvae were reared in climate chambers

at the University of Oulu. Once the larvae had made cocoons, they were kept in the climate chamber for a variable time. They were continuously monitored for emerging adult specimens, particularly when a second generation was expected. At some point the rearing pots were moved outdoors to a place that was protected from sunshine and extreme weather conditions. They were also then regularly monitored for emerging adult specimens. Finally, before the winter, the rearing pots were piled in large plastic boxes that were placed outdoors and covered with a tarpaulin. The overwintering took place under the snow cover. The rearing pots were brought indoors in February–March and placed in climate chambers, where the natural progress of spring was mimicked by gradually increasing temperature and day length. Similarly, day-night temperature fluctuation was mimicked. The pots were checked for emerging adult specimens and parasitoids on a daily basis. All adults were immediately labelled with a rearing code. Modifications to this procedure were occasionally made. For example, some soft dead wood was added for species whose larvae were expected to need such substrate for pupation. The rearing procedure described here was found to be in general very successful, and particularly so for Nematinae.

Molecular methods

For species delimitation and to associate males and females, one mitochondrial and up to nine nuclear genes were sequenced using Sanger (some specimens) or Oxford Nanopore technologies (most specimens). Sanger sequencing workflow is described in Prous *et al.* (2019) and is not repeated here. Although we have used Nanopore sequencing before (Liston & Prous 2021; Prous *et al.* 2021), the full workflow is described below.

We amplified fragments of up to 10 genes (one mitochondrial, nine nuclear) using up to four multiplex PCR reactions (Multiplex PCR Plus kit, QIAGEN). Several different combinations of genes and multiplex PCR reactions were tried, with the general rule that genes of very different length are amplified in separate reactions and/or have different primer concentrations in the same reaction (shorter genes with lower primer concentrations). We settled for two or three multiplex PCR reactions that consistently amplify all genes with similar success, except EF1a F1 (Table 1).

The gene fragments used (Table 1) were cytochrome c oxidase subunit I (COI), 6-phosphogluconate dehydrogenase (PGD), triose-phosphate isomerase (TPI), two copies (F1 and F2) of elongation factor 1 α (EF1a F1 and F2), sodium/potassium-transporting ATPase subunit alpha (NaK), two copies (h1 and h2) of heat shock protein 83 (HSP90 h1 and HSP90 h2), DNA dependent RNA polymerase II subunit RPB1 (POL2), and transformation/transcription domain-associated protein (TRRAP). All Hymenoptera Linnaeus, 1758 have two copies of elongation factor 1 α (Klopfstein & Ronquist 2013) and most Hymenoptera also have two copies of heat shock protein 83 (Nguyen *et al.* 2016). The copies of EF1a and HSP90 can be distinguished from each other using introns (Table 1) and sequence divergence (~15%). Most *Hoplocampa* Hartig, 1837 (except the *chrysorrhoea-cantoti* clade; Liston *et al.* 2019) and some *Pristiphora* Latreille, 1810 (*micronematica* group in part, *ruficornis* group in part) have a paralogous copy of POL2 (or a pseudogene), that can be distinguished from the orthologous copy (corresponding to the single copy in other species) at the protein level by numerous amino acid substitutions (or stop codons in a few cases) that are absent or unusual at least in Hymenoptera. We were able to separate the co-amplified copies with Nanopore sequencing.

PCR mixes 1–2 (Table 1) contained 4.5 μ l of water, 7.5 μ l of 2X Multiplex PCR Plus Master mix (QIAGEN), 1.5 μ l of primer mix 1 or 2, and 1.5 μ l of extracted DNA per sample (15 μ l in total). PCR mix 3 (Table 1) contained 6 μ l of water, 10 μ l of 2X Multiplex PCR Plus Master mix (QIAGEN), 2 μ l of primer mix 3, and 2 μ l of extracted DNA (20 μ l in total). The PCR protocol consisted of an initial DNA polymerase (HotStar Taq) activation step at 95°C for 5 min, followed by 39–40 cycles of 30 s at 95°C, 90 s at 55°C (mix 1), 57°C (mix 2) or 59°C (mix 3), and 120 s (mix 1) or 240 s (mix 2–3) at 72°C; the last cycle was followed by a final 30 min extension step at 68°C.

To identify host plants of larvae we also in some cases used plant specific ITS primers (Table 2) included in the PCR mix 1 (Table 1) to amplify the ITS1-5.8S-ITS2 region. In a few cases we amplified a mostly

Table 1. Amplicons, primers and multiplex PCR mixes. The listed genes were amplified in two (mixes 1–2) or three (mixes 1–3) different multiplex PCR reactions. In a few species, some of the introns are missing in PGD, TPI, or EF1a F2.

Amplicon	PCR mix	Primers (forward + reverse)	Concentration in the primer mix (pmol/μl)	Amplicon length (bp)	# introns ¹
COI	1	SymF5 + A2590	2	1087	0
PGD	1	PGD326F + PGD_hym_intRb	3.5	751–1400+	1
TPI	1	TPI35F + TPI706Rv2	4	~720–850	2
EF1a F1	1	EF1a47F + EF1a1282R	5	1234	0
EF1a F2 ²	1	EF1a47F + EF1a1282R		~1600–2400+	3
ITS ³	1	ITS-p5 + ITS-4unR1	1	~600–1900+	2
NaK	2	NaK_263Fv2 + NaK_1918Rv2	3	1654	0
HSP90 h1	2	HSP90_59F + HSP90_1843Rv2	5.5	1780	0
HSP90 h2	2	HSP90_59F + HSP90_1843Rv2		~1900–3500+	2
POL2	2	POL2_797F + POL2_2569R	4	1771	0
EF1a F2 ⁵	2	EF1a167F + EF1a1213R + EF1a1213Ra	4	~1300–2200+	2
TRRAP	2 ⁶	TRRAP_833F + TRRAP_2620R	5	1774–1786	0
HSP90 h2 ⁷	3	HSP90b_83F + HSP90_1843Rv2	4	~1900–3500+	2
POL2	3	POL2_104Fv2 + POL2_2569R	5	~2500–2600 ⁸	1
TRRAP	3	TRRAP_833F + TRRAP_3784R	5	2938–2950	0

¹ Number of introns in the amplicon region.

² The primers match both copies of the EF1a, but amplification of EF1a F2 usually does not work because it is much longer than F1 copy due to introns.

³ The plant specific ITS primers were included in the mix 1 only occasionally to identify the hosts of larvae. Amplicon length in angiosperms is usually around 650–750 bp.

⁴ The primers match both copies of the HSP90, but amplification of HSP90 h2 usually does not work because it is much longer than h1 copy due to introns.

⁵ Two EF1a F2 specific (do not match the F1 copy at the 3' end) reverse primers are included due to variability at the 3' end.

⁶ This TRRAP amplicon was included in the mix 2 later in the study and mix 3 was then abandoned.

⁷ The forward primer is specific to h2 copy (does not match the h1 copy at the 3' end).

⁸ The intron length varies little in most Nematinae, but in some *Hoplocampa* it can be much longer, resulting in an amplicon length of more than 3300 bp.

non-coding plastid region, either with primers c and d or c and f (Taberlet *et al.* 1991), from larval gut contents. The shorter region was Sanger sequenced with the same primers c and d and the longer region with the primers c, d, e, and f (Taberlet *et al.* 1991).

New primers (Tables 2–3) were mostly designed based on sawfly genomes or transcriptomes available in GenBank and in some cases modified based on our amplicon sequencing results. Sequences of the set of primers that were finally chosen are listed in Table 2. Additional unpublished primers used are listed in Table 3.

Most specimens were sequenced on Nanopore MinION R10.3 flow cells using Ligation Sequencing (SQK-LSK109) and Native Barcoding Expansion 96 (EXP-NBD196) kits. Some specimens were sequenced also on the newer R10.4.1 flow cells using the Native Barcoding Kit 96 V14 (SQK-NBD114.96). These kits allow pooling of up to 96 specimens on a single sequencing run. About 2 Gb of

Table 2. Primers used for PCR. «I» in the primer sequence stands for inosine.

Primer name	F/R	Primer sequence 5'–3'	Reference
SymF5	F	ATGAATAAATGATTATTYTCWACWAATCAYAA	This study
A2590	R	GCTCCTATTGATARWACATARTGRAAATG	Normark <i>et al.</i> 1999
PGD326F	F	GAYGGNGGNAAYTCNGARTAYCA	Liston <i>et al.</i> 2023
PGD_hym_intRb	R	ATRATRCANCCDCCYCKCCACAT	Malm & Nyman 2015
TPI35F	F	AARTTYTTYGTNGGNGGNAAYTGGA	Liston <i>et al.</i> 2023
TPI706Rv2	R	GCRTTNACNATYTGACRAARTCNGGYTT	Liston <i>et al.</i> 2023
EF1a47F	F	ATHAAYATHGTNGTNATHGGNCAYGT	This study
EF1a1282R	R	ACNGCNACNGTYTGRCGCATRTC	This study
EF1a167F	F	AGATGGGNAARGGNTCNTTCAARTA	This study
EF1a1213R	R	ACRCACATNGGYTTRCTNNGNAC	This study
EF1a1213Ra	R	ACRCACATNGGYTTRCTNNGNAT	This study
NaK_263Fv2	F	GGNCTNAGCCAYGCRAARGCRAARGA	This study
NaK_1918Rv2	R	GAYTTGGCDATNGCYTTGGCAGTDAT	This study
POL2_104Fv2	F	CGNATGTCNGTNACNGAYGGIGG	Prous <i>et al.</i> 2020
POL2_797F	F	ATGTAYGGNTCNGCNAARAAYCARGA	Prous <i>et al.</i> 2020
POL2_2569R	R	TGNACCATNACNGAYTCCATAGCYTTDAT	Prous <i>et al.</i> 2019
HSP90_59F	F	GARACNTTYGCNTTYCARGCNGARAT	This study
HSP90_1843Rv2	R	ATYTCNAGRTGYTTYTTNGCNGCCATRTANCC	This study
HSP90b_83F	F	CARGCNGARATHGCNCARCTNATGAG	This study
TRRAP_833F	F	AAYAARGARGTNTTYGTNGAYTTYATGGG	Prous <i>et al.</i> 2019
TRRAP_2620R	R	TANTCNARYTTYTGNGGYTCDATCATCAT	This study
TRRAP_3784R	R	GTNGTRCARAANGTRTTNCCRTCCAT	This study
ITS-p5	F	CCTTATCAYTTAGAGGAAGGAG	Cheng <i>et al.</i> 2016
ITS-4unR1	R	TCCTCCGCTTATTKATATGC	Kolter & Gemeinholzer 2021

sequence data is enough to sequence most of the 10 gene fragments (Table 1) of 96 specimens with high coverage ($> 100\times$). As the capacity of the flow cells is usually several times larger, we often re-used the flow cells by washing them before the next run with the Flow Cell Wash Kit (EXP-WSH004).

The raw sequencing signal (fast5 or newer pod5 files) was basecalled (translated into a DNA sequence) with Guppy ver. 6.0.1–6.5.7 in super accuracy mode. During basecalling, the sequencing reads were sorted into 96 folders according to unique 24 bp indices (barcodes) that were ligated during DNA library preparation. Processing of the resulting fastq files for each specimen was automated with scripts available at <https://gitlab.ut.ee/marko.prous/nanoporeAmp>, where a more detailed description of the bioinformatic workflow and links to the used software are also given. Briefly, clusters of similar reads ($> 70\%$) were identified with *vssearch* and initial consensus sequences for each cluster created with *abPOA*. Consensus sequences were identified with BLAST (*tblastn*) using a reference protein sequence of each gene as query. Again using BLAST (*blastn*), the consensus sequences were then used to find individual reads (maximum 10000) corresponding to different genes, enabling the creation and polishing of consensus sequences with *abPOA*, *MAFFT*, *EMBOSS cons*, and *Medaka* (data from

Table 3. Additional primers used that have not been published before.

Primer name	F/R	Primer sequence 5'–3'
SymF5v2	F	ATGAATAAATGATTATTYTCWACWAAAYCAYAA
SymF3v2	F	TTTTCWACWAAAYCAYAAARAYATYGG
SymR3	R	TAAACTTCWGGRTGNCCAAARAATCA
C1_1264R	R	CCNAARAARTGYTGNGGRAARAANGT
HSP90_1840R	R	TTYTTNGCNGCCATRTANCCCAT
HSP90_1843R	R	TGYTTYTTNGCNGCCATRTANCC
TRRAP_6629Fv2	F	GCNGCNTGYACNAAYAAYCARAGYTAYAT
TRRAP_6859R	R	TTCATCCAYTCYTCNAGCATYTTNGTDTAT
TRRAP_9670R	R	ATRTGCATDATYTTNGARCA YCKCCACAT

R10.3 flow cells) or *abPOA* and *Medaka* (R10.4.1). *Cutadapt* was used to remove primers from the consensus sequences, which is essential for reliable variant calling. *Medaka* + *bcftools* + *samtools* (R10.3) or *freebayes* + *whatshap* + *bcftools* + *samtools* (R10.4.1) were used for variant calling (maximum 1000 reads) to identify reads belonging to different haplotypes. If two haplotypes were detected, consensus sequence creation and polishing as described above followed for each haplotype separately. For nuclear genes, the EMBOSS *consambig* was used to create the consensus sequence with IUPAC ambiguity symbols from the polished haplotypes. As for mitochondrial COI there are often more than two variants. The variant detection was done iteratively. Variants detected in the first round were used for additional rounds of variant detection until no more variants were detected or until the number of reads per variant decreased below 10, preventing reliable consensus sequence creation. The dominant COI variant without stop codons and frame-shifting indels (insertions or deletions) was considered to be the primary variant and selected for submission to GenBank (which does not allow submission of more than one sequence per locus per specimen). For POL2, a second variant detection round was also used, because of the presence of similar paralogs in a few species (but all specimens went through the second round). Consensus sequence creation and variant calling was slightly different for EF1a F2 and HSP90 h2, because of high protein sequence similarity to EF1a F1 and HSP90 h1 copies. The initial consensus sequences belonging to EF1a F2 and HSP90 h2 copies were identified using a reference BLAST nucleotide database of available EF1a and HSP90 sequences of both copies, but the subsequent steps were the same as for the other genes. The automated scripts produced fasta files for each gene, which underwent additional curation described next. If some coding sequences contained frame shifting indels, the consensus sequences creation and variant calling was repeated with higher quality reads, if possible. If there were not enough reads (less than 50) to filter for higher quality, the probably erroneous sequence was discarded. In a few cases (out of thousands of consensus sequences) with enough reads, quality filtering did not remove a probable frame shifting deletion in a homopolymer region (for R10.3 flow cells, homopolymer lengths longer than 8–10 are not reliably estimated, while R10.4.1 estimates are reliable for slightly longer homopolymers). In these cases, an undetermined nucleotide (N) was added to restore the translation frame. Consensus sequences that were not split into haplotypes after variant calling (although at least one polymorphic site was detected) were checked for potential errors. Usually, the haplotypes were not separated due to a single polymorphic site. In such cases no further action was taken. However, where retention of primers containing variable positions occurred, the primers were removed and a check made on whether variant calling needed to be repeated.

Additional sequences for the genes analysed here were extracted from genome assemblies using *tblastn* protein query. The genome assemblies were downloaded from NCBI or assembled with *platanus* (Kajitani *et al.* 2014) using Illumina data from NCBI SRA. For *platanus* instructions see: https://bioinformaticsworkbook.org/dataAnalysis/GenomeAssembly/Arabidopsis/AT_platanus-genome-assembly.html. The genome and SRA accession numbers are to be found in the supplementary dataset of the studied specimens.

For the phylogenetic analyses we used only the coding regions (exons). Alignment of most of the genes was straightforward because of the lack of insertions or deletions in the studied specimens. As small sections of TRRAP and HSP90 h2 exons were variable in length, we first translated the nucleotide sequences into proteins, aligned the proteins with *MAFFT* (Katoh & Standley 2013), and used *pal2nal* (Suyama *et al.* 2006) to get the nucleotide alignment based on the more accurate protein alignment. Alignment of a short region in HSP90 h2 remained ambiguous and was removed from subsequent analyses. To concatenate separate gene alignments, we used R ver. 3.6.1 (R Core Team 2019) package *ape* (Jombart *et al.* 2017). Phylogenetic analyses using maximum likelihood (ML) were done with IQ-TREE ver. 1.6.1 and ver. 2.2.2.6 (<http://www.iqtree.org/>) (Nguyen *et al.* 2015; Minh *et al.* 2020b). By default, IQ-TREE ver. 1.6.1 runs ModelFinder (Kalyaanamoorthy *et al.* 2017) to find the best-fit substitution model and then reconstruct the tree using the model selected according to Bayesian information criterion (BIC). We complemented this default option with a SH-like approximate likelihood ratio (SH-aLRT) test (Guindon *et al.* 2010), ultrafast bootstrap (Hoang *et al.* 2018) with 1000 replicates, and gene concordance factor (Minh *et al.* 2020a) to estimate robustness of reconstructed splits. Gene concordance factor (option not available in IQ-TREE versions <2) is the fraction of decisive gene trees (reconstructed for each gene separately in IQ-TREE ver. 2.2.2.6) concordant with a given branch of the tree reconstructed based on concatenated alignment (i.e., how many genes support each branch of the tree).

Unless otherwise stated, the reported COI p-distances (proportion of nucleotide differences) are based on the full or nearly full barcode region (621–658 bp) and do not include secondary intraindividual variants. The secondary intraindividual COI variants are apparently functional sequences (1078 or 1087 bp, without stop codons or frame shifting insertions or deletions) that were represented by fewer Nanopore reads than the most abundant variant, although sometimes the different variants were found in more or less equal frequency. In most cases the inclusion of the secondary variants does not increase the within-species COI variation (or decrease between-species distances), but is mentioned where relevant. The alignment with the primary and secondary variants is included as supplementary material. The p-distances for nuclear genes are based on at least 667 bp of NaK and 802 bp of POL2 (minimum 1529 bp, maximum 14439 bp of 9 genes). The p-distances were calculated in R with the package *ape* (Paradis & Schliep 2019). We have sought to include specimens from the entire Palaearctic in the calculations, where possible, but also report genetic distances for smaller (West Palaearctic) or larger (Holarctic or global) geographic areas where relevant. Only specimens with validated identifications were used. They are listed together with collection data in the supplementary material. Neighbour-joining distance trees using TN93 model implemented in *ape* R package were also calculated based on the COI (including secondary variants) and nuclear alignments for the specimens studied here and are provided as supplementary material.

Some of the analysed sequences have been previously published (GenBank accessions in the supplementary dataset of the studied specimens). For COI-only tree building or distance calculations additional COI sequences were obtained from BOLD (<http://www.boldsystems.org/>), including some of the type specimens sequenced with NGSFT protocol (Prosser *et al.* 2016). The newly obtained DNA sequences have been submitted to NCBI GenBank (accessions PP911891–PP913309, PQ061598–PQ061767, PQ066293–PQ066314, PQ085665–PQ092950, PQ100070–PQ100091, PQ154969, PQ157895, PQ157903–PQ157906).

Results

Taxonomy

Class Insecta Linnaeus, 1758
Order Hymenoptera Linnaeus, 1758
Superfamily Tenthredinoidea Latreille, 1803
Family Tenthredinidae Latreille, 1803
Subfamily Nematinae Thomson, 1871
Tribe Nematini Thomson, 1871

Monophyly and delimitation of Nematinae

Based on ten genes (COI and 9 nuclear genes), the subfamily Nematinae is strongly supported as monophyletic (Fig. 1), as found in previous molecular phylogenetic analyses with adequate taxon and gene sampling (Prous *et al.* 2014; Malm & Nyman 2015; Vilhelmsen *et al.* 2024; Wutke *et al.* 2024). Support for monophyly of Nematinae based on morphology is ambiguous (Vilhelmsen 2015). Unusually, some genera of Nematinae (*Analcellicampa*, *Caulocampus*, *Cladius*, *Hoplocampa*, *Monocellicampa*, and *Susana*) are classified under a separate subfamily Hoplocampinae Rohwer, 1911 in NCBI GenBank. This arrangement of genera (Hoplocampinae) finds no support in any phylogenetic analyses (Prous *et al.* 2014; Malm & Nyman 2015; Vilhelmsen 2015; Fig. 1), except perhaps a classification proposal by Wei & Nie (1998), which is not widely accepted (Taeger *et al.* 2010). The genera of Hoplocampinae are strongly supported as part of Nematinae radiation, but the exact relationships between many of these and the other genera of Nematinae are poorly supported (Prous *et al.* 2014; Malm & Nyman 2015; Niu *et al.* 2021; Fig. 1). The best supported clades within the Nematinae are Dineurini Ashmead, 1898 (Prous *et al.* 2014) and Nematini (Figs 1–2), the latter containing the majority of species of Nematinae (more than 75%), including the genus *Euura*.

Phylogeny and groups of *Euura*

The core of the genus *Euura* (i.e., without the *Euura epilosa* group) is strongly supported as monophyletic based on phylogenetic analyses of ten genes (Fig. 2). The *Euura epilosa* group (sampled species *E. brachycera* and *E. epilosa*) is weakly or moderately supported as the sister group of the core of *Euura* (Fig. 2). The *Nematus wahlbergi* group is found as the sister group of *Euura* with moderate support, rendering *Nematus* paraphyletic (Fig. 2). *Nematus* together with *E. brachycera* (DEI-GISHym86097 as the only representative of the group which was identified as *Nematus* spec.) formed a weakly supported sister clade of core *Euura* in a previous analysis based on a smaller dataset (Prous *et al.* 2019). *Euura brachycera* (Lindqvist, 1975) (*Euura brevicera* Taeger & Blank, 2014 is an unnecessary replacement name) was transferred to *Euura* by Prous *et al.* (2014), although no genetic data was available for this or other related species at the time. Even though the *Euura epilosa* group is not genetically strongly supported as a member of *Euura*, we retain it in this genus because of its similar morphology [see under *Euura epilosa* (Lindqvist, 1970)]. To reconstruct internal phylogeny of *Euura*, we excluded mitochondrial COI, because of strong conflict with nuclear genes: in some cases even above group level (see under Mitonuclear discordance). For most species we included 1–2 specimens having the greatest amount of sequence data, but more specimens in some cases because of large genetic variability (Fig. 3). At the base of core *Euura* (excluding the *Euura epilosa* group) 15 clades are well-supported, but relationships among them are poorly resolved (Fig. 3). In combination with morphology, we have defined 37 species groups, 7 of which are gall-makers (Liston *et al.* 2017), and 12 species not assigned to groups. The largest well-supported clade (clade A) includes roughly 30% of species of *Euura*, containing most of the former “*Amauronematus*” (including former “*Pontopristia*”, but excluding “*Brachycoluma*”), i.e., the *punicea* group sensu lato (s. lat.), and *flavescens*, *scutellata*, *miliaris*, *melanocephalus*, *vicina*, *caeruleocarpus* groups, and some species not assigned to groups (*imperfecta*, *salicis*, *distinguenda*,

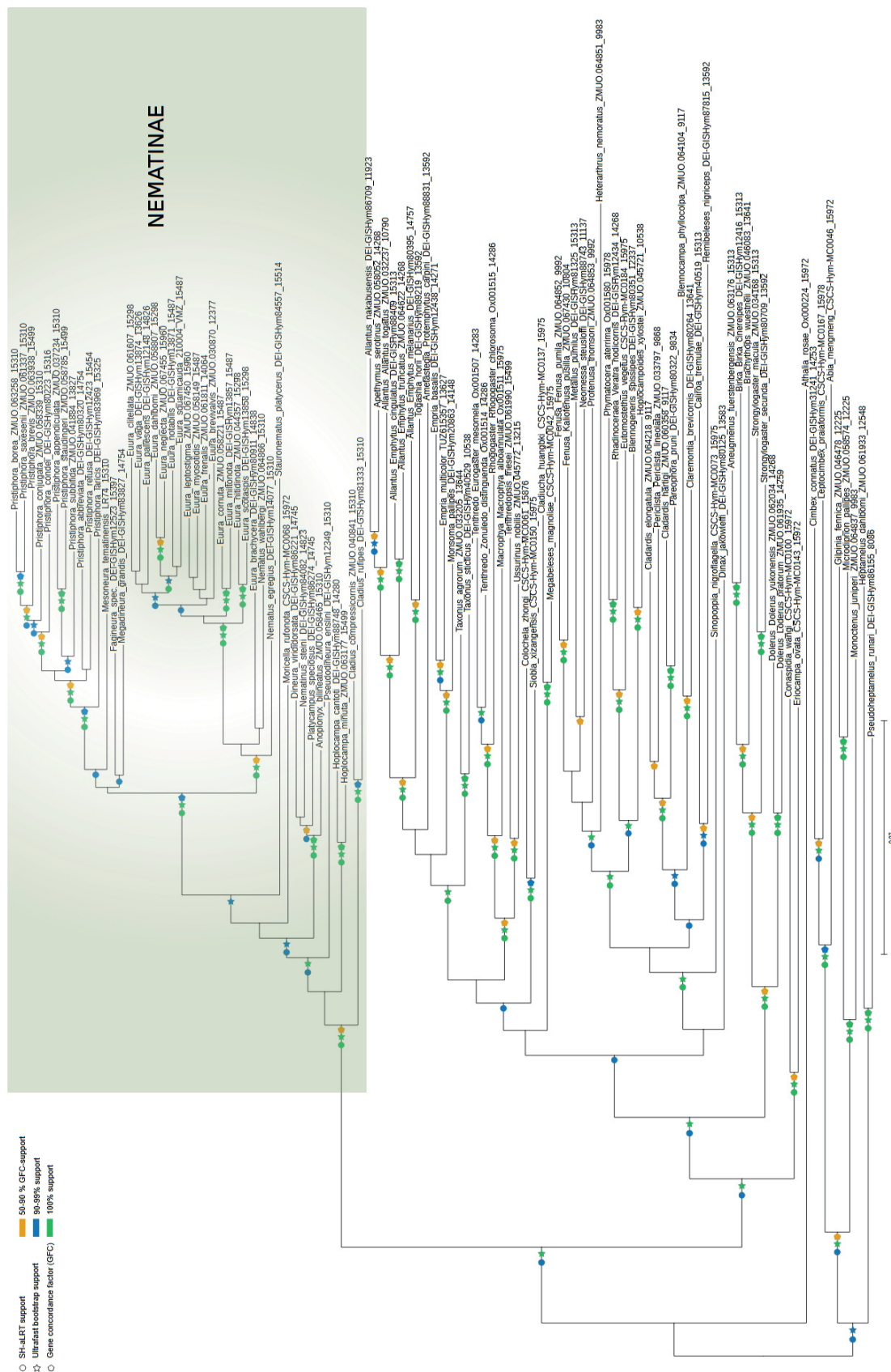


Fig. 1. Maximum likelihood tree of Tenthredinidae Latreille, 1803 based on combined COI and 9 nuclear genes. Number of base pairs available for each specimen in the alignment is shown at the end of each label.

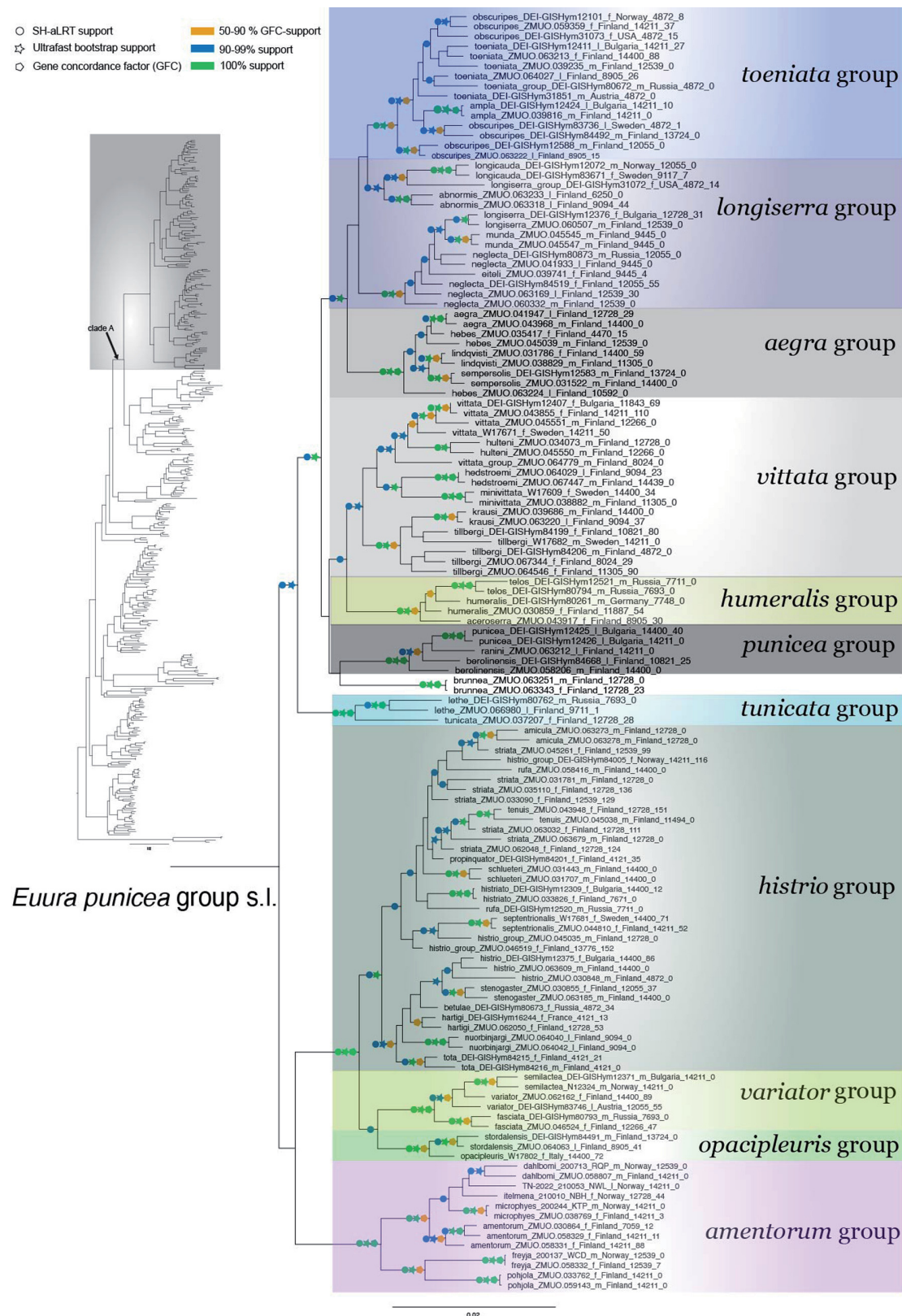
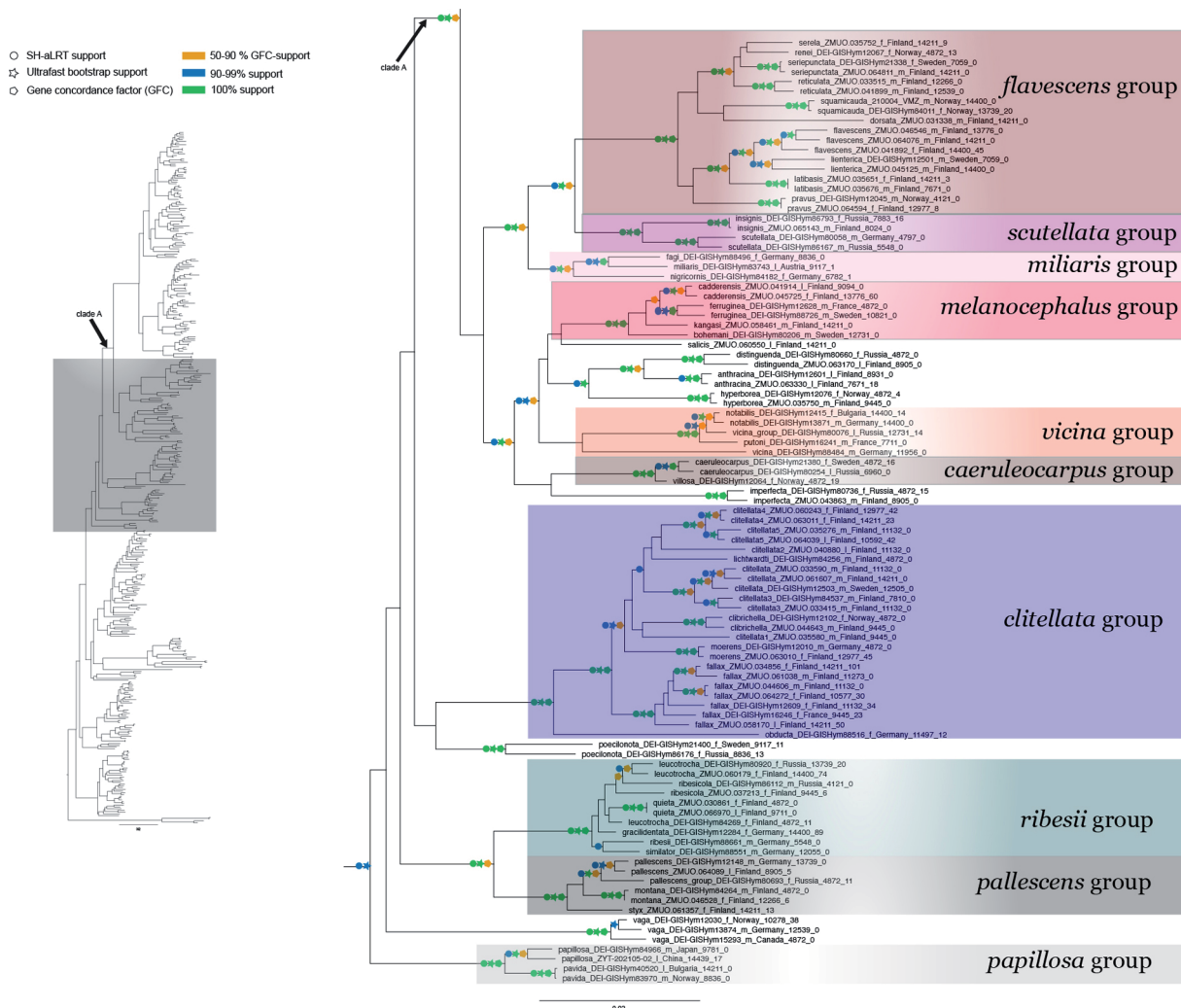


Fig. 3A. Part of maximum likelihood tree of *Euura* Newman, 1837 based on 9 nuclear genes (*Euura punicea* group s. lat.). Number of base pairs available for each specimen in the alignment is shown at the end of each label.

Within-species genetic diversity in *Euura*



When considering all individuals of each species as delimited here, the average within-species divergence is 0.23%. This is counter-intuitive, as within-individual haplotype divergence should underestimate within-species divergence; however, this result is because we coded heterozygous positions using IUPAC ambiguity symbols, which are treated as missing data in the calculations. When only males are considered (i.e., hemizygous, therefore no ambiguous positions), average within-species divergence is 0.42%, which is larger than estimated from within-individual female haplotypes. Consistent with morphological observations, the between-species genetic divergence within species groups is often only slightly larger (on average varies between 0.5–2.1%) than within-species divergence, highlighting the difficulty of delimiting species in *Euura*.

Mitonuclear discordance

As in *Pristiphora* (Prous *et al.* 2017), in *Euura* there is a strong conflict between mitochondrial COI on one hand, and nuclear and morphological data on the other hand when delimiting species – or even groups above species level in some cases (see supplementary distance COI and nuclear trees). Currently, over 50% of the species in *Euura* cannot be reliably identified using COI sequences. However, the precision of identification could probably be increased by comparing exact COI variants (i.e., differing by at least one nucleotide), which often correlate with species boundaries. At present, due to the large diversity of

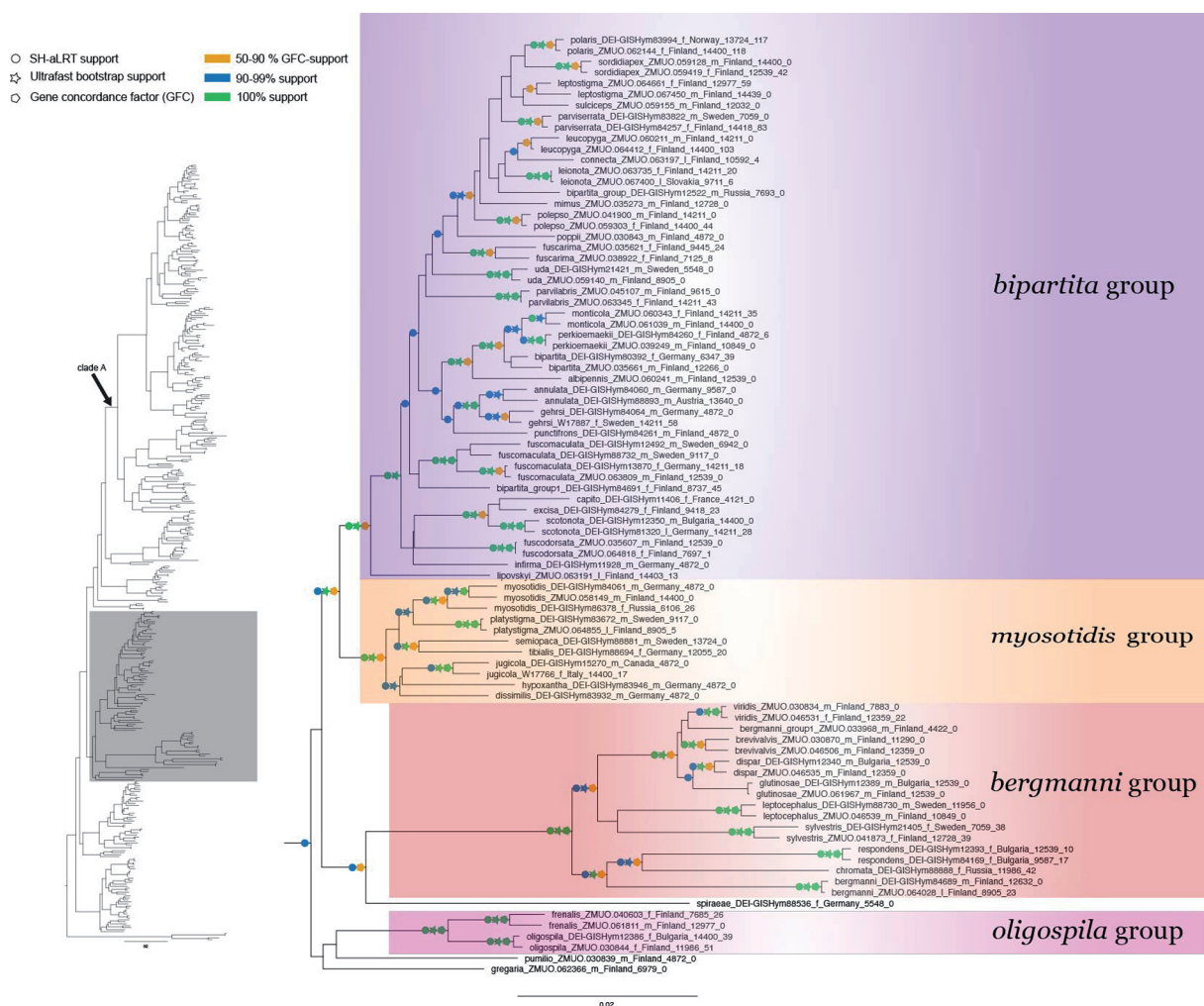


Fig. 3C. Part of maximum likelihood tree of *Euura* Newman, 1837 based on 9 nuclear genes. Number of base pairs available for each specimen in the alignment is shown at the end of each label.

COI variants, the correspondence between exact variants and species has not yet been established in most cases. Many additional COI variants (hundreds, if not thousands) can be expected in Finland alone, where more than 4500 *Euura* specimens have been barcoded. Even ignoring this challenge, different species frequently have identical sequences: based on current data (> 1300 specimens for which nuclear genes are also available) this is the case for 47 species using just the standard barcode region, or 42 species using the full 1078 bp. This is more than 20% of the species, not counting gall-makers. Identification success using COI in *Euura* may be higher in southern and central Europe because of lower species richness and lower within-species genetic diversity.

Notably, in about 15% of species, genetic diversity is sufficiently high that species identification based on 1–2 nuclear genes can also be ambiguous. The success rate increases when more nuclear genes are included.

Remarkably, in some cases there is strong disagreement between mitochondrial COI and nuclear genes for delineating groups of species. The most remarkable is the non-monophyly of the *E. amentorum* group based on COI, contrasting with strong support based on nuclear genes (Liston *et al.* 2023). Another example, albeit less extreme, is the clade comprising the *E. histrio*, *E. variator*, and *E. opacipleuris*

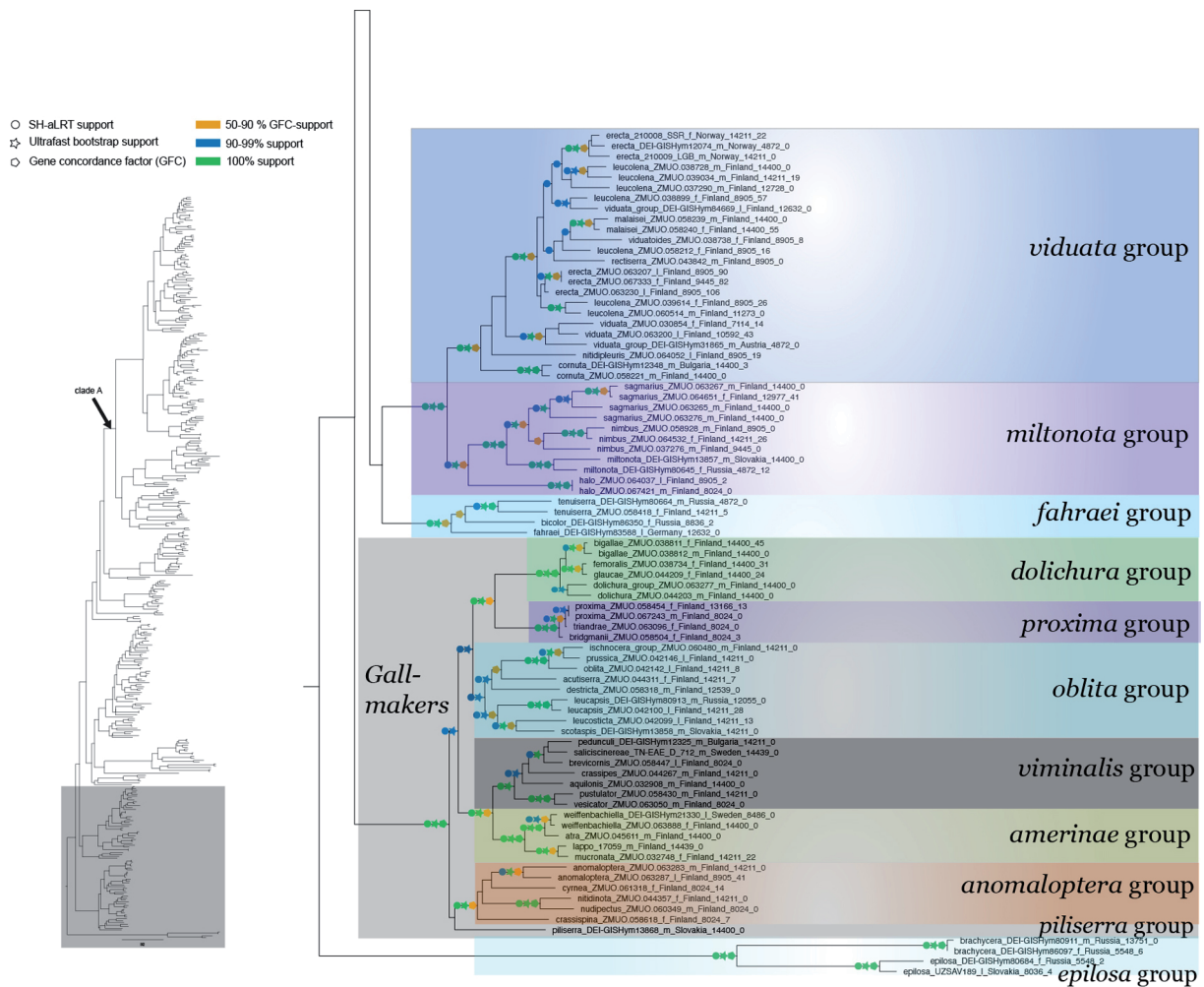


Fig. 3D. Part of maximum likelihood tree of *Euura* Newman, 1837 based on 9 nuclear genes. Number of base pairs available for each specimen in the alignment is shown at the end of each label.

groups, wherein groups can be delimited well by morphology and nuclear genes, but COI sequences of the same species can in several cases appear to belong to different groups. There are a few other such examples throughout *Euura* (see supplementary distance COI and nuclear trees of the specimens analysed here).

Intraindividual mitochondrial variants in Nematinae

As already reported (Prous *et al.* 2021; Liston *et al.* 2023), multiple intraindividual COI variants have been detected in many Nematinae using Nanopore sequencing. The vast majority of these variants appear to be functional, because they lack stop codons or frame shifting indels (insertions or deletions). This would suggest heteroplasmy, rather than the presence of nuclear-encoded mitochondrial pseudogenes (NUMTs). Excluding the detectable NUMTs, about 25% of about 1000 specimens still have more than one apparently functional variant (1078–1087 bp amplicons). It is possible that some of the detected intraindividual variants are PCR chimeras (if there is mixture of different sequences, DNA polymerase sometimes switches the template molecule during PCR), but this seems to be a minor issue. This is indicated by the fact that for nuclear genes of males (which are haploid) almost always only a single variant is detected (contrasting with frequent multiple COI variant detection) and for nuclear genes of females (diploid) usually two variants are detected (sometimes one, almost never more than two), again contrasting with frequent detection of more than two variants for COI. We did notice possible PCR chimeras among single Nanopore reads and sometimes detected such consensus variant sequences, but these have usually been of sufficiently low frequency that the variants are not detected or the variants have been filtered out because of low read counts. The frequent presence of multiple COI variants within the same individual has also been evident in the results of Sanger sequencing (Prous *et al.* 2021), although this method does not allow determination of the number and exact sequences of the variants, unlike Nanopore sequencing as employed here. Interestingly, the presence of heteroplasmy seems to correlate well with mito-nuclear discordance: the groups where species boundaries are more reliably defined by nuclear than mitochondrial DNA tend also to have a higher incidence of heteroplasmy. If the mis-match between mitochondrial and nuclear sequences in terms of species boundaries is mainly due to occasional hybridisation between species (a pattern expected in theory for haplodiploid species and at least partly supported by empirical studies; Linnen & Farrell 2007; Patten *et al.* 2015; Prous *et al.* 2020), then this could also explain the extensive occurrence of heteroplasmy, which has been suggested to be more likely when heterospecific hybridization has occurred (Ladoukakis & Zouros 2017; Mastrantonio *et al.* 2019). A neighbour-joining distance tree including specimens with a minimum of 621 bp of COI sequence and the detected variants (1905 specimens, 2254 sequences) is included in the supplementary material.

Possible diploid males and tri- or tetraploid females

In a few instances, sequencing of multiple nuclear genes consistently indicated two haplotypes for males and three or even four haplotypes in *Euura vaga* females. Diploid males are known (Naito & Suzuki 1991; Harper *et al.* 2016) and can be found in nature (Cook *et al.* 2013). They are usually sterile, less viable, or both, and are produced (instead of females) when there is no heterozygosity at the complementary sex determination (CSD) locus (Naito & Suzuki 1991; Harper *et al.* 2016). Although polyploidy is apparently rare among parthenogenetic haplodiploids (van der Kooi *et al.* 2017), the largely parthenogenetic European *E. vaga* might be an additional example.

Host plants

Host plants are known for 88% of the West Palaearctic species of *Euura*, most of which feed on *Salix* L. (73%). Other utilized hosts are *Betula* L. (7% of the species), Polygonoideae Eaton (Polygonaceae) (3%), Poales E.Small (3%), *Ribes* L. (3%), Faboideae Rudd (Fabaceae) (2%), *Populus* L. (2%), *Picea*

A. Dietr. (2%), *Larix* Mill. (1%), and *Vaccinium* L. (1%). *Alnus* Mill., *Aruncus* L., *Comarum* L., *Fagus* L., *Rhododendron* L., and *Spiraea* L. are hosts for only one (0.4%) species each in the West Palaearctic.

To identify host plants of swept larvae, we amplified the ITS1-5.8S-ITS2 region with plant-specific primers. Two Nanopore runs of 96 specimens containing mostly larvae (half of thorax cut from left or right side) and one run of 96 specimens containing mostly adults (legs) were done.

The larval dataset contained about 49 000 demultiplexed and quality-filtered plant ITS reads per Gb of data (56 000 reads out of 1.8 Gb and 165 000 out of 2.7 Gb for each of the two nanopore runs). The adult dataset contained about 17 000 ITS reads out of 0.8 Gb, which would be about 21 000 reads per Gb. If only specimens with at least 100 plant ITS reads are considered, 120 specimens out of 192 were successfully sequenced in the two runs comprising mainly larvae. Three cases in the larval dataset were clear contaminations (e.g., a mixture of *Urtica* L. and *Cucumis* L. for an *Euura vittata* larva) or a likely contamination (*Salix phylicifolia* L. for an adult *Euura hartigi*, although this host is possible). In the mostly adult dataset, 32 specimens could be considered successfully sequenced (at least 100 plant ITS reads), but most of these (30) can be considered contaminations (mostly *Salix* and *Betula*, but only one third of these matched the expected larval host genus of the species). Two larvae included in the mostly adult dataset yielded sequences of the expected host (*Betula* for *Euura cadderensis* and *Scolioneura betuleti* larvae).

Although contaminations in the lab or field (e.g., pollen) are clearly likely, we consider the first host plant evidence for *Euura leptostigma* and *E. sordidiapex* based on these results to be sufficient. For three *E. leptostigma* larvae identical *Salix* consensus sequences were recovered with high coverage (about 120, 4500 and 8000×) and without indication of other variants. For two *E. sordidiapex* larvae, three different *Betula* haplotypes were recovered with high coverage (900 and 1700×) and without indication of other plant species. One of the sequenced *E. leptostigma* larvae was collected from a grey *Salix* (*S. glauca* L. or *S. lapponum* L.), although in the rearing lab other species of *Salix* may have been offered. The other two specimens of *E. leptostigma* were collected from a mixture of *Salix*. Additionally, three adults of *E. leptostigma* have been reared from *Salix phylicifolia* and unidentified *Salix*. The two sequenced *E. sordidiapex* larvae were collected from *Betula nana* L. and *B. pubescens* Ehrh.

Genus *Euura* Newman, 1837

The genus is mostly defined based on genetic data. When the *Euura epilosa* group is excluded, the genus is strongly supported as monophyletic based on phylogenetic analyses of 10 genes (Fig. 2). Unfortunately, no clear morphological characters have been found that define the genus reliably. We provide here a key to separate *Euura* from the other similar Nematinae genera.

Commonly observed high morphological similarity between species of *Euura* (sometimes even between species belonging to different groups) in combination with large within-species variability (e.g., colouration varying from mostly black to mostly pale) often makes species identification difficult without nuclear DNA. Identifications based on COI can often be even more misleading than those based on morphology, but can still in many cases be useful to identify the groups where this is difficult using morphological characters. In some cases, we do have COI sequence data for the types, but obtaining nuclear data for the old material would be much more challenging. Therefore, we have mostly relied here on sequencing of COI and nuclear DNA from a large number of fresh specimens to cover as much morphological variability as possible, in order to better match them with the available types. This does not guarantee correct identifications of all the types, meaning that some of the types might here be wrongly placed, and in the worst case a change of valid name may be required once nuclear data becomes available (which in any case might not be possible for all types).

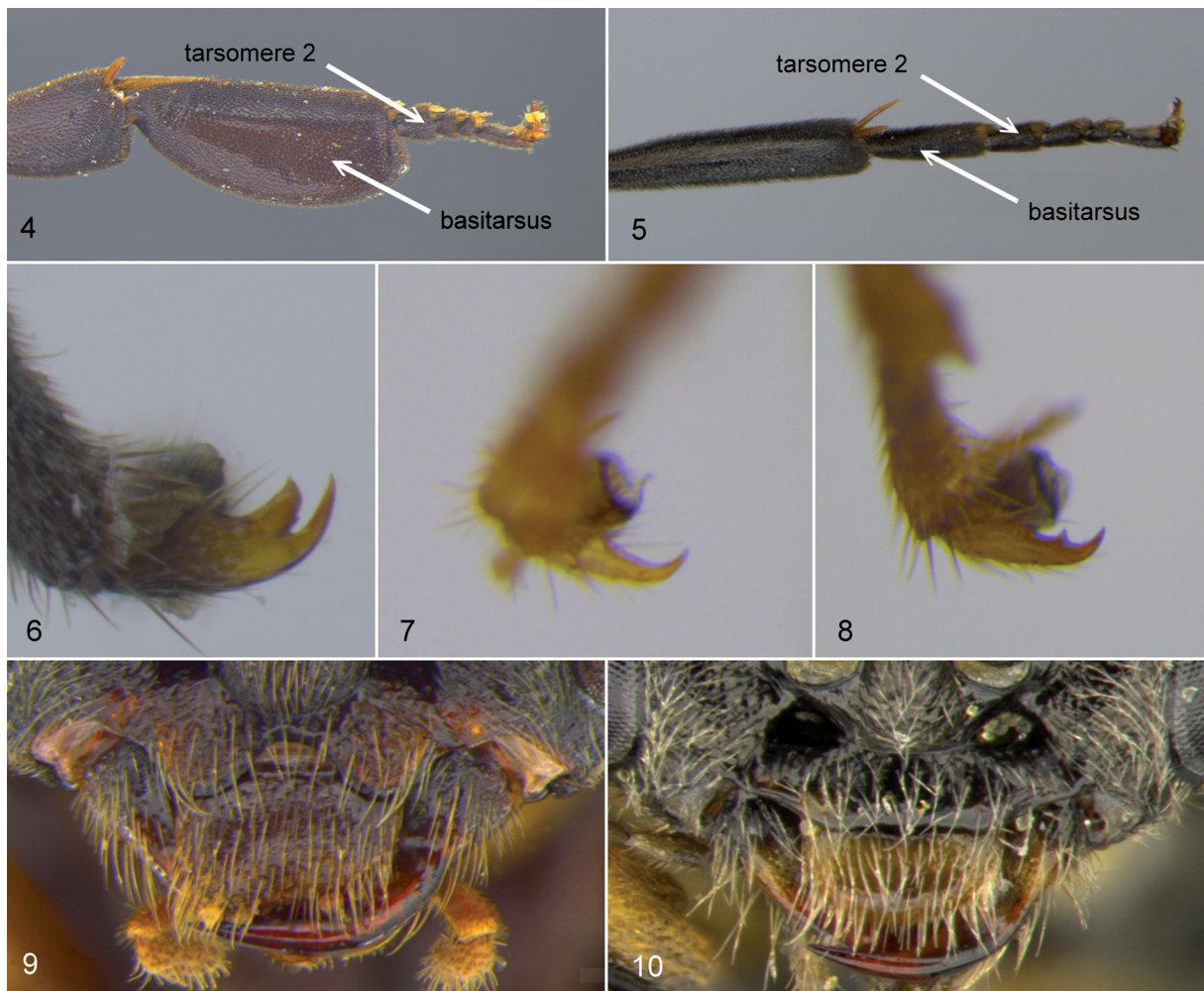
Key to West Palaearctic genera of Nematini

As supported by genetic data, the genera comprising the Dineurini form a monophylum distinct from the Nematini. However, *Dineura* and *Nematinus* of the Dineurini are morphologically very similar to some Nematini. For practical reasons, they are included in the key below. Specimens of *Anoplonyx* and *Platycampus* can also be confused with members of Nematini, but in their forewing the base of vein 2A+3A is complete and curved up to 1A (cell PA closed) (Prous *et al.* 2019). When in extremely rare cases specimens of Nematini have this wing character, or *Anoplonyx* and *Platycampus* lack it, consider additional characters. *Anoplonyx* females have a distinctly emarginate clypeus, simple claws, valvula 3 not tapering towards apex and with a distinct or indistinct invagination posteriorly, lancet with spurette (ventrolateral spines), and black head. *Anoplonyx* males have emarginate clypeus, simple claws, black head and thorax, and distinct penis valves (distinctly expanded ventrally, valvispina clearly extending beyond ventroapical lobe of paravalva, valviceps dorsoapically with hair). *Platycampus* has an emarginate clypeus, at least a minute subapical tooth of claws, black head and thorax, usually yellow legs, strongly sclerotized lancet with large microdenticles of serrulae and numerous spine-like setae or ctenidia on annuli, and a distinctive penis valve (valvispina not extending beyond ventroapical lobe of paravalva which apically forms a filament, valviceps dorsoapically with hair). *Stauronematus*, although isolated in its own clade according to genetic data, closely resembles *Pristiphora* in external morphology, but is distinguished from all other West Palaearctic Nematinae by the large and sharply angled basal lobe of the bifid tarsal claws, with the distance between the basal lobe and the inner tooth approximately equal to the distance between the two teeth.

Females

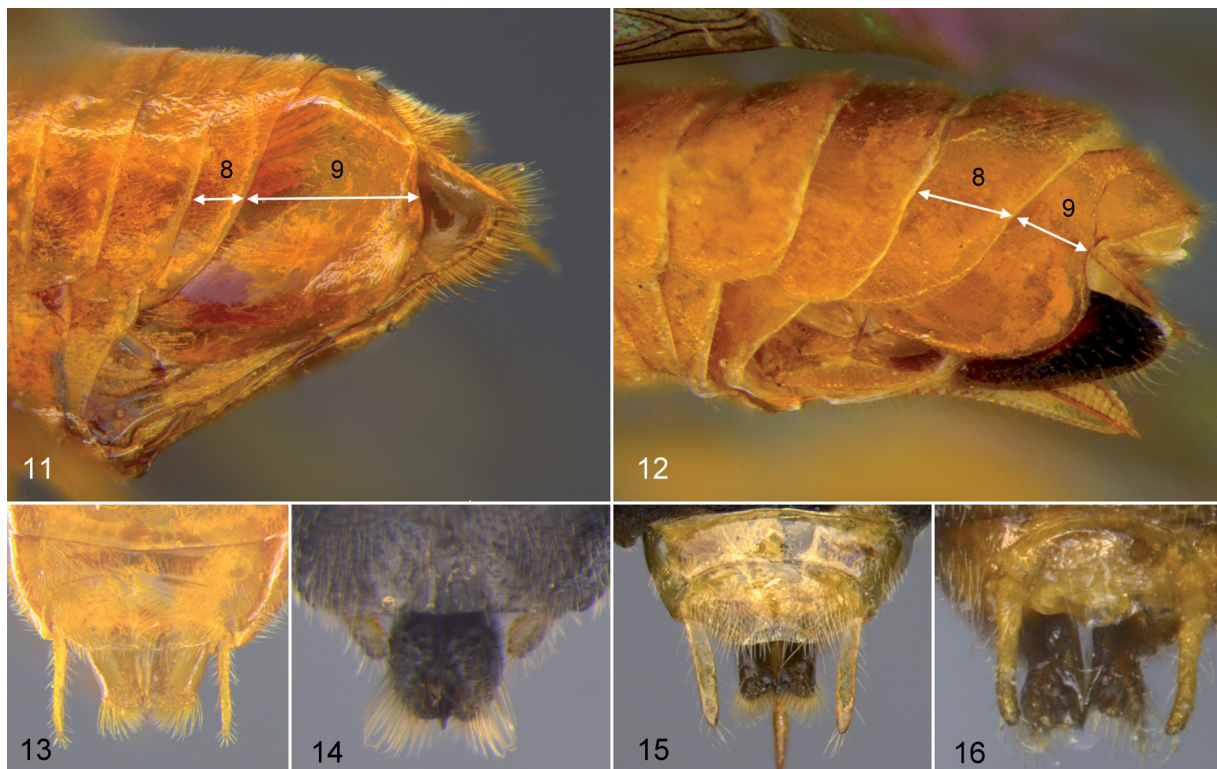
1. a Hind basitarsus 2–3 times as wide as width of following tarsomere (Fig. 4)
 - b Claws with large subapical tooth close to outer tooth (Fig. 6)
 - c Clypeus emarginate (Fig. 9)
 - d Abdomen nearly always with reddish band, except for some specimens from Ireland (4 species) *Nematus septentrionalis* group (former *Craesus*)
- aa Hind basitarsus 1.0–1.5 times as wide as width of following tarsomere (Fig. 5)
 - bb Claws simple or with distinct subapical tooth (Figs 6–8)
 - cc Clypeus emarginate or truncate (Figs 9–10)
 - dd Abdomen with or without reddish band 2
2. a Abdominal tergum 9 in lateral view usually more than 3 times as long as tergum 8 (Fig. 11)
 - b Valvula 3 very broad at base or throughout in dorsal view, more than 6 times as broad as width of cercus (Fig. 13)
 - c Lancet strongly sclerotized with spine like setae (Fig. 21)
 - d Left and right mandible both tapered regularly towards apex (Fig. 22)
 - e Clypeus emarginate (Fig. 9)
 - f Claws with distinct subapical tooth (Fig. 6) (7 species) *Nematinus* Rohwer, 1911
- aa Combination of characters not as in a–f; abdominal tergum 9 in lateral view usually less than 2 times as long as tergum 8 (Fig. 12); valvula 3 narrow or broad in dorsal view, variously shaped; cerci often relatively broader (Figs 14–20); lancet weakly or strongly sclerotized with or without spine-like setae; left and right mandible both tapered regularly towards apex (Fig. 22) or left mandible markedly constricted near middle (Fig. 23) and right mandible tapered regularly towards apex (Fig. 22); clypeus emarginate (Fig. 9) or truncate (Fig. 10); claws simple or with subapical tooth (6–8) 3
3. a Valvula 3 with distinct invagination posteriorly or dorsally (Figs 15–17) 4
- aa Valvula 3 without distinct invagination posteriorly or dorsally (Figs 14, 18–20) 10

4. a Claws with long subapical tooth close to apical one (bifid) (Fig. 6) 5
 - aa Claws simple (Fig. 7) or with large or small subapical tooth clearly separated from apical one (Fig. 8) 7
5. a Largely black, pale are at most head ventrally and around eyes, abdomen ventrally and apically, and mesepisternum partly
 - b Valvula 3 with deep invagination (Fig. 16)
 - c In most species, valvula 3 in lateral view angled upwards at about 45° to longitudinal axis of abdomen (Fig. 24)
 - d Setae of lancet absent or weakly developed
 - e Body 3–6 mm *Euura amentorum* group
- aa–ee Combination of characters not as in a–e; from largely black to nearly completely pale; valvula 3 with shallow or deep invagination, but not angled upwards (Fig. 25); setae of lancet present or absent; body 4–8 mm 6



Figs 4–10. 4. Metatarsus *Nematus septentrionalis* (Linnaeus, 1758) DEI-GISHym19769. 5. Metatarsus *Euura caeruleocarpus* Hartig, 1837 DEI-GISHym15474. 6–8. Metatarsal claws. 6. *Nematus septentrionalis* DEI-GISHym19486. 7. *Euura pumilio* (Konow, 1903) DEI-GISHym19767. 8. *E. clitellata* (Serville, 1823) DEI-GISHym19768. 9. Clypeus *Nematus septentrionalis* DEI-GISHym19769. 10. Clypeus *Pristiphora dedeara* Liston & Prous, 2017 DEI-GISHym80053.

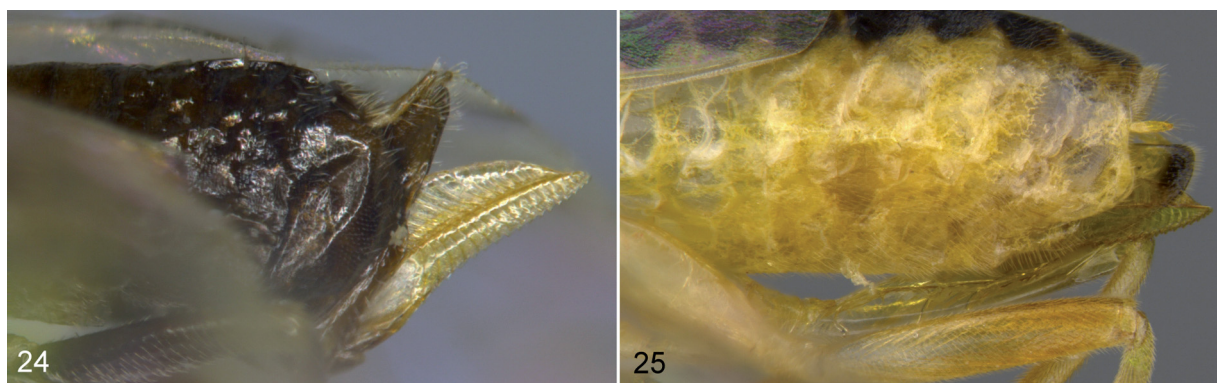
6. a Medial surface of head near antennal sockets not markedly elevated in lateral view and slightly or not angular below median pit (head of “*Amauronematus*” type) (Fig. 26)
b Clypeus often deeply emarginate (Fig. 9)
c Tangium of lancet without campaniform sensilla (Fig. 28) *Euura* Newman, 1837 in part
– aa Medial surface of head near antennal sockets markedly elevated in lateral view and angular below medial pit (Fig. 27)
bb Clypeus usually more or less truncate (Fig. 10)
cc Tangium of lancet with campaniform sensilla (Fig. 29) *Pristiphora* Latreille, 1810 in part
7. a Postocellar area more than 3 times as long as diameter of lateral ocellus (Fig. 30)
b Clypeus deeply emarginate (Fig. 9)
c Head extensively pale (Fig. 30)
d Abdomen nearly completely pale
e Hind femur and tarsus black *Euura itoi* (Okutani, 1955) (central Europe, rare)
– aa Postocellar area less than 3 (mostly less than 2.5) times as long as diameter of lateral ocellus (Figs 31, 33)
bb Clypeus deeply emarginate (Fig. 9) or truncate (Fig. 10)
cc Head extensively pale to completely black
dd Abdomen pale to black
ee Hind femur and tarsus pale to black 8



Figs 11–16. 11–12. Abdominal terga 8 and 9. 11. *Nematinus fuscipennis* (Serville, 1823) DEI-GISHym19758. 12. *Euura vesicator* (Bremi-Wolf, 1849) DEI-GISHym11810. 13–16. Valvula 3. 13. *Nematinus fuscipennis* DEI-GISHym19758. 14. *Pristiphora nigella* (Förster, 1854) DEI-GISHym20972. 15. *Euura hebes* (Konow, 1907) DEI-GISHym12016. 16. *Euura amentorum* (Förster, 1854) NHRS-HEVA000006355.

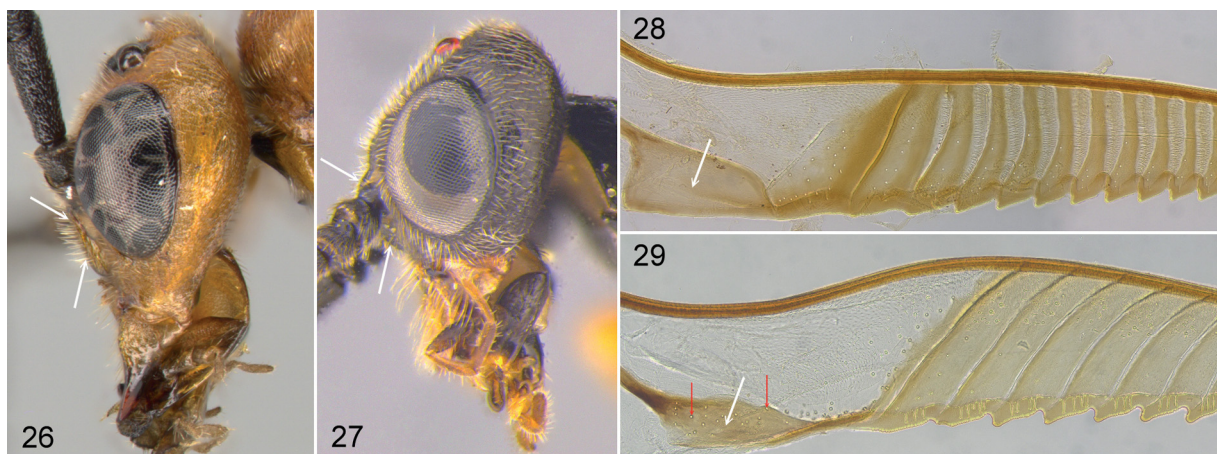


Figs 17–23. 17–20. Valvula 3. 17. *Pristiphora pseudogeniculata* Lindqvist, 1969 DEI-GISHym20832. 18. *Euura epilosa* (Lindqvist, 1970) DEI-GISHym80684. 19. *Pristiphora retusa* (Thomson, 1871) N3786/DEI-GISHym20776. 20. *Nematus wahlbergi* Thomson, 1871 DEI-GISHym20910. 21. Lancet *Nematinus acuminatus* (Thomson, 1871) DEI-GISHym84020. 22. Left mandible *Dineura virididorsata* (Retzius, 1783) DEI-GISHym15243. 23. Right mandible *Pristiphora krausi* (Lacourt, 2006) DEI-GISHym19776.



Figs 24–25. 24. Valvula 3 *Euura ursaminor* Liston *et al.* 2023 DEI-GISHym31946. 25. Valvula 3 *Euura myosotidis* (Fabricius, 1804) DEI-GISHym83929.

8. a Clypeus deeply emarginate (Fig. 9)
b Hypopygium deeply excised (Fig. 32)
c Head extensively pale (Fig. 31) *Euura imperfecta* (Zaddach, 1876)
– aa–cc Combination of characters not as in a–c; clypeus deeply emarginate (Fig. 9) or truncate (Fig. 10); hypopygium deeply or not deeply excised; head extensively pale to completely black 9
9. a Clypeus deeply emarginate (Fig. 9)
b Body extensively pale
c Postocellar area more than 2 times as long as diameter of lateral ocellus
d Lancet without setae *Euura pilosa* (Lindqvist, 1970)
(rare, in Europe so far only known from Bulgaria and Slovakia)
– aa Clypeus usually more or less truncate (Fig. 10)
bb Body black to extensively pale
cc Postocellar area *often* less than 2 times as long as diameter of lateral ocellus (Fig. 33)
dd Lancet with or without setae *Pristiphora* Latreille, 1810 in part
- 10.a Transverso-radial (2r-rs) vein usually at least faintly present in forewing (Fig. 34)
b Transverso-costal (Sc) vein usually situated beyond or at point of origin of medius (M) from radius (R) (Fig. 34)
c Anterior protibial spur without velum, but with hairs (Fig. 35)
d Clypeus emarginate

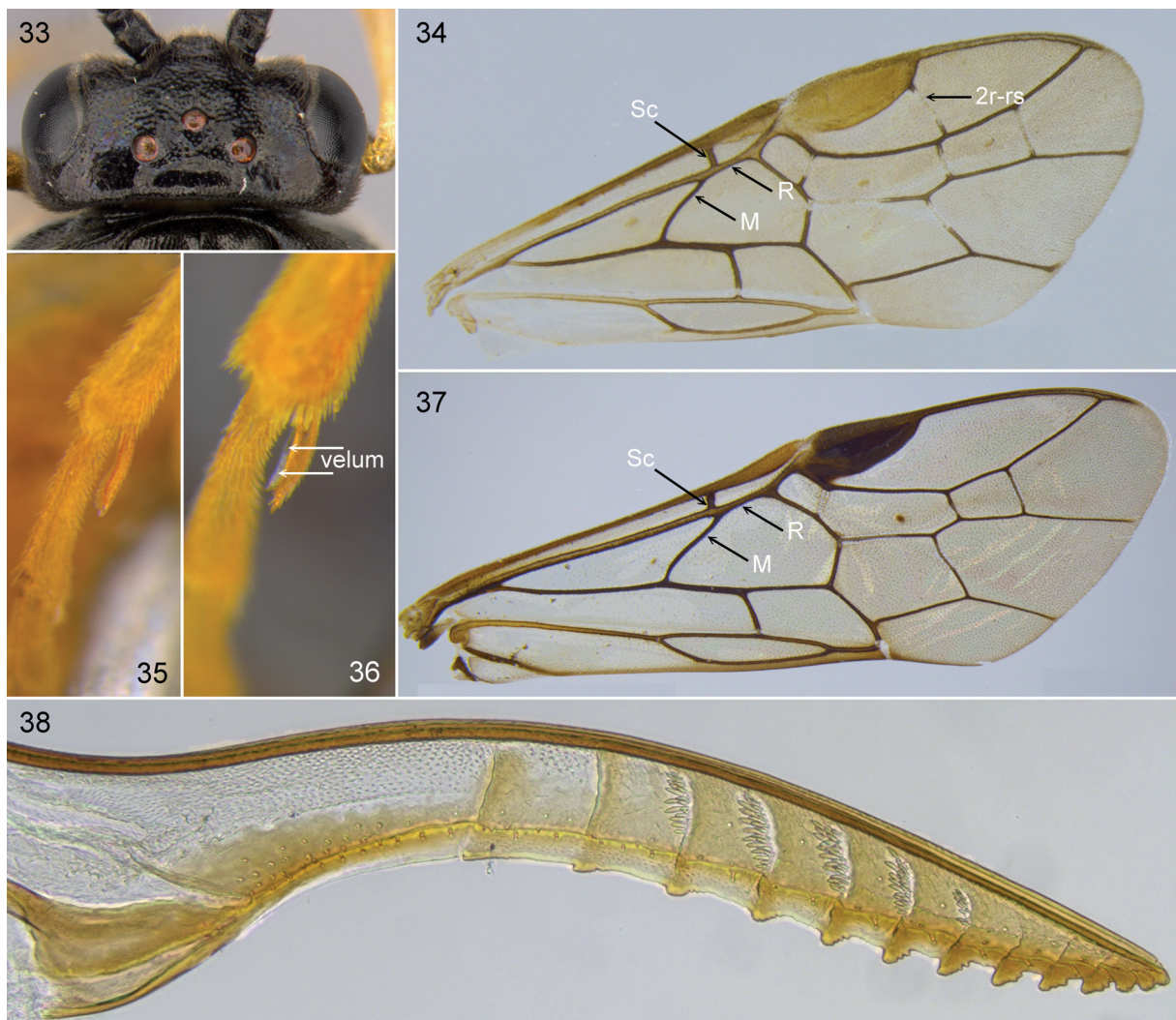


Figs 26–29. 26. Head *Euura neglecta* (W.F. Kirby, 1882) DEI-GISHym12517. 27. Head *Pristiphora malaisei* (Lindqvist, 1952) DEI-GISHym10991. 28. Lancet *Euura berolinensis* (Muche, 1970) PR.552VV. 29. Lancet *Pristiphora breadalbanensis* (Cameron, 1882) DEI-GISHym17784.



Figs 30–32. 30. Head *Euura itoi* (Okutani, 1955) DEI-GISHym84719. 31. Head *Euura pilosa* (Lindqvist, 1970) DEI-GISHym80684. 32. Hypopygium *Euura imperfecta* (Zaddach, 1876) DEI-GISHym11446.

- e Claws with distinct subapical tooth
- f Left and right mandible both tapered regularly towards apex (Fig. 22)
- g Lancet with 11–12 annuli and with thick setae in middle annuli (Fig. 38) *Dineura* Dahlbom, 1835
- aa–gg Combination of characters not as in a–g; transverso-radial (2r-rs) vein rarely present in forewing (aberrant individuals) (Fig. 37); transverso-costal (Sc) vein usually situated before point of origin of medius (M) from radius (R) (Fig. 37); anterior protibial spur usually with velum (Fig. 36); clypeus emarginate or truncate; claws with or without subapical tooth; left mandible markedly constricted near middle (Fig. 23) and right mandible tapered regularly towards apex (Fig. 22) in most species; lancet with 8–30 annuli and with or without setae 11
- 11.a Claws simple (Fig. 7) or with small subapical tooth (Fig. 8) 12
- aa Claws with large subapical tooth (Fig. 6) 22



Figs 33–38. 33. Head *Pristiphora albitibia* (Costa, 1859) DEI-GISHym11096. 34. Forewing *Dineura virididorsata* (Retzius, 1783) DEI-GISHym15243. 35. Anterior protibial spur *Dineura virididorsata* DEI-GISHym15243. 36. Anterior protibial spur *Nematinus fuscipennis* (Serville, 1823) DEI-GISHym15349. 37. Forewing *Nematus lucidus* (Panzer, 1801) DEI-GISHym15345. 38. Lancet *Dineura virididorsata* DEI-GISHym31809.

- 12.a In dorsal view, valvula 3 broad or narrow, not tapering towards apex, truncate, and with indistinct or distinct invagination (Figs 39–41) 7
- aa In dorsal view, valvula 3 narrow along its entire length and without invagination (Figs 41–43); or tapering from base towards apex and without invagination (Figs 44–46); or broad, tapering towards apex but not from base, without invagination but with distinct carina posteriorly (Figs 49, 53) 13
- 13.a Flagellum with white band in middle (Fig. 47)
- b Middle terga of abdomen *usually* dorsally reddish and laterally whitish (Fig. 47)
- c Pterostigma black (Fig. 47)
- d Valvula 3 long and narrow (Fig. 43)
- e 9.0–11.0 mm *Euura insignis* (Hartig, 1840)
- aa Flagellum uniformly black to uniformly pale
- bb Middle terga of abdomen in most species of similar colour as basal terga
- cc Pterostigma pale to black
- dd Valvula 3 variable
- ee 3.0–11.0 mm 14
- 14.a Abdomen with red band, terga 1 and 7–10 black (Fig. 48)
- b Clypeus truncate
- c In lateral view, posterior margin of valvula 3 somewhat truncate *Pristiphora erichsonii* (Hartig, 1837)
- aa Abdomen without red band
- bb Clypeus truncate or emarginate
- cc In lateral view, posterior margin of valvula 3 truncate or round 15
- 15.a In dorsal view, head distinctly expanded behind eyes (Fig. 50)

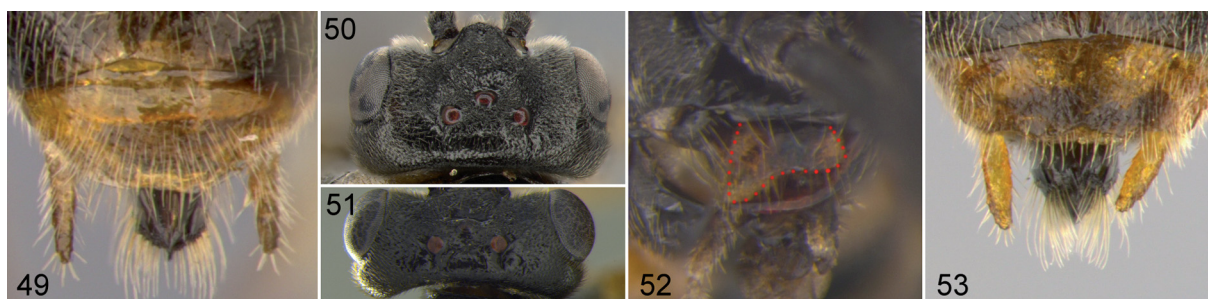


Figs 39–46. Valvula 3. **39.** *Euura imperfecta* (Zaddach, 1876) DEI-GISHym17656. **40.** *Pristiphora alpestris* (Konow, 1903) DEI-GISHym20881. **41.** *Euura pilosa* (Lindqvist, 1970) DEI-GISHym80684. **42.** *Pristiphora erichsonii* (Hartig, 1837) DEI-GISHym20807. **43.** *Euura insignis* (Hartig, 1840) DEI-GISHym20830. **44.** *Pristiphora saxesenii* (Hartig, 1837) DEI-GISHym20844. **45.** *P. mollis* (Hartig, 1837) DEI-GISHym19773. **46.** *Euura clitellata* (Serville, 1823) DEI-GISHym81490.

- b Valvula 3 with indistinct or distinct carina posteriorly (Fig. 49)
- c Head and thorax black
- d Lancet without setae
- e Tangium with campaniform sensilla *Pristiphora dasiphorae* (Zinovjev, 1993)
(in Europe only known from Öland, Sweden)
- aa–ee Combination of characters not as in a–e; in dorsal view, head distinctly (Fig. 50) or not distinctly (Fig. 51) expanded behind eyes; valvula 3 with or without carina posteriorly; head and thorax black or pale; lancet with or without setae; tangium with or without campaniform sensilla 16
- 16.a Labrum asymmetrical with right lobe much longer than left (Fig. 52)
- b Valvula 3 without distinct posterior carina (Fig. 19)
- c Head, thorax, and abdomen mostly or nearly completely black
- d Mesepisternum smooth
- e Claws without subapical tooth
- f 3.0–4.5 mm *Pristiphora retusa* (Thomson, 1871), *P. exigua* (Lindqvist, 1955)
- aa Labrum usually symmetrical, or asymmetrical with right lobe slightly longer than left
- bb Valvula 3 without or with distinct posterior carina
- cc Head, thorax, and abdomen black to nearly completely pale
- dd Mesepisternum smooth or matt
- ee Claws with small subapical tooth in most species
- ff 3.0–11.0 mm 17



Figs 47–48. 47. Female *Euura insignis* (Hartig, 1840) DEI-GISHym11925. 48. Female *Pristiphora erichsonii* (Hartig, 1837) DEI-GISHym20807.



Figs 49–53. 49. Valvula 3 *Pristiphora dasiphorae* (Zinovjev, 1993) DEI-GISHym31598. 50. Head *P. dasiphorae* DEI-GISHym81491. 51. Head *P. mollis* (Hartig, 1837) DEI-GISHym19773. 52. Labrum *P. retusa* (Thomson, 1871) DEI-GISHym20965. 53. Valvula 3 *P. angulata* Lindqvist, 1974 DEI-GISHym31523.

- 17.a Valvula 3 about as long as broad in dorsal view and with distinct posterior carina (Fig. 53)
 - b Head, thorax, and abdomen mostly or nearly completely black *Pristiphora angulata* Lindqvist, 1974, *P. abbreviata* (Hartig, 1837)
- aa Valvula 3 with different combination of characters, broad or long, with or without posterior carina
 - bb Head, thorax, and abdomen black to nearly completely pale 18
- 18.a Head, thorax, and abdomen black
 - b Valvifer 2, tergum 10, and clypeus usually black
 - c Metatarsus usually mostly pale
 - d Valvula 3 distinctly shorter than cerci and distinctly tapering towards apex in dorsal view
 - e Mesepisternum matt
 - f Lancet with campaniform sensilla and setae *Pristiphora mollis* (Hartig, 1837)
- aa–ff Combination of characters not as in a–f; head, thorax, and abdomen black or pale; valvifer 2, tergum 10, and clypeus black or pale; metatarsus black or pale; valvula 3 longer or shorter than cerci, tapering or not tapering towards apex; mesepisternum smooth or matt; lancet with or without campaniform sensilla and setae 19
- 19.a Mesepisternum matt
 - b Clypeus truncate or at most slightly emarginate
 - c Head largely or completely black
 - d Thorax black
 - e Abdomen completely black to extensively pale ventrally, laterally, and apically
 - f Lancet without setae
 - g Tangium of lancet with campaniform sensilla *Pristiphora carinata* group in part
- aa–gg Combination of characters not as in a–f; mesepisternum smooth in most species; clypeus truncate or emarginate; head, thorax, and abdomen black to nearly completely pale; lancet with or without setae; tangium with or without campaniform sensilla 20
- 20.a Clypeus truncate
 - b Postocellar area about 2 times as long as diameter of lateral ocellus
 - c Costa (vein C) apically swollen (Fig. 54)
 - d Serrulae flat (Fig. 56)
 - e Tangium of lancet with campaniform sensilla *Pristiphora abietina* group in part, *P. wesmaeli* (Tischbein, 1853), *P. glauca* Benson, 1954, *P. pallida* group, *P. tenuiserra* (Lindqvist, 1959)
- aa Clypeus usually distinctly emarginate
 - bb Postocellar area often distinctly more than 2 times as long as diameter of lateral ocellus
 - cc Costa (vein C) apically usually less swollen (Fig. 55)
 - dd Serrulae flat (Fig. 56) or protruding (Fig. 57)
 - ee Tangium of lancet without campaniform sensilla (except *Euura epilosa*, but which has a distinctly emarginate clypeus) 21
- 21.a Pterostigma black
 - b Body largely black
 - c Lancet without setae
 - d Radix shorter than lamnium
 - e Sutures of lancet indistinctly bending apically
 - f 6.5–7.0 mm *Nematus lonicerae* (Weiffenbach, 1957)
- aa–ff Combination of characters not as in a–f; pterostigma pale in most species; body pale to black; lancet with or without setae; radix shorter, longer than or about as long as lamnium; sutures of lancet not bending apically, or bending indistinctly or distinctly; 3–9 mm *Euura* Newman, 1837, in part

- 22.a Clypeus more or less truncate
 - b Postocellar area less than 2 times as long as diameter of lateral ocellus
 - c Valvula 3 about as broad as long in dorsal view, somewhat square-shaped, often with invagination posteriorly
 - d Costa (vein C) apically swollen (Fig. 54)
 - e Lancet with setae
 - f Tangium of lancet with campaniform sensilla
 - g 4–7 mm *Pristiphora depressa* group and *P. micronematica* group in part
- aa Clypeus usually distinctly emarginate
 - bb Postocellar area often distinctly more than 2 times as long as diameter of lateral ocellus
 - cc Valvula 3 in most species triangular in dorsal view, usually without invagination posteriorly
 - dd Costa (vein C) apically usually less swollen (Fig. 55)
 - ee Lancet with or without setae
 - ff Tangium of lancet without campaniform sensilla (except *Euura epilosa*, but which has distinctly emarginate clypeus)
 - gg 2.5–12.0 mm 23
- 23.a Mesepisternum matt
 - b Terga (1–)2–3(–6), femora, tibiae, and tarsi of fore and middle legs reddish (Fig. 58)
 - c Pterostigma black
 - d Body 7–11 mm, elongate appearance with abdomen tapering almost from base *Nematus lucidus* (Panzer, 1801)
- aa Mesepisternum smooth or matt
 - bb Colouration different
 - cc Pterostigma black or pale
 - dd Body 2.5–12.0 mm, usually not markedly elongate or with abdomen tapering from base 24

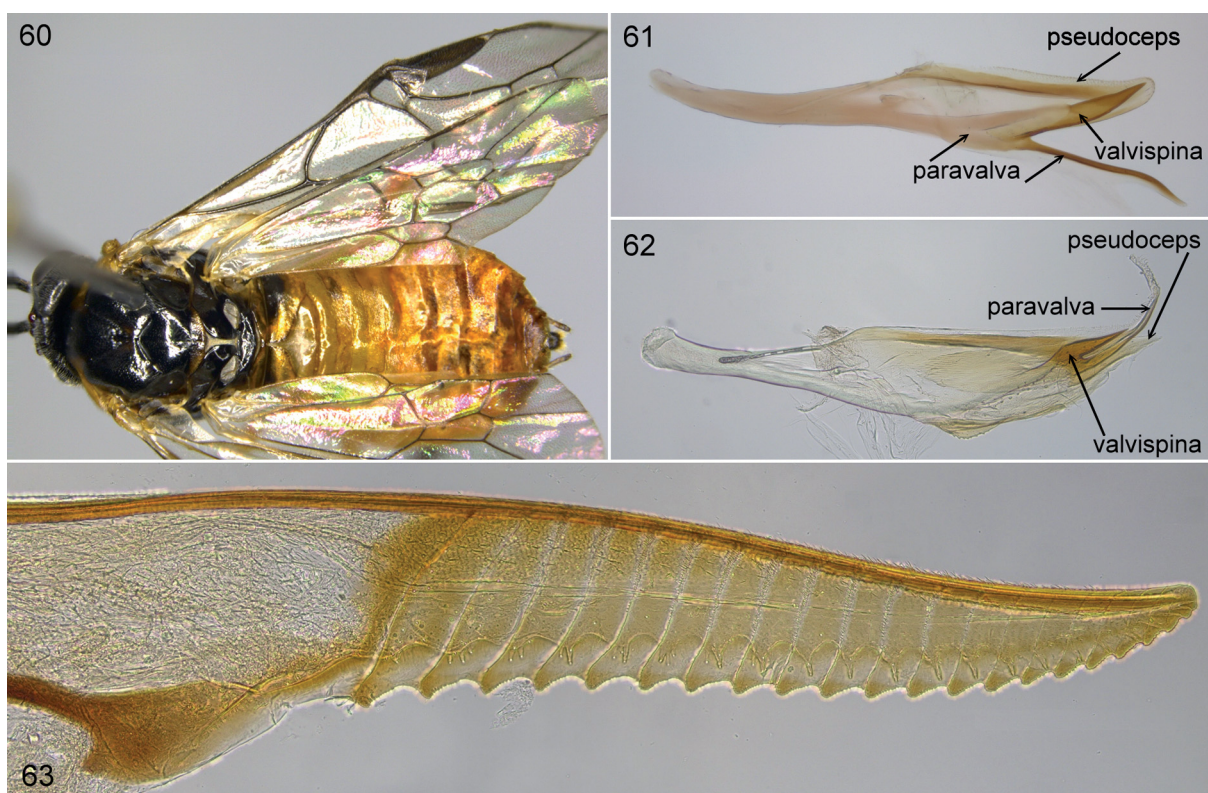


Figs 54–57. 54. Forewing *P. glauca* Benson, 1954 DEI-GISHym13972. 55. Forewing *Euura jugicola* (Thomson, 1871) DEI-GISHym81489. 56. Lancet *Pristiphora pallida* (Konow, 1904) DEI-GISHym20845. 57. Lancet *Euura kangasi* (Lindqvist, 1964) <https://id.luomus.fi/GL.3439>.

- 24.a Pronotal angles black (Fig. 59)
 b Abdomen black with 3rd and 4th segment more or less pale (Fig. 59)
 c Pterostigma black
 d Body 8–12 mm *Nematus princeps* Zaddach, 1876
 – aa Pronotal angles black or pale
 bb Abdomen colouration different
 cc Pterostigma black or pale
 dd Body 2.5–11.0 mm 25



Figs 58–59. 58. Female *Nematus lucidus* (Panzer, 1801) DEI-GISHym19764. 59. Female *N. princeps* Zaddach, 1876 ZMUO.067420.



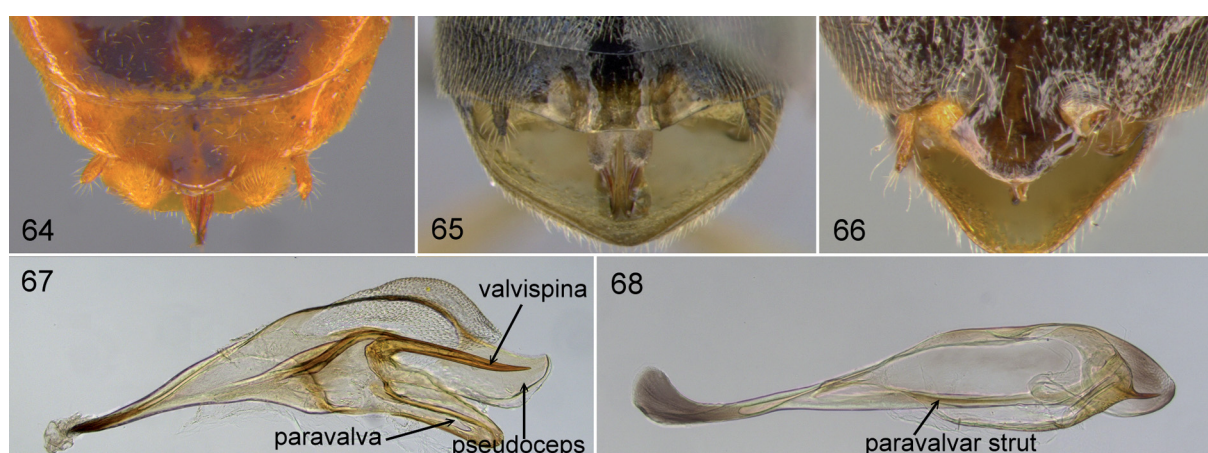
Figs 60–63. 60. *Nematus umbratus* Thomson, 1871 DEI-GISHym31928. 61. Penis valve *Dineura virididorsata* (Retzius, 1783) DEI-GISHym19664. 62. Penis valve *Nematinus steini* Blank, 1998 DEI-GISHym84082. 63. Lancet *Nematus wahlbergi* Thomson, 1871 DEI-GISHym20910.

- 25.a Pterostigma black (Fig. 60)
 b Costa largely (usually?) black
 c Head black
 d Abdomen yellow (Fig. 60)
 e In dorsal view, valvula 3 short and somewhat expanded in middle
 f Lancet with 13–16(17?) annuli, all with serrulae, and radix shorter than lamnium
 g Body 5.0–7.5 mm *Nematus umbratus* Thomson, 1871
 – aa–gg Combination of characters not as in a–g; pterostigma pale to black; costa pale to black; head nearly completely pale to black; abdomen pale to black; valvula 3 triangular in most species; lancet with 13–30 annuli and radix shorter or longer than lamnium; body 2.5–11.0 mm 26
- 26.a Pterostigma black or dark brown
 b Head, thorax, and abdomen largely black
 c Valvula 3 narrowed at apex
 d Radix shorter than lamnium
 e Setae of lancet absent or short and not reaching serrulae (Fig. 63)
 f Tips of serrulae blunt (Fig. 63)
 g Body 5.5–9.5(10.5) mm *Nematus wahlbergi* group
 (including *N. lonicerae*) (former *Paranematus*)
 – aa–gg Combination of characters not as in a–g; pterostigma pale to black; head, thorax, and abdomen black to pale; valvula 3 narrowed or not narrowed at apex; radix shorter or longer than lamnium; setae of lancet present, long or short and reaching serrulae at least on apical sutures; tips of serrulae blunt or acute; body 2.5–11.0 mm *Euura* Newman, 1837, in part (more than 200 species)

Males

1. a Hind basitarsus 2–3 times as wide as width of following tarsomere
 b Claws with distinct subapical tooth (Fig. 6)
 c Clypeus emarginate (Fig. 9)
 d Abdomen nearly always with reddish band in Europe
 (4 species) *Nematus septentrionalis* group (former *Craesus*)
 – aa Hind basitarsus 1.0–1.5 times as wide as width of following tarsomere
 bb Claws simple (Fig. 7) or with distinct subapical tooth (Figs 6, 8)
 cc Clypeus emarginate (Fig. 9) or truncate (Fig. 10)
 dd Abdomen with or without reddish band 2
2. a Transverso-radial (2r-rs) vein usually at least faintly present in forewing (Fig. 34)
 b Transverso-costal (Sc) vein usually situated beyond or at point of origin of medius (M) from radius (R) (Fig. 34)
 c Anterior protibial spur without velum, but with hairs (Fig. 35)
 d Clypeus emarginate (Fig. 9)
 e Claws with distinct subapical tooth
 f Tergum 8 without distinct apical projection
 g Valvispina straight, not hook-shaped (Fig. 61)
 h Paravalva apically filament-like (Fig. 61) *Dineura* Dahlbom, 1835
 – aa–hh Combination of characters not as in a–h; transverso-radial (2r-rs) vein rarely present in forewing (aberrant individuals) (Fig. 37); transverso-costal (Sc) vein usually situated before point of origin of medius (M) from radius (R) (Fig. 37); anterior protibial spur usually with velum (Fig. 36); clypeus emarginate (Fig. 9) or truncate (Fig. 10); claws with or without subapical tooth; tergum 8 with or without distinct apical projection; valvispina variously shaped; paravalva apically not filament-like in most species 3

3. a Pseudoceps often with distinct apical filament, sometimes longer than valvispina
b Paravalva (often filament-like) distinctly extending apically from base of valvispina, sometimes beyond its tip (Fig. 62)
c Clypeus emarginate
d Claws with distinct subapical tooth
e Tergum 8 with rounded distinct or indistinct apical projection (Fig. 64) *Nematinus* Rohwer, 1911
– aa–ee Combination of characters not as in a–e; pseudoceps in vast majority of species apically not filament-like; paravalva extending (Fig. 67) or not extending apically from base of valvispina (Fig. 68), in few species valvispina absent; clypeus truncate or emarginate; claws with or without subapical tooth; tergum 8 with or without apical projection 4
4. a Claws with large subapical tooth 9
– aa Claws simple or with small subapical tooth 5
5. a Flagellomere 1 black and flagellomeres 2–7 more or less pale
b Pterostigma black
c Tergum 8 with distinct apical projection
d 8.0–10.0 mm *Euura insignis* (Hartig, 1840)
– aa Flagellum uniformly black to uniformly pale
bb Pterostigma pale to black
cc Tergum 8 with or without distinct apical projection
dd 2.0–10.0 mm 6
6. a Tergum 8 with distinct apical projection (Fig. 66)
b Clypeus usually distinctly emarginate
c Costa (vein C) apically usually not distinctly swollen 8
– aa Tergum 8 without distinct apical projection (Fig. 65)
bb Clypeus usually truncate
cc Costa (vein C) apically usually distinctly swollen 7



Figs 64–68. 64–66. Male tergum 8. 64. *Nematinus fuscipennis* (Serville, 1823) DEI-GISHym15427. 65. *Euura moerens* (Förster, 1854) DEI-GISHym12010. 66. *Nematus lonicerae* (Weiffenbach, 1957) DEI-GISHym17564. 67–68. Penis valves. 67. *Euura moerens* DEI-GISHym84252. 68. *Pristiphora cincta* Newman, 1837 DEI-GISHym80225.

7. a Head, thorax, and abdomen mostly black
 - b Costa not distinctly expanded
 - c Penis valve with deep invagination between valvispina and paravalva (Fig. 67) *Euura moerens* (Förster, 1854)
- aa Head, thorax, and abdomen black to extensively pale
 - bb Costa usually distinctly expanded
 - cc Penis valve without or almost without invagination between valvispina and paravalva or valvispina rarely absent *Pristiphora* Latreille, 1810, in part
8. a Pterostigma black
 - b Head, thorax, and abdomen mostly black
 - c Legs extensively whitish
 - d Sternum 9 and tergum 8 including its apical projection black
 - e Apical projection of tergum 8 distinctly constricted at base (Fig. 66)
 - f 5.5–6.0 mm *Nematus lonicerae* (Weiffenbach, 1957)
- aa–ff Combination of characters not as in a–f; pterostigma pale to black; head, thorax, and abdomen black to nearly completely pale; legs black to pale; sternum 9 and tergum 8 including its apical projection black or pale; apical projection of tergum 8 constricted or not constricted at base; 2.0–10.0 mm *Euura* Newman, 1837, in part
9. a Clypeus truncate
 - b Head, thorax, and abdomen black
 - c Antennae ventrally distinctly paler than dorsally or uniformly yellow and with numerous and clearly visible stout black setae among finer paler ones (Fig. 70)
 - d Apical projection of tergum 8 longer than broad (Fig. 69)
 - e Paravalva strongly reduced (Fig. 71)
 - f Valvispina large and strongly dorsally curved (Fig. 71) *Pristiphora armata* (Thomson, 1862), *P. leucopus* (Hellén, 1948)
- aa–ff Combination of characters not as in a–f; clypeus truncate or emarginate; head, thorax, and abdomen extensively pale to black; antenna pale to black and with or without clearly visible stout



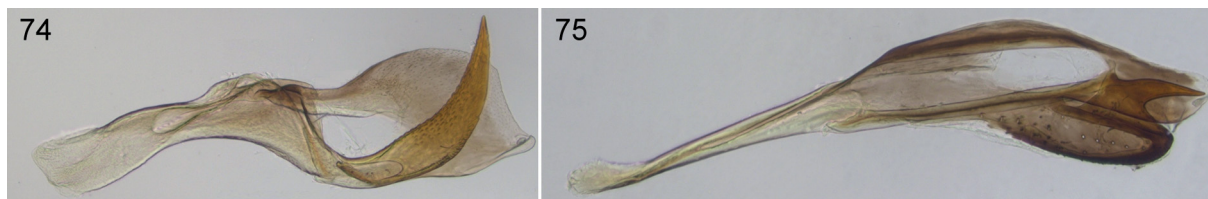
Figs 69–72. 69. Male tergum 8 *Pristiphora armata* (Thomson, 1862) DEI-GISHym11092. 70. Head *P. armata* DEI-GISHym11092. 71–72. Penis valves. 71. *P. leucopus* P (Hellén, 1948) R.466VV. 72. *P. sermola* Liston, 1993 DEI-GISHym31580.

- black setae among finer paler ones; apical projection of tergum 8 variously shaped or not clearly developed; paravalva strongly reduced or well developed; valvispina variously shaped or absent in few species 10
- 10.a Pseudoceps with dorsal membranous region covered with setae (Fig. 72)
- b Valvispina not clearly developed (Fig. 72)
- c Apical projection of tergum 8 indistinct
- d Clypeus usually truncate
- e Head, thorax, and abdomen black *Pristiphora micronematica* group, in part
- aa Pseudoceps without membranous region covered with setae (Fig. 73)
- bb Valvispina clearly developed in most species
- cc Apical projection of tergum 8 distinct or indistinct
- dd Clypeus truncate or emarginate
- ee Head, thorax, and abdomen extensively pale to black 11
- 11.a Valvispina positioned in middle or dorsal third of paravalva (Fig. 73)
- b Invagination between valvispina and ventral part of paravalva absent (Fig. 73)
- c Valvispina medium sized, not distinctly expanded at base and straight or directed slightly dorsally (Fig. 73)
- d Pseudoceps broad at apex (Fig. 73)
- e Paravalva rectangular or oval-shaped (Fig. 73)
- f Apical projection of tergum 8 indistinct
- g Clypeus truncate
- h Claws not bifid
- i Head and abdomen ventrally usually pale, sometimes also thorax
- j Legs usually mostly pale, except hind tarsus and hind tibia and/or femur apically
..... *Pristiphora pallidiventr* (Fallén, 1808) and *P. cadma* Wong & Ross, 1960
- aa–jj Combination of characters not as in a–j; valvispina positioned in most species dorsally or ventrally, absent in a few species; invagination between valvispina and ventral part of paravalva absent or present; valvispina small to large, straight or directed dorsally or ventrally; pseudoceps broad or narrow; paravalva variously shaped; apical projection of tergum 8 distinct or indistinct; clypeus truncate or emarginate; claws bifid or with large subapical tooth; head, thorax, and abdomen extensively pale to black; legs mostly pale to black 12
- 12.a Valvispina positioned ventrally of paravalva (Fig. 74), if appearing in middle, then bending dorsally together with ventral part of paravalva
- b Invagination between valvispina and ventral part of paravalva absent (Fig. 74)
- c Paravalva well developed and pseudoceps broad at apex, or paravalva strongly modified to large dorsally directed valvispina and pseudoceps often narrowing apically (Fig. 74)
- d Apical projection of tergum 8 indistinct



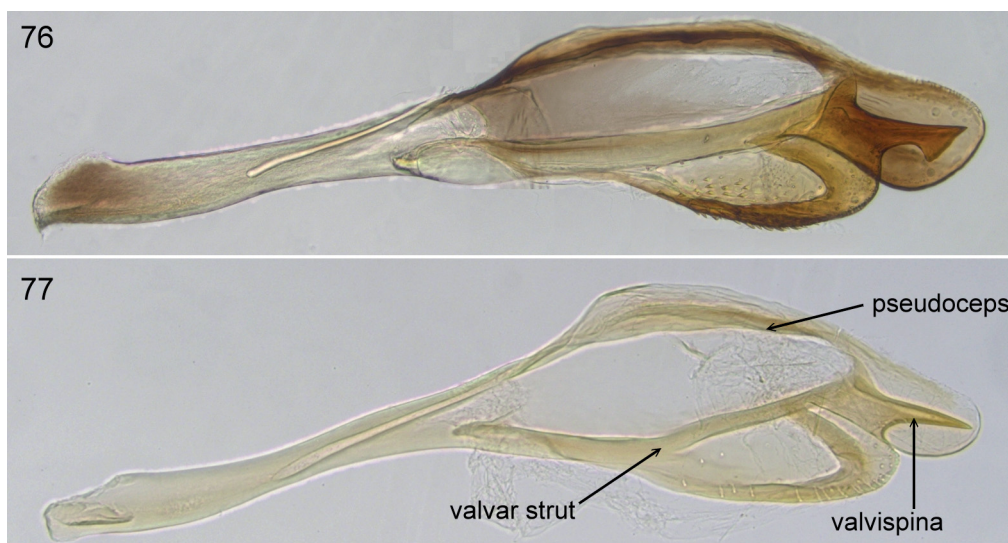
Fig. 73. Penis valve *Pristiphora pallidiventris* (Fallén, 1808) DEI-GISHym20866.

- e Clypeus usually truncate
- f Claws rarely bifid *Pristiphora* Latreille, 1810
- aa–ff Combination of characters not as in a–f; valvispina positioned in middle or dorsally of paravalva (Figs 75–78), absent in a few species; invagination between valvispina and ventral part of paravalva often present; paravalva well developed and valvispina small to large, rarely directed dorsally (Figs 75–78), pseudoceps broad or distinctly narrowing, sometimes forming a filament or spine; apical projection of tergum 8 distinct in most species; clypeus usually emarginate; claws usually bifid 13
- 13.a Mesepisternum matt
- b Terga (1–)2–3(–6), pronotal angles, femora, tibiae, and tarsi of fore and middle legs reddish
- c Pterostigma black
- d Body 7–10 mm, torpedo-shaped
- e Invagination between valvispina and paravalva wide and deep (Fig. 75)
- f Pseudoceps apically broad *Nematus lucidus* (Panzer, 1801)
- aa–ff Combination of characters not as in a–f; mesepisternum smooth or matt; colouration different in most species; pterostigma black or pale; body 2.0–10.0 mm, usually not torpedo-shaped; invagination between valvispina and paravalva distinct or absent; pseudoceps apically broad or distinctly narrowing 14
- 14.a Pronotal angles black
- b Abdomen black, sometimes with 3rd and 4th segment more or less pale
- c Hind tibia and tarsus black
- d Pterostigma black
- e Body 8–10 mm, torpedo-shaped
- f Valvispina with distinct ventral hook (Fig. 76) *Nematus princeps* Zaddach, 1876
- aa Pronotal angles black or pale
- bb Abdomen black to pale
- cc Hind tibia and tarsus black to pale
- dd Pterostigma black or pale
- ee Body 2.0–10.0 mm, not torpedo-shaped
- ff Valvispina simple, without hook, or absent in few species 15
- 15.a Pterostigma black
- b Costa largely (usually?) black
- c Head black
- d Abdomen usually at least ventrally yellow
- e Ventroapical lobe of paravalva extending about one third of the length of valvispina (Fig. 77)
- f Basal third or half of valvar strut more or less at the ventral margin of paravalva (Fig. 77)
- g Dorsobasal part of paravalva narrowing abruptly (Fig. 77)
- h Body 4.0–6.5 mm *Nematus umbratus* Thomson, 1871



Figs 74–75. Penis valves. **74.** *P. bifida* (Hellén, 1948) DEI-GISHym80000. **75.** *Nematus lucidus* (Panzer, 1801) DEI-GISHym80332.

- aa–hh Combination of characters not as in a–h; pterostigma pale to black; costa pale to black; head nearly completely pale to black; abdomen pale to black; ventroapical lobe of paravalva variously shaped, valvispina absent in some species; basal third or half of valvar strut often distinctly removed from ventral margin of paravalva (Fig. 78); dorsobasal part of paravalva narrowing abruptly or gradually; body 2.0–10.0 mm 16
- 16.a Pterostigma black or dark brown
- b Head, thorax, and abdomen largely black
- c Legs extensively whitish or reddish
- d Sternum 9 and tergum 8 black
- e Penis valve oval-shaped, pseudoceps apically not distinctly narrowed, small invagination between valvispina and paravalva, dorsal and apical margin of pseudoceps strongly and broadly sclerotized (Fig. 78)
- f Body 5.0–7.5 mm ... *Nematus wahlbergi* group (including *N. lonicerae*) (former *Paranematus*) (males of the species other than *N. lonicerae* are extremely rare in the West Palaearctic)
- aa–ff Combination of characters not as in a–f; pterostigma pale to black; head, thorax, and abdomen black to pale; legs black to pale; sternum 9 and tergum 8 black or pale; penis valve differently shaped; body 2.0–10.0 mm *Euura* Newman, 1837, in part (more than 200 species)



Figs 76–77. Penis valves. **76.** *Nematus princeps* Zaddach, 1876 DEI-GISHym80279. **77.** *N. umbratus* Thomson, 1871 PR.219VV.

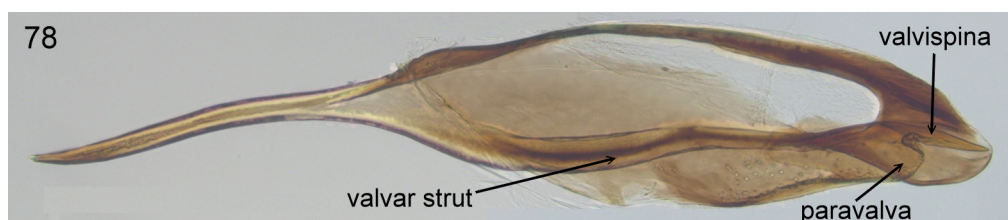


Fig. 78. Penis valve *N. wahlbergi* Thomson, 1871 DEI-GISHym20901.

Gall-maker species groups

The north-west European species of these groups were revised by Liston *et al.* (2017): see there for details of type material, synonymy, hosts plants, distribution, and identification characters.

001 *Euura amerinae* group

002 *Euura amerinae* (Linnaeus, 1758)
Figs 168, 394

003 *Euura atra* (Jurine, 1807)
Figs 169, 395

004 *Euura auritae* Kopelke, 2000
Fig. 396

005 *Euura elaeagnos* Kopelke, 1996

Euura (Euura) elaeagnos Kopelke, 1996: 105–106.

Type material examined

Holotype *Euura (Euura) elaeagnos*

AUSTRIA – **Salzburg** • ♀; Radstätter Tauern, Untertauern; 47.30° N, 13.51° E; 1600 m a.s.l.; 25 Aug. 1992; J.-P. Kopelke leg.; reared ex galls *Salix eleagnos* Scop.; SMH, GBIF-GISHym3720.

006 *Euura myrtilloides* Kopelke, 1996

007 *Euura salicispurpureae* Kopelke, 2014

008 *Euura testaceipes* (Brischke, 1883)

009 *Euura venusta* (Brischke, 1883)

010 *Euura weiffenbachiella* Liston & Vikberg, 2017

***mucronata* subgroup**

011 *Euura daphnoidica* Kopelke, 2001

012 *Euura gemmafoetidae* Kopelke, 2001

Euura (Gemmura) gemmafoetidae Kopelke, 2001: 211–212.

Type material examined

Holotype *Euura (Gemmura) gemmafoetidae*

AUSTRIA – **Salzburg** • ♀; Tauernpaß, Obertauern; 47.25° N, 13.55° E; 1740 m a.s.l.; 25 Aug. 1992; J.-P. Kopelke leg.; reared ex galls *Salix foetida*; SMH, GBIF-GISHym3712.

Hosts plants

Salix foetida Schleich. ex DC., *S. waldsteiniana* Willd. (Kopelke 2003)

013 *Euura gemmahelveticæ* Kopelke, 2001

Euura (*Gemmura*) *gemmahelveticæ* Kopelke, 2001: 212–213.

Type material examined

Holotype *Euura* (*Gemmura*) *gemmahelveticæ*

AUSTRIA – Tirol • ♀; Ötztal, Vent, Rofental; 46.85° N, 10.89° E; 1900–2000 m a.s.l.; 28 Jun. 1983; J.-P. Kopelke leg.; reared ex galls *Salix helvetica* Vill.; SMH, GBIF-GISHym3717.

014 *Euura hastatae* Malaise, 1921

015 *Euura laeta* (Brischke, 1883)

016 *Euura lanatae* Malaise, 1921

017 *Euura lappo* Malaise, 1921
Fig. 397

018 *Euura mucronata* (Hartig, 1837)
Fig. 170

019 *Euura myrsinifoliae* Kopelke, 2001

020 *Euura subgemma* Liston, 2006

021 *Euura anomalopecta* group

022 *Euura anomalopecta* (Förster, 1854)
Figs 171, 398

023 *Euura crassispina* (Thomson, 1871)

024 *Euura cyrnea* (Liston, 2005)
Figs 172, 399

025 *Euura nitidinota* (Vikberg, 2010)

026 *Euura nudipsecta* (Vikberg, 1965)
Fig. 400

027 *Euura purpureae* (Cameron, 1884)

028 *Euura dolichura* group

029 *Euura bigallae* (Vikberg & Zinovjev, 2014)
Fig. 401

030 *Euura dolichura* (Thomson, 1871)
Fig. 402

031 *Euura elaeagnocola* (Kopelke, 1994)

Pontania elaeagnocola Kopelke, 1994: 134–135.

Type material examined

Holotype *Pontania elaeagnocola*

AUSTRIA – **Tirol** • ♀; Karwendel, Gramai-Alm; 47.41° N, 11.63° E; 1270 m a.s.l.; 29 Jun. 1989; J.-P. Kopelke leg.; reared ex galls *Salix eleagnos* Scop.; SMH, GBIF-GISHym3726.

032 *Euura femoralis* (Cameron, 1876)

033 *Euura glaucae* (Kopelke, 1994)

034 *Euura helveticae* (Kopelke, 1986)

Pontania helveticae Kopelke, 1986: 58–60.

Type material examined

Holotype *Pontania helveticae*

AUSTRIA – **Tirol** • ♀; Venter Tal, Gample; 46.86° N, 10.92° E; 1800 m a.s.l.; 28 Jun. 1983; J.-P. Kopelke leg.; reared ex galls *Salix helvetica* Vill.; SMH, GBIF-GISHym3729.

035 *Euura nigricantis* (Kopelke, 1986)
Fig. 173

036 *Euura unigallae* (Vikberg & Zinovjev, 2014)

037 *Euura virilis* (Zirngiebl, 1955)

038 *Euura oblita* group

039 *Euura acutiserra* (Lindqvist, 1949)
Figs 174, 403

040 *Euura anglica* (Cameron, 1877)
Figs 175, 404

041 *Euura destriata* (MacGillivray, 1923)
Figs 176, 405

042 *Euura ischnocera* (Thomson, 1863)
Figs 181, 410

043 *Euura kopelkei* (Lacourt, 1996)

Pontania (Phyllocolpa) kopelkei Lacourt, 1996c: 271–272.

Type material

Holotype, not examined.

FRANCE – **Hautes-Alpes** • ♀; Saint-Véran, La Chapelle-de-Clousis [Chapelle Notre Dame de Bon Secours de Clausis]; 44.67° N, 6.92° E; 2450 m a.s.l.; 13 Jul. 1985; J. Lacourt leg.; CTN.

044 *Euura leucapsis* (Tischbein, 1846)
Figs 177, 406

045 *Euura leucosticta* (Hartig, 1837)
Figs 178, 407

046 *Euura maroccana* (Lacourt, 1997)

Pontania (*Phyllocolpa*) *maroccana* Lacourt, 1997: 30. Holotype ♀ (MNHN). Type locality: Jbel Tidighine, Rif, Morocco. Recorded host: *Salix acuminata* Mill.

Type material examined

Holotype *Pontania* (*Phyllocolpa*) *maroccana*
MOROCCO – **Rif** • ♀; Jbel Tidighine; 34.84° N, 4.52° W; 1720 m a.s.l.; 7 Jun. 1972; J. Lacourt leg.; on *Salix acuminata* Mill.; CTN, GBIF-GISHym31703.

047 *Euura oblita* (Serville, 1823)
Figs 179, 408

048 *Euura plicadaphnoides* (Kopelke, 2007)

049 *Euura plicalapponum* (Kopelke, 2007)

050 *Euura plicaphylicifolia* (Kopelke, 2007)

051 *Euura polita* (Zaddach, 1883)

052 *Euura prussica* (Zaddach, 1883)

053 *Euura hubertpschornwalcheri* Kopelke, 2014

Phyllocolpa pschornwalcheri Kopelke, 2007a: 105–106. Secondary homonym of *Nematus pschornwalcheri* Muche, 1972 [*Euura monticola* (Thomson, 1871)].
Euura hubertpschornwalcheri Kopelke, 2014 in Prous *et al.* 2014: 53. Replacement name for *Phyllocolpa pschornwalcheri*.

Type material examined

Holotype *Phyllocolpa pschornwalcheri*
AUSTRIA – **Salzburg** • ♀; Ramsau, Silberklamm [Silberkarklamm]; 47.44° N, 13.72° E; 1200 m a.s.l.; 29 Jul. 2003; J.-P. Kopelke leg.; reared ex galls *Salix appendiculata* Vill.; SMH, GBIF-GISHym21235.

054 *Euura scotaspis* (Förster, 1854)
Figs 180, 409

055 *Euura spirappendiculata* (Kopelke, 2007)

Phyllocolpa spirappendiculata Kopelke, 2007b: 157–159.

Type material examined

Holotype *Phyllocolpa spirappendiculata*
AUSTRIA – **Salzburg** • ♀; Defereggental, Erlsbach; 46.92° N, 12.26° E; 1560 m a.s.l.; 7 Aug. 2002; J.-P. Kopelke leg.; reared ex galls *Salix appendiculata* Vill.; SMH, GBIF-GISHym21233.

056 *Euura spirhelvetica* (Kopelke, 2007)

Phyllocolpa spirhelvetica Kopelke, 2007b: 160–161. Holotype ♀ (SMH). Type locality: Grimselpaß, Valais, Switzerland. Recorded host: *Salix helvetica* Vill.

Type material examined

Holotype *Phyllocolpa spirhelvetica*

SWITZERLAND – Valais • ♀; Grimselpaß, Grimselsee; 46.57° N, 8.30° E; 1900 m a.s.l.; 29 Aug. 1998; J.-P. Kopelke leg.; reared ex galls *Salix helvetica* Vill.; SMH, GBIF-GISHym21234.

057 *Euura piliserra* group

058 *Euura piliserra* (Thomson, 1863)
Figs 182, 411

059 *Euura proxima* group

060 *Euura bridgmanii* (Cameron, 1883)

061 *Euura proxima* (Serville, 1823)
Figs 183, 412

062 *Euura triandrae* (Benson, 1941)

063 *Euura viminalis* group

064 *Euura acutifoliae* (Zinovjev, 1985)

065 *Euura alpinae* (Vikberg, 2003)

Eupontania alpinae Vikberg, 2003: 160–161.

Type material

Holotype not examined.

Material examined

SLOVAKIA • ♂; Belanské Tatry Mountains; 49.24° N, 20.23° E; 1800–2000 m a.s.l.; 4 Sep. 1960; K. Beneš leg.; reared ex galls *Salix alpina* Scop.; CKB.

066 *Euura aquilonis* (Benson, 1941)
Figs 184, 413

067 *Euura arbusculae* (Benson, 1941)

068 *Euura arcticornis* (Konow, 1904)

069 *Euura brevicornis* (Förster, 1854)

070 *Euura breviserratae* (Kopelke, 1989)

Pontania breviserratae Kopelke, 1989: 67–69.

Type material examined

Holotype *Pontania breviserratae*

SWITZERLAND – Valais • ♀; Saas Almagell; 46.06° N, 7.96° E; 2000 m a.s.l.; 14 Aug. 1994; J.-P. Kopelke leg.; reared ex galls *Salix breviserrata* Flod.; SMH, GBIF-GISHym3725.

071 *Euura collactanea* (Förster, 1854)

Nematus rubidicornis André, 1880a: 145–146. Lectotype designated below. **Syn. nov.**

Type material examined

Lectotype *Nematus rubidicornis*, here designated

SWITZERLAND • ♀; Jura Mts; Desbrochers leg.; ZIN, DEI-GISHym89377.

072 *Euura crassipes* (Thomson, 1871)

Figs 185, 414

073 *Euura foetidae* (Kopelke, 1989)

Pontania foetidae Kopelke, 1989: 54–58.

Type material examined

Holotype *Pontania foetidae*

AUSTRIA – Tirol • ♀; Zillertal, Hintertux, Weitental; 47.10° N, 11.65° E; 1700 m a.s.l.; 22 Aug. 1983; J.-P. Kopelke leg.; reared ex galls *Salix foetida* DC.; SMH, GBIF-GISHym3727.

Hosts plants

Salix foetida, *S. waldsteiniana* (Kopelke 2003)

074 *Euura foetidatumida* Kopelke, 2014

Pontania montivaga Kopelke, 1991: 115–116. Secondary homonym of *Pachynematus montivagus* Marlatt, 1896 [*Euura montivaga* (Marlatt, 1896)].

Euura foetidatumida Kopelke, 2014 in Prous *et al.* 2014: 53. Replacement name for *Pontania montivaga*.

Type material examined

Holotype *Pontania montivaga*

AUSTRIA – Tirol • ♀; Zillertal, Hintertux, Weitental; 47.10° N, 11.65° E; 1800 m a.s.l.; 1 Sep. 1982; J.-P. Kopelke leg.; reared ex galls *Salix foetida* DC.; SMH, GBIF-GISHym3732.

Hosts plants

Salix foetida, *S. waldsteiniana* (Kopelke 2003).

075 *Euura glabrifrons* (Benson, 1960)

076 *Euura hastatavora* Vikberg, 2014

077 *Euura herbaceae* (Cameron, 1876)

078 *Euura krieckbaumeri* (Konow, 1901)

079 *Euura maculosa* (Kopelke, 1989)

Pontania maculosa Kopelke, 1989: 58–61.

Type material examined

Holotype *Pontania maculosa*

AUSTRIA – **Tirol** • ♀; Ötztal, Venter Tal, Am Spiegel; 46.84° N, 10.93° E; 1800 m a.s.l.; 17 Aug. 1983; J.-P. Kopelke leg.; reared ex galls *Salix helvetica* Vill.; SMH, GBIF-GISHym3731.

080 *Euura myrsiniticola* (Kopelke, 1991)

081 *Euura myrtilloidea* (Kopelke, 1991)

082 *Euura nivalis* (Vikberg, 1970)

083 *Euura pedicellatae* (Lacourt, 1997)

Pontania (Phyllocolpa) pedicellatae Lacourt, 1997: 31.

Type material examined

Holotype *Pontania (Phyllocolpa) pedicellatae*

Morocco – **High Atlas** • ♀; Talat n’Nos; 1150 m a.s.l.; 2 Mar. 1973; J. Lacourt leg.; on *Salix pedicellata* Desf.; CTN, GBIF-GISHym31702.

Hosts plants

Salix pedicellata Desf. (Liston *et al.* 2017).

084 *Euura pedunculi* (Hartig, 1837)

085 *Euura pustulator* (Forsius, 1923)

086 *Euura reticulatae* (Malaise, 1921)

087 *Euura retusae* (Benson, 1960)

Pontania retusae Benson, 1960: 180–181.

Type material

Syntypes (BMNH), not examined.

Material examined

SWITZERLAND – **Valais** • 2 ♀♀; Lac Vaux near Verbier, Mt Rognes; 46.01° N, 7.23° E; 2740 m a.s.l.; 27 Jun. 1959; R.B. Benson leg.; BMNH.

Hosts plants

Salix retusa L. (Kopelke 2003).

088 *Euura saliciscinereae* (Retzius, 1783)

089 *Euura samolad* (Malaise, 1921)

090 *Euura vesicator* (Breimi-Wolf, 1849)
Figs 187, 416

091 *Euura viminalis* (Linnaeus, 1758)
Figs 186, 415

Nematus nigratarsis André, 1880a: 151. Lectotype designated below.

Type material examined

Lectotype *Nematus nigratarsis*, here designated
FRANCE • ♀; South of France; Desbrochers leg.; ZIN, DEI-GISHym89372.

Notes

The synonymy with *viminalis* by Konow (1905b) is confirmed.

092 *Euura bergmanni* group

The species group was revised by Prous *et al.* (2021): see there for details of type material, synonymy, host plants, distribution, and identification characters.

Most of the females are very similar to each other and to those of the *E. oligospila* group, but male penis valves can in most cases be reliably used to distinguish species. The most distinctive females are *E. brevivalvis* (short valvula 3 and saw compared to the other species) and *E. leptcephalus* (reddish pale colouration, rather than yellowish or greenish in life as in the other species). Externally, *Euura leptcephalus* is very similar *E. reticulata* (*E. flavescens* group), but the saws are different (Prous *et al.* 2021).

093 *Euura bergmanni* (Dahlbom, 1835)
Figs 89, 324

Nematus macrocerus Hartig, 1840: 25. Syntypes, sex not stated. Lectotype designated below. **Syn. nov.**

Type material examined

Lectotype *Nematus macrocerus*, here designated
GERMANY • ♀; northern Germany [according to Hartig 1840: 22]; ZSM, DEI-GISHym3343.

Notes

Nematus macrocerus has usually been treated as a junior synonym of *Euura ribesii*, e.g., by Dalla Torre (1894) and Taeger *et al.* (2010). Examination of the penis valve of the syntype GBIF-GISHym3343 establishes it as *Euura bergmanni*.

094 *Euura brevivalvis* (Thomson, 1871)
Figs 93, 325–326

095 *Euura dispar* (Zaddach, 1876)
Figs 94, 327

096 *Euura glutinosae* (Cameron, 1882)
Figs 95, 332

097 *Euura leptcephalus* (Thomson, 1863)

Figs 90, 328

098 *Euura respondens* (Förster, 1854)

Figs 91, 329

099 *Euura sylvestris* (Cameron, 1884)

Figs 92, 330–331

100 *Euura viridis* (Stephens, 1835)

Figs 96, 333

101 *Euura bergmanni* group sp. 1

Fig. 334

Notes

One male specimen (ZMUO.033968) could represent an additional species in the *bergmanni* group, based on nuclear genes, but it does not appear to differ morphologically from *E. viridis* or *E. glutinosae*.

Genetics

COI

Only one sequence available. The nearest neighbour, diverging by a minimum of 0.61%, is *Euura viridis*.

Nuclear

Only one sequence available. The nearest neighbour, diverging by a minimum of 0.5%, is *Euura viridis*.

Distribution and material examined

Palaearctic. The studied specimen is from Finland.

102 *Euura bipartita* group

Species in the group are generally rather similar to each other and can easily be confused with some species in the other groups (particularly *myosotidis* and *flavescens* groups). The saws and penis valves are also rather uniform. Saws can be quite similar also to some species in the *myosotidis* and *flavescens* groups, but penis valves can in most cases be more reliably distinguished from the species in the other *Euura* groups. Based on the similar type of saws (with short, tooth-like setae) and small subapical claw tooth, *E. annulata*, *E. gehrsi*, *E. infirma*, and *E. taegeri* can be distinguished reliably from species in the other groups of *Euura*, and also from the remainder in the *E. bipartita* group. *Euura albipennis*, *E. caucasica*, *E. excisa*, and *E. punctifrons* also have a small subapical claw tooth. *Euura fuscodorsata*, *E. perkioemaekii* and *E. uda* have a small or large subapical tooth, but not clearly bifid as in most other species of *E. bipartita* group. Some other species (especially males) can have a rather small subapical tooth, like *E. scotonota* and males of *E. bipartita* and *E. poppii*. *Euura fuscicarima* females are the palest in the group (usually nearly completely pale like *E. flavescens*). Females and males of *E. albipennis* and southern populations of *E. bipartita* typically have rather dark thorax and extensively yellowish abdomen, a colour combination that is rather unusual in *Euura*. *Euura monticola* is very similar to *E. bipartita*, but its antennae seem to be shorter and the abdomen is usually darker than in southern *E. bipartita*. Extensively pale are also *E. connecta*, *E. leionota*, *E. lipovskyi*, *E. mimus*, many specimens of *E. poppii*, and males of *E. annulata*, *E. fuscicarima*, and *E. fuscodorsata*. Penis valves of some species in the group are rather distinctive, like those of *E. acuminalis*, *E. infirma*, *E. uda*, *E. scotonota* and *E. declinata* (the latter two are quite similar to each other). In most cases, a combination of colouration, claw, sawsheath, penis valve and saw characters enable separation of the species, but in some cases

the differences are small or one of the sexes is not clearly identifiable. In many cases, the genetic data (mainly nuclear) separate the species more clearly.

103 *Euura acuminata* (Vikberg, 1982)

Fig. 335

Pteronidea acuminata Lindqvist, 1968: 194–195. Secondary homonym of *E. acuminata* Enslein, 1915 [*E. purpureae* (Cameron, 1884)].

Nematus acuminata Vikberg, 1982. Replacement name for *P. acuminata*.

Diagnosis

Only the two type specimens were available for study. The holotype male (4.7 mm) is rather pale and has a relatively distinctive penis valve that cannot be associated with any other species of *Euura*. The studied female paratype is more or less the same colour, but conspecificity with the male is uncertain. Holotype male ventrally pale (also antenna slightly); dorsally black, except last 2–3 terga (6th slightly); head extensively pale around eyes; hind tibia nearly completely pale; hind tarsi mostly black or brown; pterostigma yellow or brown; claws bifid; projection of tergite 8 longer than broad, rather distinct; antenna long. The female is externally most similar to that of *striatipleuris* (synonymised here with *E. fuscarima*), particularly paratypes GL.3547 and GL.3548, but saw may be more similar to that of *E. poppii* which may also have similar colouration. Placement in the *bipartita* group is uncertain.

Type material examined

Holotype *Pteronidea acuminata*

SWEDEN – Torne Lappmark • ♂; Torneträsk; 68.22° N, 19.74° E; 400 m a.s.l.; R. Malaise leg.; NHRS, NHRS-HEVA000003990.

Paratype *Pteronidea acuminata*

SWEDEN – Torne Lappmark • 1 ♀; same data as for holotype; NHRS, NHRS-HEVA000003991.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Palearctic. Specimens studied are from Sweden.

104 *Euura albipennis* (Hartig, 1837)

Figs 97, 336

Nematus albipennis Hartig, 1837: 196. Lectotype designated below.

Nematus vernalis Hartig, 1840: 23. Lectotype designated by Haris (1997). Synonymy by Haris (1997).

Nematus obscuratus Zaddach, 1883 in Brischke 1883: 195. Syntypes ♀♂, probably destroyed (Blank & Taeger 1998), except perhaps for “Ein ♂ aus Schweden von Dahlbom im Berliner Museum”

(ZMHB), not examined. Type localities: East Prussia, Hungary and Sweden. Synonymy by (Konow 1904a).

Pachynematus legirupus Konow, 1903a: 381–382 (key). Neotype ♀, designated by Liston *et al.* (2006). Synonymy by Liston *et al.* (2006).

Pachynematus sannio Konow, 1903a: 382 (key). Lectotype designated below. Synonymy by Lindqvist (1961c).

Diagnosis

Abdomen completely or nearly completely (usually?) pale, pterostigma and costa pale, head and thorax from mostly black to extensively pale, claws with small subapical tooth, valvula 3 elongate, gradually tapering.

Most similar species is *E. bipartita* (character states in parentheses), from which it differs by having pale costa (brown or black), usually smaller subapical tooth (usually bifid at least in female), mesoscutellum usually higher than lateral mesoscutal lobes (at same level as lateral mesoscutal lobes), usually uniformly black antenna (ventrally at least slightly pale), usually mostly black head and mesepisternum (extensively pale), and slightly less protruding serrulae.

The lectotype designation for *N. albipennis* by Haris (1997: 118) is not valid, because a specimen from the Zoologische Staatssammlung Munich was selected, whereas Hartig (1837: 196) indicated “Mus. Kl.” (= Museum Klug = ZMHB collection) for the deposition of original material.

Type material examined

Lectotype *Nematus albipennis*, here designated
GERMANY [according to the title of Hartig 1837] • ♂; ZMHUB, GBIF-GISHym2773.

Lectotype *Nematus vernalis*
GERMANY • ♀; northern Germany [according to Hartig 1840: 22]; ZSM, DEI-GISHym3455.

Neotype *Pachynematus legirupus*
GERMANY – Mecklenburg-Vorpommern • ♀; Hiddensee, NSG Schwedenhau; 54.54° N, 13.09° E; SDEI, GBIF-GISHym4695.

Lectotype *Pachynematus sannio*, here designated
RUSSIA – Irkutskaja oblast • ♀; Irkutsk; 52.29° N, 104.24° E; SDEI, GBIF-GISHym3871.

Paralectotype *Pachynematus sannio*
RUSSIA – Irkutskaja oblast • 1 ♂; same data as for lectotype; SDEI, GBIF-GISHym3870.

Host plants

Persicaria maculosa Gray (Stein 1885; Macek *et al.* 2020). Two generations in central Europe (Stein 1885).

Genetics

COI

Only one sequence available. The nearest neighbour, diverging by a minimum of 1.67%, is *Euura monticola*.

Nuclear

Only one sequence available. The nearest neighbour, diverging by a minimum of 1.18%, is *Euura fuscomaculata*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Germany, and Russia.

105 *Euura annulata* (Gimmerthal, 1834)

Figs 103, 337

Nematus annulatus Gimmerthal, 1834: 123–124. Syntype ♂ (specimen deposition unknown). Type locality: Estonia or Latvia.

Nematus (*Nematus*) *xanthopterus* Dahlbom, 1835b: 8. Replacement name for *Tenthredo rumicis* Linnaeus, 1758 sensu Fallén, 1808.

Nematus flavipennis Cameron, 1876a: 189. Syntype ♀ (BMNH?), not examined. Type locality: United Kingdom, Scotland, Rannoch and Kingussie. Synonymy by Brischke (1883).

Nematus leucocarpus André, 1880a: 145. Lectotype designated below. Primary homonym of *Nematus leucocarpus* Hartig, 1840. **Syn. nov.**

Nematus valesiacus W.F. Kirby, 1882: 394. Replacement name for *Nematus leucocarpus* André, 1880.

Pachynematus lacteipennis Benson, 1963: 162–164. Synonymy by Taeger & Blank (1998).

Commonly used names have been *Pachynematus rumicis* (Benson 1958a) and *Nematus rumicis* (Zhelohovcev & Zinovjev 1988).

Diagnosis

Female

Mostly black to extensively pale, head (always?) extensively pale around eyes, pterostigma pale, claws with small subapical tooth, valvula 3 short and gradually tapering. Lancet has 11–12 annuli, with teeth-like setae, and basal 2–3 annuli without serrulae.

Male (differences from female)

Extensively to mostly pale.

Most similar species is *E. gehrsi*, from which it usually differs by its larger size and paler colouration. Paravalva of *E. annulata* is possibly more abruptly narrowed basally compared to *E. gehrsi*. An externally very similar species is also *E. taegeri* (character states in parentheses), from which it differs by having lancet with about 11 annuli (about 15 annuli), basal 2–3 annuli without serrulae (all annuli with serrulae), convex ventroapical margin of lancet (straight or concave), and slender valvispina. Another similar species is *E. infirma*, from which it differs in its larger size, paler colouration, broader valvula 3, basal 2–3 annuli without serrulae (all annuli with serrulae), convex ventroapical margin of lancet (straight or concave), and pseudoceps without apical filament (with filament).

Type material examined

Lectotype *Nematus leucocarpus*, here designated

SWITZERLAND • ♀; Alpes du Valais; Desbrochers leg.; ZIN, DEI-GISHym89375.

Holotype *Pachynematus lacteipennis*

AUSTRIA – **Lower Austria** • ♀; Semmeringgebiet, Raxalp; 47.70° N, 15.74° E; 1830 m a.s.l.; 3 Jun. 1957; R.B. Benson leg.; BMNH, B.M.TYPEHYM.1.789.

Host plants

Rumex spp. (Nyman *et al.* 2006; Macek *et al.* 2020). There can be up to two generations per year in central Europe (Weiffenbach 1985 [under the name *Pachynematus rumicis*]).

Genetics

COI

Based on 7 specimens, maximum within-species distance is 3.96% and the nearest neighbour, diverging by a minimum of 0.61%, is *Euura gehrsi*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.61%. The nearest neighbour, diverging by a minimum of 0.5%, is *Euura gehrsi*.

Distribution and material examined

Palaearctic. Specimens studied are from Austria, Finland, Germany, Iceland, Norway, Sweden, Switzerland, and the United Kingdom.

106 *Euura bipartita* (Serville, 1823)

Figs 98–100, 341–343

Nematus bipartitus Serville, 1823: 71. Lectotype ♂ (MRSN), designated by Blank & Taeger (1998), not examined. Type locality: France, Paris.

Nematus aurantiacus Hartig, 1837: 197–198. Lectotype designated below. Synonymy by Konow (1901b).

Nematus confusus Förster, 1854a: 280–282. Lectotype designated below. Synonymy by Konow (1902b).

Nematus xanthogaster Förster, 1854a: 315–316. Lectotype designated below. Synonymy by Konow (1902b).

Nematus ochropus Thomson, 1863: 617. Synonymy by Konow (1901b).

Pachynematus albipennis var. *salicicola* Enslin, 1916a: 464. Lectotype designated by Blank *et al.* (2009). Synonymy by Blank *et al.* (2009).

Pteronidea fulviventris Lindqvist, 1958: 107. **Syn. nov.**

Pteronidea stramineipes Lindqvist, 1958: 111. **Syn. nov.**

Pteronidea rutilipes Lindqvist, 1959c: 59–60. **Syn. nov.**

Diagnosis

In southern Fennoscandia and central Europe, *E. bipartita* is extensively pale (completely or nearly completely pale abdomen and often also extensively pale thorax), but based on nuclear sequencing, specimens are (usually?) much darker (thorax black and abdomen from extensively pale ventrally to nearly completely black) in northern Fennoscandia. The holotypes of *stramineipes* and *rutilipes* fit well (externally and saws) with the dark form of *E. bipartita*. Specimens with intermediate colouration might not always be distinguishable from *E. monticola*.

Head black or pale around eyes; labrum pale; clypeus black or pale; supraclypeal area black or pale; flagellum black or pale; thorax black or with pale markings laterally and dorsally; tegula and pronotum posteriorly pale; pterostigma pale; metafemur and metatibia pale; hind tarsus pale or brown; abdomen nearly completely black to completely pale; claws bifid in female, bifid or with small to large subapical tooth in male; valvula 3 elongate, gradually tapering; lancet with (14?)15–17(18?) serrulae.

The most similar species are *E. monticola* and *E. perkioemaekii*. Male and female specimens of *E. bipartita* with a completely or nearly completely pale abdomen (usually?) also have at least a partly pale mesepisternum and partly pale antennae, while *E. monticola* usually has a black mesepisternum, black antennae and extensively black abdominal terga 1–2. The antennae of *E. monticola* (as long as costa or up to half of pterostigma in female) may also be shorter than in *E. bipartita* (usually longer than costa and half of pterostigma in female and male). Females of *E. bipartita* differ from *E. perkioemaekii* by having a longer subapical tooth of claw and possibly more prominent serrulae. Darker males of *E. bipartita* may not be always separable from *E. perkioemaekii*. Pale specimens of *E. bipartita* are also

similar to *E. albipennis* (character states in parentheses), from which it usually differs by having bifid claws (usually with small subapical tooth), mesoscutellum at same level as lateral mesoscutal lobes (usually higher than lateral mesoscutal lobes), protibial spur with velum (without velum), ventrally at least slightly pale antenna (usually uniformly black), extensively pale head and mesepisternum (usually mostly black), and slightly more protruding serrulae.

Type material examined

Lectotype *Nematus aurantiacus*, here designated
GERMANY • ♀; ZSM, GBIF-GISHym3087.

Paralectotype *Nematus aurantiacus*
GERMANY • 1 ♀; ZSM, GBIF-GISHym3206.

Lectotype *Nematus confusus*, here designated
GERMANY – **Nordrhein-Westfalen** • ♀; Aachen area; 50.77° N, 6.09° E; A. Förster leg.; ZSM, GBIF-GISHym3229.

Lectotype *Nematus xanthogaster*, here designated
GERMANY – **Nordrhein-Westfalen** • ♂; Aachen area; 50.77° N, 6.09° E; A. Förster leg.; ZSM, GBIF-GISHym3459.

Holotype *Nematus ochropus*
SWEDEN • ♀; Dalarna; NHRS, NHRS-HEVA000003994.

Lectotype *Pachynematus albipennis* var. *salicicola*
GERMANY – **Brandenburg** • ♀; Fürstenwalde; 52.37° N, 14.06° E; 1–31 May 1912; S. Soldanski leg.; SDEI, DEI-GISHym5034.

Holotype *Pteronidea fulviventris*
FINLAND – **Kainuu** • ♀; Suomussalmi, Ruhtinansalmi; 65.15° N, 29.35° E; 21 Jul. 1917; O. Sorsakoski leg.; ZMUT, <http://mus.utu.fi/ZMUT.TYPE765>.

Note

14 serrulae. Lancet most similar to the holotype of *Pteronidea stramineipes*, but with fewer serrulae (16 in *stramineipes*). Antennae seem to be of the same length as in *E. monticola*, but mesepisternum and antennae are partly pale, and the lancet has distinctly fewer serrulae than *E. monticola*. Mesepisternum slightly matt.

Holotype *Pteronidea stramineipes*
FINLAND – **Lapin Lääni** • ♀; Kilpisjärvi; 69.04° N, 20.81° E; 7 Jul. 1953; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3511>.

Note

The best morphological match is ZMUO.041906.

Holotype *Pteronidea rutilipes*
FINLAND – **Lapin Lääni** • ♀; Kilpisjärvi; 69.04° N, 20.81° E; 12 Jul. 1950; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3590>.

Note

The best morphological match is ZMUO.041906.

Hosts plants

Salix spp.; according to Enslin (1911b) also *Populus*.

Genetics

COI

Based on 10 specimens, maximum within-species distance is 3.5% and the nearest neighbour, diverging by a minimum of 0%, is *Euura monticola*.

Nuclear

Based on 10 specimens, maximum within-species distance is 0.87% (0.61% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.21%, is *Euura perkioemaekii*.

Distribution and material examined

Palaearctic. Specimens studied are from Belgium, Bulgaria, Czech Republic, Estonia, Finland, France, Germany, and Sweden.

107 *Euura caucasica* (Liston, Taeger & Blank, 2009)

Figs 108, 346

Pachynematus alticola Muche, 1973a: 221–223. Primary junior homonym of *Pachynematus alticola* Enslin, 1916 [*Pristiphora carinata* (Hartig, 1837)].

Pachynematus causicus Liston, Taeger & Blank, 2009 in Blank *et al.* 2009: 45. Replacement name for *P. alticola*.

Diagnosis

The holotype female is externally similar to darker specimens in the *bipartita* group (e.g., *E. bipartita*) and *flavescens* group (e.g., *E. lienterica*), but the serrulae of the saw are rather protruding and almost papilliform in *E. caucasica* compared to more triangular or flat in the *bipartita* and *flavescens* groups. The penis valves of the paratype (which may or may not be conspecific with the holotype) are not clearly distinguishable from *E. fuscomaculata*.

Type material examined

Holotype *Pachynematus alticola*

RUSSIA – **Elbrus Region** • ♀; Terskol, Südosthang; 43.26° N, 42.53° E; 2500–2800 m a.s.l.; 8 Jul. 1971; W.H. Muche leg.; ZMHB, DEI-GISHym81560.

Paratype *Pachynematus alticola*

RUSSIA – **Elbrus Region** • 1 ♂; Itkol; 43.25° N, 42.54° E; 2100–2300 m a.s.l.; 27 Jun.–6 Jul. 1967; W.H. Muche leg.; ZMHB, DEI-GISHym12542.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Palearctic. Specimens studied are from Russia.

108 *Euura connecta* (Lindqvist, 1958)

Figs 109, 350

Pteronidea connecta Lindqvist, 1958: 95–96.

Pteronidea nitida Lindqvist, 1969: 245–246. **Syn. nov.**

Pteronidea polita Lindqvist, 1974a: 119. Secondary homonym of *Nematus politus* Zaddach, 1883 [*Euura polita* (Zaddach, 1883)] **Syn. nov.**

Nematus glaber Vikberg, 1982. Replacement name for *Pteronidea polita* Lindqvist, 1974.

Diagnosis

Morphologically not clearly distinguishable from *E. leucopyga*, except for colouration. Overall, *E. connecta* females are paler (e.g., mesepisternum extensively pale) than *E. leucopyga* (mesepisternum black). Males are also paler (metafemur and sterna completely pale) than *E. leucopyga* (metafemur often black at base, sterna at least partly black). The species are genetically also close, but at least based on the sampled specimens ($n = 6$), *E. connecta* nuclear haplotypes are quite distinct from *E. leucopyga*. Nevertheless, it cannot be excluded that *E. connecta* is a southern pale form of *E. leucopyga*. Another very similar species is *E. leionota*, which seems to have a somewhat different saw: generally with 19–23 serrulae (17–19 in *E. connecta*) and slightly convex ventral margin of lamnium (straight or slightly concave in *E. connecta*).

Female

Head extensively pale around eyes; labrum, clypeus and supraclypeal area pale; flagellum black or pale ventrally; thorax dorsally black to nearly completely pale, laterally extensively to nearly completely pale; pronotum and tegula pale; pterostigma pale; metafemur and metatibia pale; hind tarsus pale or brown; abdomen dorsally mostly black, ventrally completely or nearly completely pale; mesepisternum smooth; claws bifid; valvula 3 in dorsal view apically blunt or acute.

Type material examined

Holotype *Pteronidea connecta*

SWITZERLAND – Valais • ♀; Zerneux; 46.70° N, 10.10° E; 1400 m a.s.l.; 16–18 Jun. 1953; H. Lindberg leg.; MZH, <http://id.luomus.fi/GL.9223>.

Notes

19 serrulae; 7.3 mm. Best morphological match, but smaller: DEI-GISHym83923 (17–18 serrulae; 6.2 mm).

Holotype *Pteronidea nitida*

FINLAND – Inari • ♀; Ivalo; 68.65° N, 27.55° E; V. Karvonen leg.; 4 Jul. 1965; MZH, <http://id.luomus.fi/GL.9218>.

Notes

17 serrulae; 6.5 mm. Best morphological match: DEI-GISHym83923.

Holotype *Pteronidea polita*

FINLAND – Vihti • ♀; Siikajärvi; 60.29° N, 24.52° E; V. Karvonen leg.; 10 Jun. 1973; MZH, <http://id.luomus.fi/GL.3513>.

Notes

Best morphological match: DEI-GISHym4985.

Hosts plants

Salix pentandra and possibly other *Salix* spp. According to Macek *et al.* (2020) the host is *Betula*, but this may be due to misidentification of the very similar *E. leionota*, which feeds on *Betula*. We note that, based on sequencing of one larva, *E. leionota* is present in Slovakia.

Genetics

COI

Based on 8 specimens, maximum within-species distance is 0.15% and the nearest neighbours, diverging by a minimum of 0.15%, are *Euura leucopyga*, *E. parviserrata*, and *E. sordidiapex*.

Nuclear

Based on 6 specimens, maximum within-species distance is 0.31% (0.27% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.25%, is *Euura leucopyga*.

Distribution and material examined

Palaearctic. Specimens studied are from Estonia, Finland, Germany, Switzerland, and the United Kingdom.

109 *Euura declinata* (Förster, 1854)

Figs 115, 366, 367

Nematus declinatus Förster, 1854a: 348–349. Lectotype designated by Haris (1997).

Pteronus capito Konow, 1903b: 307 (key). Lectotype designated by Enslin (1916a).

Diagnosis

Mostly black, pterostigma pale, claws with a large subapical tooth clearly separated from apical one, or bifid, mesepisternum smooth, valvula 3 elongate, thin and gradually tapering.

The most similar species is *E. scotonota* (character states in parentheses), from which it differs possibly by mostly black sterna (pale). Closely related is also *E. excisa* (claws with small subapical tooth, mesepisternum matt).

Type material examined

Lectotype *Nematus declinatus*

GERMANY – **Nordrhein-Westfalen** • ♂; Aachen area; 50.77° N, 6.09° E; A. Förster leg.; ZSM, GBIF-GISHym3260.

Lectotype *Pteronus capito*

GERMANY – **Sachsen** • ♀; SDEI, GBIF-GISHym3878.

Notes

The synonymy of *Pteronus capito* with *Nematus declinatus* Förster by Taeger & Blank (1998) is here accepted. The projection of tergite 8 of the type specimen of *declinatus* does not fit *Euura clitellata* or *E. fallax* (which was considered within the range of variability of *Pachynematus fallax* by Liston & Burger, 2009). Genitalia of the type specimen are unfortunately lost (Liston & Burger 2009), but the drawing by Conde (who studied the type specimen) in an unpublished manuscript on Nematinae fits best with the specimen DEI-GISHym17598 (Figs 366–367) that we consider to be conspecific with

females described by Konow as *Pteronus capito*. The penis valve is similar to that of the closely related *E. scotonota*.

Host plants

Unknown.

Genetics

COI

Based on 2 specimens, maximum within-species distance is 0.16% and the nearest neighbour, diverging by a minimum of 1.29%, is *Euura scotonota*.

Nuclear

Only one sequence available, a female with haplotypes diverging by 0%. The nearest neighbour, diverging by a minimum of 0.89%, is *Euura excisa*.

Distribution and material examined

Palearctic. Specimens studied are from Czech Republic, France, and Germany.

110 *Euura excisa* (Thomson, 1863)

Fig. 116

Nematus excisus Thomson, 1863: 628. Lectotype designated below.

Lygaeonematus strandi Konow, 1901a: 92. Lectotype designated below. Synonymy by Lindqvist (1952).

Diagnosis

Mostly black, labrum and partly clypeus pale; head behind eyes sometimes pale; tegula pale; pterostigma pale; valvifer 2, hypopygium posteriorly, tergum 9 partly, and tergum 10 pale; metafemur apically pale; metatibia pale; hind tarsus pale or brown; claws with small subapical tooth, mesepisternum (usually?) matt, valvula 3 in dorsal view elongate, thin and gradually tapering.

Most closely related species are *E. declinata* and *E. scotonota* (character states in parentheses), from which it differs by having claws with small subapical tooth (usually bifid or with large subapical tooth) and matt mesepisternum (smooth). Additional characters like its mostly black body, pale pterostigma and tibiae enable it to be separated from all other species of *Euura* relatively easily.

Male unknown, but penis valve could be similar to the closely related *E. declinata* and *E. scotonota*.

Type material examined

Lectotype *Nematus excisus*, here designated

SWEDEN • ♀; Norlandia [Lapland, probably Sweden]; C.H. Boheman leg.; MZLU, MZLU2017274.

Lectotype *Lygaeonematus strandi*, here designated

NORWAY – Nordland • ♀; Hadsel; 68.5° N, 15.0° E; E. Strand leg.; SDEI, GBIF-GISHym3880.

Host plants

Bistorta vivipara (L.) Delarbre.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 1.41% and the nearest neighbour, diverging by a minimum of 1.22%, is *Euura fuscomaculata*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.15% (0.34% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.71%, is *Euura scotonota*.

Distribution and material examined

Holarctic. Specimens studied are from Finland, Greenland (only genetics), Norway, and Sweden.

111 *Euura fuscарima* (Benson, 1933) comb. nov.

Figs 123–124, 349

Pteronidea fuscарima Benson, 1933: 258–259.

Pteronidea striatipleuris Lindqvist, 1958: 106–107. **Syn. nov.**

Pteronidea epimeris Lindqvist, 1969: 241. **Syn. nov.**

Pteronidea peltoneni Lindqvist, 1969: 239–241. **Syn. nov.**

Diagnosis

Females are typically almost completely yellow, resembling *E. flavescens*, that is externally hardly distinguishable. The serrulae of *E. flavescens* protrude less than in *E. fuscарima*. In addition, the dorsobasal part next to the suture of basalmost annulus of the saw of *E. flavescens* has a dorsally widening pale area that is absent in *E. fuscарima*. Even more similar to *E. fuscарima* could be *E. seriepunctata* (also *flavescens* group), which seems also to have less protruding serrulae than *E. fuscарima*. The only males we have studied are paratypes of *E. fuscарima* that were reared together with the females. Males are generally significantly darker dorsally than females. Penis valves are most similar to *E. taegeri* and clearly distinguishable from the *flavescens* group penis valves.

Although not identical, one sequenced darker specimen (ZMUO.035621) of *fuscарima* from Utsjoki (northern Finland) clearly groups with the typical *fuscарima* from the south based on nuclear genes. The ZMUO.035621 specimen matches well (saw and colouration) with the holotypes of *striatipleuris* and *epimeris* from northern Finland. These darker specimens from the North are dorsally extensively black and the thorax can be slightly black also laterally. Considering the generally large colour variability in many species of *Euura* and close genetic similarity of ZMUO.035621 to typical *fuscарima*, we treat *striatipleuris* and *epimeris* as synonyms of *fuscарima*. Based on its penis valve, the paratype of *epimeris* (<http://id.luomus.fi/GL.3495>) may belong to *E. fuscodorsata* (ZMUO.035607).

The study of the saw of the lectotype of *Nematus testaceus* Thomson (primary homonym of *Nematus testaceus* Stephens) revealed it to belong to *E. flavescens*, which also means that the replacement name previously used for *fuscарima*, *Pteronidea stichi* Enslin, 1913 is a synonym of *E. flavescens* and therefore not available for *fuscарima*.

Type material examined

Holotype *Pteronidea fuscарima*

IRELAND – Wicklow • ♀; Devil's Glen; 53.02° N, 6.15° W; larvae collected Oct. 1927, emerged May 1928; A.W. Stelfox leg.; larvae on *Salix*; BMNH, B.M.TYPEHYM.1.632.

Holotype *Pteronidea striatipleuris*

FINLAND – Lapin Lääni • ♀; Kilpisjärvi; 69.04° N, 20.81° E; 6 Jul. 1953; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3551>.

Notes

18 serrulae. Best morphological match: ZMUO.035621 (17–18 serrulae).

Holotype *Pteronidea epimeris*

FINLAND – **Lapin Lääni** • ♀; Kilpisjärvi; 69.04° N, 20.81° E; 7 Jul. 1966; V. Karvonen leg.; MZH, <http://id.luomus.fi/GL.3494>.

Notes

17 serrulae.

Holotype *Pteronidea peltoneni*

FINLAND – **Uusimaa** • ♀; Helsinki, Herttoniemi; 60.20° N, 25.04° E; larvae collected 1 Sep. 1964, adult emerged 30 Sep. 1964; E. Peltonen leg.; host *Salix phylicifolia*; MZH, <http://id.luomus.fi/GL.3517>.

Host plants

Salix spp. Two generations (Benson 1933).

Genetics

COI

Based on 5 specimens, maximum within-species distance is 4.43% and the nearest neighbour, diverging by a minimum of 0%, is *Euura polaris*.

Nuclear

Based on 3 specimens, maximum within-species distance is 0.78% (0.25% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.02%, is *Euura polaris*.

Distribution and material examined

Palearctic. Specimens studied are from Austria, Finland, Ireland, and Sweden.

112 *Euura fuscodorsata* (Lindqvist, 1949) comb. nov.
Figs 118, 362

Pteronidea fuscodorsata Lindqvist, 1949: 73–74.

Pachynematus albiventris Lindqvist, 1959b: 70. **Syn. nov.**

Diagnosis

Externally most similar to *E. poppii* and *E. fuscomaculata*, but the saw fits best with *E. scotonota*, which has 16–17 serrulae (12–15(?) in *E. fuscodorsata*) and largely black head (pale around eyes and pale supraclypeal area in *E. fuscodorsata*). The claws of *E. fuscodorsata* are not clearly bifid as in most other *Euura* (including *E. poppii* and *E. fuscomaculata*) but have a small or large subapical tooth. We have studied only three females. Characteristic for the species may be pale sterna in combination with black downturned parts of abdominal terga, although this colour pattern does occasionally occur in some other species as well, like *E. poppii* and *E. fuscomaculata*.

Type material examined

Holotype *Pteronidea fuscodorsata*

FINLAND – **Inari** • ♀; Ivalo; 68.65° N, 27.55° E; H. Lindberg leg.; 29 May 1929; MZH, <http://id.luomus.fi/GL.3542>.

Notes

15 serrulae?

Holotype *Pachynematus albiventris*

NORWAY – **Finnmark** • ♀; Tana Bru; 70.20° N, 28.17° E; H. Andersson leg.; 8 Jul. 1956; MZLU, MZLU-HYM0031489.

Notes

12–13 serrulae.

Host plants

Unknown.

Genetics

COI

Based on 2 specimens, maximum within-species distance is 2.13% and the nearest neighbour, diverging by a minimum of 2.74%, is *Euura monticola*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.01% (0.01% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.29%, is *Euura bipartita*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Norway.

113 *Euura fuscomaculata* (Förster, 1854)

Figs 126, 347, 348

Nematus fuscomaculatus Förster, 1854a: 291–292. Lectotype designated below.

Nematus strongylogaster Cameron, 1878: 42–43. Syntypes ♀♀ (BMNH?), not examined. Type locality: United Kingdom, Scotland, Kilsyth Glen and Cannisburn. Synonymy by Konow (1903c).

Pteronus dossuarius Konow, 1904a: 262. Lectotype designated below. Synonymy by Lindqvist (1944b).

Nematus (Pteronidea) carelicus Hellén, 1948: 114–115. **Syn. nov.**

Pteronidea winteri Lindqvist, 1958: 114–115. **Syn. nov.**

Diagnosis

Based on its COI barcode sequence (closest to *E. fuscomaculata* ZMUO.040288 and DEI-GISHym31250) and morphology of the holotype of *winteri*, we have synonymized it with *E. fuscomaculata*. The holotype of *carelicus* is almost destroyed, but Viitasaari & Vikberg (1985) considered it to be conspecific with *winteri* and therefore we treat it also as synonym of *E. fuscomaculata*. In addition, the original description of *carelicus* seems to fall within the variability of *E. fuscomaculata*. The male paratype <http://id.luomus.fi/GL.3467> also fits well with *E. fuscomaculata*.

Based on nuclear genes, *E. fuscomaculata* can be divided into two or three clusters, composed of southern and northern specimens, but these are morphologically not clearly distinguishable. At least some of the northern specimens must have fed on *Salix* instead of *Populus* (absent in most of the localities where they have been collected).

Female

Head extensively or slightly pale around eyes (inner orbits continuously pale and outer orbits pale only dorsally or both inner and outer orbits pale only dorsally); labrum and clypeus pale; supraclypeal area slightly or extensively pale; thorax black (rarely slightly pale like DEI-GISHym13870 or extensively

pale like the lectotype of *dossuarius* Konow?); pronotum and tegula pale; pterostigma pale; metafemur pale; metatibia pale with black apex; hind tarsus black or brown; abdomen dorsally nearly completely black, ventrally extensively pale; mesepisternum smooth; lancet with (16?)17–18 serrulae; antennae usually as long as costa and pterostigma.

Male

Head extensively pale around eyes to nearly completely black; labrum and clypeus pale; supraclypeal area black (usually?); thorax black; pronotum and tegula extensively pale; pterostigma pale; metafemur pale; metatibia pale with black apex; hind tarsus black or brown; abdomen dorsally nearly completely black, ventrally mostly black to extensively pale; sternum 9 pale; antennae not reaching beyond apex of pterostigma.

Type material examined

Lectotype *Nematus fuscomaculatus*, here designated
GERMANY – Nordrhein-Westfalen • ♀; Aachen area; 50.77° N, 6.09° E; ZSM, GBIF-GISHym3287.

Lectotype *Pteronus dossuarius*, here designated
RUSSIA – Yakutia • ♀; Ust'-Vilyuyskiy Khrebet; 64.48° N, 126.31° E; B. Poppius leg.; SDEI, GBIF-GISHym3852.

Holotype *Nematus (Pteronidea) carelicus*
RUSSIA – Karelia • ♀; Petrosavodsk; 61.78° N, 34.32° E; 1 Jun. 1943; W. Hellén leg.; MZH, <http://id.luomus.fi/GL.3501>.

Notes

The holotype is almost destroyed: only three wings, two legs and about a third of the sclerites of the thorax remain.

Holotype *Pteronidea winteri*
FINLAND – Uusimaa • ♀; Helsinki, Munksnäs [Munkkiniemi]; 60.22° N, 24.89° E; 19 Jun. 1955; O. Winter leg.; MZH, <http://id.luomus.fi/GL.3468>.

Notes

The nearly complete lancets on the card pinned with the specimen must belong to another specimen, because the holotype still has half of its saw. Saw on the card has 15–16 serrulae, and is indistinguishable from the holotype of *Pteronidea stramineipes*.

Host plants

Populus tremula L., but possibly also *Salix* spp. in the North if specimens from there are conspecific.

Genetics

COI

Based on 19 specimens, maximum within-species distance is 2.43% and the nearest neighbour, diverging by a minimum of 1.06%, is *Euura monticola*.

Nuclear

Based on 13 specimens, maximum within-species distance is 1.24% (0.65% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.53%, is *Euura parviserrata*.

Distribution and material examined

Palaearctic. Specimens studied are from Austria, Estonia, Finland, Germany, Norway, Russia, and Sweden.

114 *Euura fuscula* (Lindqvist, 1958)

Fig. 125

Pteronidea fuscula Lindqvist, 1958: 116–117.

Diagnosis

The female holotype is mostly black and externally most similar to species in the *bipartita* and *flavescens* groups. The lancet (17 serrulae) is most similar to *E. bipartita*, *E. fuscарima*, and *E. lienterica*, but does not clearly fit these species (*E. fuscарima* is also significantly paler, and usually the other two species are as well): sutures of middle annuli somewhat S-shaped as in *E. lienterica* (more or less straight or arc-shaped in *E. fuscарima* and *E. bipartita*), but setae are significantly longer than in at least *E. lienterica*. The serrulae of *E. fuscula* seem to be most similar to *E. fuscарima*. In the absence of genetic data it is difficult to say whether *E. fuscula* could be a synonym of an existing species or is distinct. The male paratype <http://id.luomus.fi/GL.3565> belongs to the *E. flavescens* group (species uncertain).

Type material examined

Holotype *Pteronidea fuscula*

FINLAND – Lapin Lääni • ♀; Kilpisjärvi; 69.04° N, 20.81° E; 10 Jul. 1950; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3566>.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Palaearctic. Specimens studied are from Finland.

115 *Euura gehrsi* (Konow, 1903)

Figs 104, 338

Pachynematus gehrsi Konow, 1903a: 381 (key). Lectotype designated by Taeger & Blank (1998).
Pachynematus freyi Lindqvist, 1949: 81–82. Lectotype designated below. **Syn. nov.**

Diagnosis

Most similar to *E. annulata* but generally darker. Serrulae and setae of the saw of *E. annulata* may be more prominent than in *E. gehrsi*. Males are more clearly distinguishable because of large differences in colouration (*E. annulata* males are extensively pale while *E. gehrsi* is mostly black). Also, the paravalva of the penis valve of *E. annulata* possibly narrows basally more abruptly compared to *E. gehrsi*.

Type material examined

Lectotype *Pachynematus gehrsi*

GERMANY – Thuringen • ♀; Ohrdruf; 50.81° N, 10.74° E; 9 Jun. 1890; A. Frank leg.; SDEI, DEI-GISHym12498.

Lectotype *Pachynematus freyi*, here designated

FINLAND – Inari Lapland • ♀; Utsjoki, Outakoski; 69.61° N, 25.98° E; 25 Jun. 1947; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.2448>.

Host plants

Bistorta officinalis Delarbre (Macek *et al.* 2020; rearings by Alexey Zinovjev) and probably also *Bistorta vivipara*, because *B. officinalis* is not present in northern Fennoscandia.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 3.5% and the nearest neighbour, diverging by a minimum of 0.61%, is *Euura annulata*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.61% (0.47% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.5%, is *Euura annulata*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, France, Germany, Norway, Russia, and Sweden.

116 *Euura infirma* (Förster, 1854)

Figs 105, 339

Nematus infirmus Förster, 1854a: 316–318. Lectotype designated by Taeger & Blank (1998).

Nematus subaequalis Förster, 1854a: 305–307. Lectotype designated by Taeger & Blank (1998).

Synonymy by Taeger & Blank (1998).

Diagnosis

The females are most similar to *E. gehrsi*, *E. annulata*, and *E. oehlkei*, but can be distinguished based on lancets which are ventrally concave and have serrulae present also on basal-most annuli (ventrally slightly convex in *E. gehrsi* and *E. annulata* and basal 2–3 annuli without serrulae in *E. gehrsi*, *E. annulata*, and *E. oehlkei*). Valvula 3 is also narrower in dorsal view than in *E. gehrsi*, *E. annulata*, and perhaps *E. oehlkei*. Male penis valves are clearly distinguishable from the other *Euura*. Pseudoceps of the penis valve is apically filament-like, which is otherwise only seen in a few species of *Euura* that have bifid claws (small subapical tooth in *E. infirma*).

Female

3.7–3.9 mm. Head slightly to extensively pale around eyes; labrum, clypeus, and supraclypeal area pale; thorax black; pronotum black or posteriorly slightly pale; tegula pale; pterostigma pale; metafemur extensively pale; metatibia pale; hind tarsus black; abdomen black; valvifer 2 pale; valvula 3 black or brown, in dorsal view narrow and with acute apex.

Type material examined

Lectotype *Nematus infirmus*

GERMANY – Nordrhein-Westfalen • ♂; Aachen area; 50.77° N, 6.09° E; ZSM, GBIF-GISHym3303.

Lectotype *Nematus subaequalis*

GERMANY – **Nordrhein-Westfalen** • ♀; Aachen area; 50.77° N, 6.09° E; ZSM, GBIF-GISHym3445.

Host plants

Bistorta officinalis (Macek *et al.* 2020; rearings by Alexey Zinovjev).

Genetics

COI

Based on 3 specimens, maximum within-species distance is 0.46% and the nearest neighbours, diverging by a minimum of 4.86%, are *Euura polaris* and *E. poppii*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0% (0.33% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.92%, is *Euura gehrsi*.

Distribution and material examined

Palaearctic. Specimens studied are from France, Germany, Italy, and Russia. *Euura infirma* should be removed from the Finnish list, because the records probably refer to *E. gehrsi*.

117 *Euura leionota* (Benson, 1933)

Fig. 112

Pteronidea leionota Benson, 1933: 259–260.

Pteronidea microserrata Lindqvist, 1941a: 68–69. **Syn. nov.**

Pteronidea nigrita Lindqvist, 1958: 113–114. Secondary homonym of *Nematus nigritus* Norton, 1861 (incertae sedis). **Syn. nov.**

Pteronidea clavicercus Lindqvist, 1958: 92–94. **Syn. nov.**

Pteronidea verticalis Lindqvist, 1958: 94. **Syn. nov.**

Nematus amaurus Vikberg, 1982. Replacement name for *Pteronidea nigrita* Lindqvist, 1958.

Diagnosis

Most similar to *E. connecta*: see differences mentioned under that species.

Female

5.0–7.0 mm. Head extensively to mostly pale; labrum, clypeus and supraclypeal area pale; flagellum black or ventrally pale; thorax dorsally extensively pale (sometimes black?), ventrally extensively or nearly completely pale; pterostigma uniformly pale, brown, or with dark margins; abdomen dorsally mostly black, ventrally completely pale; metafemur and metatibia pale; hind tarsus pale or brown; mesepisternum smooth; claws bifid; valvula 3 in dorsal view with blunt tip.

Male

Not known for certain.

Type material examined

Holotype *Pteronidea leionota*

UNITED KINGDOM – **England** • ♀; Devon, Great Haldons; 50.63° N, 3.57° W; Apr. 1926; R.C.L. Perkins leg.; BMNH, B.M.TYPEHYM.1.634.

Notes

22 serrulae.

Holotype *Pteronidea microserrata*

FINLAND – **Uusimaa** • ♀; Kirkkonummi; 60.126° N, 24.439° E; R. Frey leg.; MZH, <http://id.luomus.fi/GL.9221>.

Notes

21 serrulae.

Holotype *Pteronidea nigrata*

SWEDEN – **Torne Lappmark** • ♀; Abisko; 68.35° N, 18.83° E; 25–30 Jun. 1954; J.E. and R.B. Benson leg.; BMNH, B.M.TYPEHYM.1.784.

Notes

20–21 serrulae; 6 mm.

Holotype *Pteronidea clavicercus*

FINLAND – **Häme** • ♀; Pirkkala; 61.466° N, 23.642° E; 13 Jun. 1935; T. Grönblom leg.; MZH, PR.558VV.

Notes

21 serrulae. Best morphological match: DEI-GISHym12042 (22 serrulae).

Holotype *Pteronidea verticalis*

FINLAND – **Satakunta** • ♀; Björneborg [Pori]; 61.49° N, 21.81° E; 17 May 1935; E. Lindqvist leg.; MZH, PR.557VV.

Notes

23 serrulae. Best morphological match: DEI-GISHym12042 (22 serrulae).

Host plants

Betula pendula Roth and *B. pubescens*.

Genetics

COI

Based on 7 specimens, maximum within-species distance is 0.31% and the nearest neighbour, diverging by a minimum of 1.37%, is *Euura sordidiapex*.

Nuclear

Based on 6 specimens, maximum within-species distance is 0.16% (0.14% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.31%, is *Euura leucopyga*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Norway, Slovakia, Sweden, and the United Kingdom.

118 *Euura leptostigma* (Lindqvist, 1958)

Figs 131, 352–353

Pteronidea leptostigma Lindqvist, 1958: 111–113.

Pteronidea thunebergi Lindqvist, 1959c: 58–59. **Syn. nov.**

Pteronidea curticornis Lindqvist, 1969: 236–237. Secondary homonym of *Nematus curticornis* Cameron, 1885 [*Euura pedunculi* (Hartig, 1837)]. **Syn. nov.**

Pteronidea melanochroa Lindqvist, 1969: 235–236. **Syn. nov.**

Pteronidea tegularis Lindqvist, 1969: 236. **Syn. nov.**

Amauronematus nitens Lindqvist, 1977: 93–94. Secondary homonym of *Nematus nitens* Thomson, 1888 [*Euura respondens* (Förster, 1854)]. **Syn. nov.**

Nematus truncicornis Vikberg, 1982. Replacement name for *Pteronidea curticornis* Lindqvist, 1969.

Euura nitidula Prous & Taeger, 2014 in Prous *et al.* 2014. Replacement name for *Amauronematus nitens* Lindqvist, 1977.

Diagnosis

Most similar are *E. leucopyga*, *E. parviserrata*, *E. sulciceps*, *E. sordidiapex*, *E. polepso* Prous & Mutanen sp. nov., and *E. polaris*, which can mostly be distinguished based on the lancets, but the differences can be small. Valvula 3 of some specimens of *E. leucopyga* and often in *E. polaris* is rather broad and square-shaped in dorsal view while it is narrower and tends to be more triangular in the other species. The lancet of *E. sordidiapex* is the most similar to *E. leptostigma* and may not always be distinguishable. There might be differences in overall shape:

- dorsal margin of lamnium almost straight, basal annuli somewhat higher than middle annuli *E. sordidiapex*
- dorsal margin of lamnium somewhat bent, middle and basal annuli of similar height *E. leptostigma*.

The lancet of *E. polaris* is also similar, but the overall shape might be slightly different and it is perhaps (usually?) smaller than in *E. leptostigma*. The males are not clearly distinguishable from those of *E. leucopyga*, *E. parviserrata*, *E. sulciceps*, *E. polepso* sp. nov., and *E. polaris*. Penis valve of *E. sordidiapex* is slightly different in shape (paravalva similarly broad basally and apically, but apically broader in the other species) and has a smaller valvispina than the other species.

Female

Head extensively pale around eyes to nearly completely black; labrum pale; clypeus extensively or slightly pale; supraclypeal area black or pale; thorax black; pronotum black or posteriorly slightly pale (usually?); tegula pale; pterostigma pale; metafemur and metatibia pale; hind tarsus pale or brown; abdomen dorsally nearly completely black, ventrally mostly black to mostly pale; mesepisternum smooth or slightly matt; valvula 3 rather broad in dorsal view. Head can be rather like in “*Amauronematus*”. Colouration of ZMUO.037269 (mesepisternum slightly matt) fits well with the type of *leptostigma*.

Type material examined

Holotype *Pteronidea leptostigma*

SWEDEN – Torne Lappmark • ♀; Abisko; 68.35° N, 18.83° E; 1–5 Jul. 1954; J.E. and R.B. Benson leg.; BMNH, B.M.TYPEHYM.1.783.

Notes

Mesepisternum smooth; 20 serrulae.

Holotype *Pteronidea thunebergi*

FINLAND – Inari • ♀; Lemmenjoki; 68.75° N, 26.23° E; 27 Jun. 1917; E. Thuneberg leg.; MZH, <http://id.luomus.fi/GL.3595>.

Notes

19 (?) serrulae, smooth mesepisternum. Best fit: DEI-GISHym12055 (20 serrulae).

Holotype *Pteronidea curticornis*

FINLAND – Inari Lapland • ♀; Utsjoki; 69.91° N, 27.03° E; 7 Jul. 1968; V. Karvonen leg.; MZH, <http://id.luomus.fi/GL.3563>.

Notes

21 serrulae, smooth mesepisternum. Best morphological fit: DEI-GISHym12055 (20 serrulae).

Holotype *Pteronidea melanochoa*

NORWAY – **Troms** • ♀; Helligskogen; 69.20° N, 20.72° E; 30 May 1967 [emergence date from larvae collected in 1966]; J. Kangas leg.; reared from *Salix lapponum* L.; MZH, <http://id.luomus.fi/GL.5140>.

Notes

21–22 serrulae.

Holotype *Pteronidea tegularis*

FINLAND – **Inari Lapland** • ♀; Utsjoki; 69.91° N, 27.03° E; 17 Jun. 1967; V. Karvonen leg.; MZH, <http://id.luomus.fi/GL.3592>.

Notes

17–18 serrulae, matt mesepisternum.

Holotype *Amauronematus nitens*

FINLAND – **Lapin Lääni** • ♀; Kilpisjärvi; 69.04° N, 20.81° E; 10 Jul. 1968; L.H. Woollatt leg.; MZH, <http://id.luomus.fi/GL.2537>.

Notes

19–20 serrulae.

Host plants

Salix spp.

Genetics

COI

Based on 12 specimens, maximum within-species distance is 4.26% and the nearest neighbours, diverging by a minimum of 0%, are *Euura polaris* and *Euura sulciceps*.

Nuclear

Based on 12 specimens, maximum within-species distance is 0.62% (0.45% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.15%, is *Euura sulciceps*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Norway, and Sweden.

119 *Euura leucopyga* (Lindqvist, 1949)

Figs 110–111, 351

Amauronematus leucopyga Lindqvist, 1949: 69–70. Holotype ♀, paratypes ♀♂. Type specimens not found in MZH. Type locality: Finland.

Pteronidea bipicta Lindqvist, 1959c: 56. Synonymy by Lindqvist (1967b).

Amauronematus crassiserra Lindqvist, 1960a: 129. **Syn. nov.**

Diagnosis

Euura leucopyga is most similar to *E. connecta*: see differences mentioned under that species. Head shape can be similar to “*Amauronematus*”. Valvula 3 can sometimes be rather broad and square-shaped in dorsal view and with a small invagination posteriorly (*crassiserra*) similar to some *Euura polaris* specimens, but lancets of these species are distinguishable (see under *Euura polaris*).

Female

Head extensively or slightly pale around eyes; labrum and clypeus pale; supraclypeal area black or pale (usually); thorax black; pronotum and tegula pale; pterostigma pale; metafemur and metatibia pale; hind tarsus pale or brown; abdomen dorsally nearly completely black, ventrally mostly black to mostly pale.

Male

Head extensively pale around eyes to nearly completely black; labrum pale; clypeus pale or black; supraclypeal area black (usually?); thorax black; pronotum and tegula pale; pterostigma pale; metafemur pale or basally black; metatibia pale or laterally black; hind tarsus pale or brown; abdomen dorsally nearly completely black, ventrally mostly black to mostly pale; sternum 9 pale.

Type material examined

Holotype *Pteronidea bipicta*

FINLAND – Central Finland • ♀; Pihtipudas; 63.36° N, 25.55° E; 8–9 Jun. 1946; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3569>.

Notes

Best morphological match: DEI-GISHym21390.

Holotype *Amauronematus crassiserra*

FINLAND – Lapin Lääni • ♀; Kilpisjärvi; 69.04° N, 20.81° E; 20 Apr. 1954 [ex larva rearing emergence date]; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.2525>.

Notes

COI sequence (275 bp) of the holotype is identical to *E. connecta*, most specimens of *E. leucopyga*, and some specimens of *E. parviserrata* and *E. sordidiapex*.

Host plants

Salix spp.

Genetics

COI

Based on 25 specimens, maximum within-species distance is 3.95% and the nearest neighbours, diverging by a minimum of 0%, are *Euura parviserrata* and *Euura sordidiapex*.

Nuclear

Based on 21 specimens, maximum within-species distance is 0.83% (0.78% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.25%, is *Euura connecta*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Norway, Russia, and Sweden.

120 *Euura lipovskyi* (D.R. Smith, 1974)
Figs 134, 370

Nematus lipovskyi D.R. Smith, 1974: 205–207. Holotype ♀ (USNMMENT00779742, USNM, <http://n2t.net/ark:/65665/39b4121c8-5b12-465d-998c-73ffd25da7b2>), not examined. Type locality: USA, Massachusetts, Melrose Highlands.

Diagnosis

Extensively pale body, in dorsal view long and narrow valvula 3, and rather distinctive lancet should enable its separation from the other females of *Euura*. Externally it might be most similar to some species of the *E. miltonota* group (particularly *E. sagmarius*), which have a ventrally distinctly concave lancet with strongly curved sutures of basal annuli (lancet ventrally more or less straight with straight or weakly curved sutures in *E. lipovskyi*). Males are also extensively pale and are most similar to *E. fuscodorsata* and some of the *E. oblita* group gall-makers when the penis valves are also considered. The penis valve is much smaller in *E. fuscodorsata* (0.8–0.9 mm compared to 1.2–1.3 mm in *E. lipovskyi*) and the pseudoceps in the *E. oblita* group seems to be broader apically than in *E. lipovskyi*.

Host plants

Soft-leaved (deciduous) *Rhododendron* spp. (Macek & Šípek 2015; Apine & Piterāns 2021).

Genetics

COI

Based on 4 specimens, maximum within-species distance is 0.91% and the nearest neighbour, diverging by a minimum of 5.78%, is *Euura hypoxantha*.

Nuclear

Based on 3 specimens, maximum within-species distance is 0% (0.09% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.44%, is *Euura leptostigma*.

Distribution and material examined

Holarctic. Specimens studied are from Canada (only genetics), Czech Republic, Estonia, Finland, and the USA. As already mentioned by Macek & Šípek (2015), the origin of *E. lipovskyi* is unknown, although the genetic variability seems to be larger in North America than in Europe. In Europe, *Rhododendron luteum* Sweet (one of the host plants of *E. lipovskyi*: Macek & Šípek 2015) is the only native soft-leaved species (growing naturally locally in Poland, Ukraine, Belarus, and Slovenia), but is however mostly distributed in Turkey and Caucasus (Piórecki & Dubiel 2009).

121 *Euura mimus* (Konow, 1903)
Figs 113–114, 359

Pteronus mimus Konow, 1903b: 311 (key). Lectotype designated below.

Pteronidea nitida Lindqvist, 1946: 180. Lectotype designated below. **Syn. nov.**

Pteronidea obtusa Lindqvist, 1958: 95. **Syn. nov.**

Nematus truncus Vikberg, 1982: 63. Replacement name for *Pteronidea obtusa* Lindqvist, 1958.

Diagnosis

Externally most similar to *E. connecta* and *E. leionota*, but valvula 3 may usually be broader and almost square-shaped in *E. mimus* (narrowing towards the tip in *E. connecta* and *E. leionota*). The lancet of *E. mimus* is most similar to *E. connecta*, but seems to be smaller (lamnium length 0.66–0.70 mm, $n = 6$) and broadening from tip to base less abruptly than in *E. connecta* (lamnium length 0.78–0.79 mm, $n = 3$). Males of *E. leionota* are not known for certain. The penis valve of *E. mimus* is most similar

to *E. leucopyga*, *E. connecta*, *E. parviserrata*, *E. polaris*, and *E. sulciceps*, but may have a somewhat smaller valvispina and a smooth (uneven in the others) apical margin of paravalva below valvispina.

Type material examined

Lectotype *Pteronus mimus*, here designated

GERMANY – **Mecklenburg-Vorpommern** • ♀; Teschendorf in Mecklenburg; 53.45° N, 13.36° E; May 1896; F.W. Konow leg.; SDEI, GBIF-GISHym4743.

Paralectotype

GERMANY – **Mecklenburg-Vorpommern** • 1 ♀; same data as for lectotype; SDEI, GBIF-GISHym4671.

Lectotype *Pteronidea nitida*, here designated

FINLAND – **Häme** • ♀; Loppi; 60.72° N, 24.44° E; 18 Apr. 1943; A. Saarinen leg.; MZH, <http://id.luomus.fi/GL.3510>.

Holotype *Pteronidea obtusa*

FINLAND – **Central Finland** • ♀; Pihtipudas; 63.36° N, 25.55° E; 6 Jun. 1945; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3552>.

Host plants

Unknown. A mention by Conde (1927) of a rearing from [cecidomyiid] galls on *Salix* may refer to a different species.

Genetics

COI

Based on 4 specimens, maximum within-species distance is 0.3% and the nearest neighbour, diverging by a minimum of 1.52%, is *Euura leucopyga*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0% (0% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.78%, is *Euura polaris*.

Distribution and material examined

Palaearctic. Specimens studied are from Bulgaria, Finland, Germany, Norway, Russia, Sweden, and Switzerland.

122 *Euura monticola* (Thomson, 1871)

Figs 101, 344

Nematus monticola Thomson, 1871: 147. Lectotype designated below.

Nematus pschornwalcheri Muche, 1972: 34–37. Holotype ♀ (OLML), not examined. Type locality: Switzerland, Jura, Franches Montagnes, Etang de la Gruère. Synonymy by Lacourt (1999).

Pachynematus vaginosus Konow, 1903a: 381 (key). Syntypes ♀♂: specimens lost, only slide of penis valves (PR.231AZ) found in DEI. Type locality: Russia, Irkutsk. **Syn. nov.**

Diagnosis

The most similar species is *E. bipartita*: see discussion under that species. Synonymy of *Pachynematus vaginosus* Konow is based on the penis valve (preparation PR.231AZ in SDEI) of a presumably syntype specimen, which resembles most closely *E. monticola*.

Extensively pale, abdomen with distinct black line dorsally or at least terga 1–2 extensively black, pterostigma pale, claws bifid, valvula 3 in dorsal view elongate, gradually tapering.

ZMUO.063341 is slightly darker (fore and middle femora at base and abdomen dorsally more extensively black, valvula 3 mostly black) than the syntype DEI-GISHym88923. Male ZMUO.061039 has small subapical tooth.

Type material examined

Lectotype *Nematus monticola*, here designated
SWEDEN • ♀; Lapponia intermedia [central Lapland]; C.H. Boheman leg.; MZLU, MZLU2017319 / DEI-GISHym88923.

Notes

17–18 serrulae. Best morphological match: ZMUO.063341.

Host plants

Comarum palustre L. (Kangas 1985; Pschorn-Walcher & Altenhofer 2000).

Genetics

COI

Based on 6 specimens, maximum within-species distance is 3.5% and the nearest neighbour, diverging by a minimum of 0%, is *Euura bipartita*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.92% (0.34% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.35%, is *Euura bipartita*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Sweden, and the United Kingdom.

123 *Euura parvilabris* (Thomson, 1863)

Figs 119, 363

Nematus parvilabris Thomson, 1863: 638. Lectotype designated below.

Pontania birulae Konow, 1907: 19–20, 24, pl. 1. Lectotype designated below. **Syn. nov.**

Pteronidea nubium Benson, 1935: 28, 30. **Syn. nov.**

Pachynematus abstrusus Lindqvist, 1949: 83–84. Synonymy by Lindqvist (1954).

Pteronidea roberti Lindqvist, 1958: 117. Holotype ♀ (BMNH), not examined. Type locality: Sweden, Torne Lappmark, Låktatjokka. We examined a paratype ♀ in MZH (<http://id.luomus.fi/GL.5137>). **Syn. nov.**

Diagnosis

Small (4–5 mm), mostly black, with narrow and rather short valvula 3 in dorsal view. Most similar to *E. punctifrons* and *E. uda*, from which females of *E. parvilabris* are most easily distinguishable by their bifid claws (not clearly bifid but with small or large subapical tooth in *E. uda* and small subapical tooth in *E. punctifrons*). Male penis valves of these three species are clearly different from each other, *E. parvilabris* having a significantly shorter penis valve (0.9–1.0 mm), whereas 1.2–1.3 mm in *E. punctifrons* and *E. uda*. Penis valve of *E. parvilabris* is most similar to *E. fuscodorsata*, which is however much paler than *E. parvilabris*.

Female

4.5–5.0 mm. Head, thorax and abdomen black; labrum brown or pale; clypeus partly pale or brown; tegula black to pale; pterostigma uniformly pale; metafemur apically slightly pale; metatibia pale; hind tarsus brown or pale; tergum 10, hypopygium posteriorly and valvifer 2 mostly black to extensively brown or pale; mesepisternum smooth or slightly matt; claws bifid; valvula 3 in dorsal view thin and acute at apex.

Male

4.0–4.5 mm. Head, thorax and abdomen black; labrum black or brown; pterostigma uniformly pale or with dark margins; metafemur black or slightly apically pale; metatibia brown; hind tarsus black or brown; sternum 9 black or slightly brown; mesepisternum smooth or slightly matt; hind claws (usually?) bifid, fore and middle claws with small subapical tooth or bifid.

Type material examined

Lectotype *Nematus parvilabris*, here designated

SWEDEN – **Jämtland** • ♀; Kälähög; A.G. Dahlbom leg.; MZLU, MZLU2017336.

Lectotype *Pontania birulae*, here designated

RUSSIA – **Yakutia** • ♂; New Siberian Islands; 75.0° N, 149.0° E; 12–28 Jun. 1902; A.A. Birula leg.; SDEI, GBIF-GISHym3857.

Paralectotypes *Nematus parvilabris*

RUSSIA – **Yakutia** • 2 ♀♀; New Siberian Islands; 75.0° N, 149.0° E; 12–28 Jun. 1902; A.A. Birula leg.; SDEI, GBIF-GISHym3858, GBIF-GISHym3859 • 1 ♂; same data as for preceding; SDEI, GBIF-GISHym3856.

Holotype *Pteronidea nubium*

UNITED KINGDOM – **Scotland** • ♀; Breadalbane Mts; above 610 m a.s.l.; 7–14 Jun. 1932; R.B. Benson leg.; BMNH, B.M.TYPEHYM.1.637.

Holotype *Pachynematus abstrusus*

SWEDEN – **Torne Lappmark** • ♀; Abisko; 68.35° N, 18.83° E; 1939; R. Krogerus leg.; MZH, <http://id.luomus.fi/GL.5144>.

Paratype *Pteronidea roberti*

SWEDEN – **Torne Lappmark** • ♀; Riksgränsen; 68.43° N, 18.12° E; 11–12 Jul. 1954; R.B. and J.E. Benson leg.; MZH, <http://id.luomus.fi/GL.5137>.

Host plants

Salix herbacea L. A female (ZMUO.063345) was used for ex ovo rearing on *Salix herbacea*. Since we could not exclude the possibility of the presence of eggs or young larvae of other species in the rearing bucket (containing numerous *Salix herbacea* taken in the field), we confirmed the identity of one of the larvae by sequencing (ZMUO.064850). The species might have a second generation in favourable conditions, because one male (ZMUO.064859) emerged only about three weeks after the ex ovo experiment.

Genetics

COI

Based on 9 specimens, maximum within-species distance is 2.74% and the nearest neighbours, diverging by a minimum of 1.83%, are *Euura leptostigma* and *E. leucopyga*.

Nuclear

Based on 8 specimens, maximum within-species distance is 0.46% (0.3% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.05%, is *Euura excisa*.

Distribution and material examined

Holarctic. Specimens studied are from Finland, Norway, and Sweden.

124 *Euura parviserrata* (Lindqvist, 1944)

Figs 129, 354–355

Pteronidea parviserrata Lindqvist, 1944b: 23–24.

Amauronematus subpolaris Lindqvist, 1949: 71–72. Holotype not found in MZH. Type locality: Finland, Inari Lapland, Utsjoki, Outakoski. Synonymy by Lindqvist (1959a).

Diagnosis

Externally, females are most similar to *E. leucopyga*, *E. leptostigma*, *E. sulciceps*, *E. sordidiapex*, *E. polepso* sp. nov., and *E. polaris*. The overall shape of the lancet (gradually broadening from tip to base) and shape of serrulae (very elongate and flat) distinguishes *E. parviserrata* from these species. Serrulae of *E. fuscomaculata* are quite similar to *E. parviserrata*, but females of this species have antennae usually as long as costa + pterostigma while antennae are about as long as costa in *E. parviserrata*. Penis valves of *E. parviserrata* do not seem to be clearly distinguishable from *E. leucopyga*, *E. leptostigma*, *E. polaris*, *E. sulciceps*, and *E. polepso*. Head can be like in “*Amauronematus*”.

Female

Head extensively or slightly pale around eyes; labrum and clypeus pale; supraclypeal area black (usually?); thorax black; pronotum and tegula pale; pterostigma pale; metafemur and metatibia pale; hind tarsus pale or brown; abdomen nearly completely black (usually?); mesepisternum smooth or slightly matt.

Male

Head slightly pale around eyes to nearly completely black; labrum pale; clypeus extensively or slightly pale; supraclypeal area black (usually?); thorax black; pronotum black to extensively pale; tegula pale; pterostigma pale; metafemur pale or basally black; metatibia pale; hind tarsus pale or brown; abdomen dorsally nearly completely black, ventrally mostly black to slightly pale; sternum 9 pale.

Type material examined

Holotype *Pteronidea parviserrata*

RUSSIA – KARELIA • ♀; Paanajärvi; 66.3° N, 30.1° E; 200 m a.s.l.; S. Platonoff leg.; MZH, <http://id.luomus.fi/GL.3575>.

Host plants

Salix phylicifolia according to Kangas (1985).

Genetics

COI

Based on 7 specimens, maximum within-species distance is 4.06% and the nearest neighbours, diverging by a minimum of 0%, are *Euura leucopyga* and *E. sordidiapex*.

Nuclear

Based on 7 specimens, maximum within-species distance is 0.14% (0.58% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.35%, is *Euura leptostigma*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Russia, and Sweden.

125 *Euura perkioemaekii* (Lindqvist, 1960) comb. nov. Figs 102, 345

Pachynematus perkioemaekii Lindqvist, 1960b: 36–37.

Diagnosis

Female

5.3–5.5 mm (n = 2). Mostly black body, not bifid claws (with small or large subapical tooth), and lancets should enable separation of females of this species from most of the other *Euura*. *Euura punctifrons*, with a small subapical tooth, have a somewhat similar lancet, but this species tends to be smaller (<5 mm) and even darker (pronotum black and femora usually mostly black) than *E. perkioemaekii* (pronotum posteriorly and femora mostly pale). Very similar can also be dark specimens of *E. bipartita*, which seem to have somewhat differently shaped serrulae (ventrobasal tip more acute and often more protruding) and at least usually seem to have bifid claws.

Male

The males, which have penis valves most similar to *E. bipartita* and *E. monticola*, might not be distinguishable from dark specimens of *E. bipartita* that have a small subapical tooth on the claw.

Type material examined

Holotype *Pachynematus perkioemaekii*

FINLAND – Kuusamo • ♀; Oulanka; 66.47° N, 29.08° E; 1 Jul. 1958; J. Perkiömäki leg.; MZH, <http://id.luomus.fi/GL.3509>.

Notes

16 serrulae. Nearly perfect morphological match: DEI-GISHym84260 (15–16 serrulae).

Host plants

Unknown.

Genetics

COI

Based on 2 specimens, maximum within-species distance is 0% and the nearest neighbour, diverging by a minimum of 0.91%, is *Euura monticola*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.06% (0.12% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.21%, is *Euura bipartita*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland.

126 *Euura polaris* (Holmgren, 1883) Figs 132, 356

Nematus polaris Holmgren, 1883: 143, pl. 1 fig. 1. Lectotype designated below.

Pteronus shumagensis Kincaid, 1900: 357. Syntype ♀ (USNMMENT00778206, USNM, <http://n2t.net/ark:/65665/35ff0e035-a05a-4e67-952c-f19e4292e418>), not examined. Type locality: USA, Alaska, East Aleutians, Popof Island. Synonymy by Benson (1961a), but possibly it is *E. lienterica* or some other species in the *E. flavescens* group.

Pontania islandica Kincaid, 1900: 355. Syntype ♀ (USNMMENT00778189, USNM, <http://n2t.net/ark:/65665/35c79c1ef-402a-4e80-b738-6153f2e0f2e8>), labelled as lectotype by J.-P. Kopelke, but designation not published; not examined. Type locality: USA, Alaska, East Aleutians, Popof Island. Synonymy by Benson (1961a). It does seem to belong to the *E. bipartita* group.

Amauronematus polaris ab. *pleuralis* Lindqvist, 1944b: 20. Type not found. Type locality: Finland, Inari, Ivalo. Perhaps not *E. polaris*. Unavailable name, because infrasubspecific.

Diagnosis

Most similar to *E. leptostigma*, *E. polepso* sp. nov., and some specimens of *E. leucopyga*. Often, its rather broad and square-shaped valvula 3 in dorsal view (like in some *E. leucopyga*) distinguishes *E. polaris* from *E. leptostigma* and *E. polepso* which tend to have a narrower valvula 3. The smooth mesepisternum may help to distinguish *E. polaris* from *E. polepso* (always slightly matt?). The combination of triangular serrulae, small cypsellae, and gradually narrowing lancet of *E. polaris* help to distinguish it from lancets of *E. polepso* (large cypsellae) and *E. leucopyga* (somewhat flatter serrulae and more abruptly narrowing lancet). Lancets of *E. leptostigma* are rather similar to *E. polaris*, but may differ in overall shape and are perhaps (usually?) larger. The males are not clearly distinguishable from *E. leptostigma*, *E. leucopyga*, *E. parviserrata*, *E. sulciceps*, and *E. polepso*.

Type material examined

Lectotype *Nematus polaris*, here designated
RUSSIA – **Novaja Zemlya** • ♀; Matotschkin Scharr [Matochkin Strait]; 73.3° N, 55.6° E; 1875; NHRS, NHRS-HEVA000006445.

Host plants

Unknown. Lindqvist (1944b) reported *Salix* spp., but this apparently refers to *E. leucopyga* (ab. *leucopyga*) in southern Finland, while *E. polaris* is known only from (sub)arctic habitats.

Genetics

COI

Based on 8 specimens, maximum within-species distance is 2.89% and the nearest neighbours, diverging by a minimum of 0%, are *Euura leptostigma*, *E. sulciceps*, and *E. fuscarima*.

Nuclear

Based on 8 specimens, maximum within-species distance is 0.66% (0.85% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.26%, is *Euura leptostigma*.

Distribution and material examined

Holarctic. Specimens studied are from Finland, Norway, and Russia. Nearctic records, although likely, need confirmation.

127 *Euura poppii* (Konow, 1904) comb. nov. Figs 127, 364

Pontania poppii Konow, 1904b: 230. Lectotype designated by Mucche (1970a).

Pteronidea lindbergi Lindqvist, 1958: 105–106. **Syn. nov.**

Pteronidea wolteri Lindqvist, 1958: 115–116. **Syn. nov.**

Pteronidea gracilicornis Lindqvist, 1962a: 121–122. Holotype lost? Type locality: Finland, Lapin Lääni, Kilpisjärvi. **Syn. nov.** 3.5–4.0 mm. Synonymy uncertain, but based on the original description (colouration, sawsheath, drawing of the tip of the lancet) it seems to fit best with darker forms of *E. poppii*.

Diagnosis

Usually extensively pale, but the body can be mostly black while the head remains extensively pale. The most similar are *E. bipartita* (specimens with dorsally black abdomen), *E. fuscodorsata*, *E. fuscomaculata* and *E. lienterica*, while darker specimens might be confused also with *E. polaris*, that has a rather similar lancet. Lancets of *E. fuscodorsata* (serrulae prominent and sharp) and *E. lienterica* (serrulae usually prominent and sutures somewhat S-shaped) can be distinguished from *E. poppii* (apical serrulae elongate and flat and sutures not distinctly curved). The lancet of *E. fuscomaculata* is very similar to *E. poppii*, but perhaps still with less protruding serrulae and the valvula 3 in dorsal view seems to be narrower in the middle and at its base compared to *E. poppii*. Lancet of *E. bipartita* (e.g., Fig. 99) can also be quite similar, but the specimens with dorsally black abdomen seem to have darker head and valvula 3 compared to *E. poppii*. *Euura polaris* usually has mostly black head or is somewhat brown behind the eyes (extensively pale in *E. poppii*), and its antennae are possibly shorter than in *E. poppii*. Usually, *E. polaris* also has broader sawsheath that in dorsal view is not distinctly narrowed at the tip as in *E. poppii*. Its extensively pale colouration and penis valve shape (similar to e.g., *E. leucopyga* and *E. parviserrata*) and length (1.0–1.1 mm, in most other *Euura* more than 1.2 mm) should distinguish *E. poppii* males reliably from the other *Euura*.

Female

4.0–5.0 mm. Head extensively pale around eyes; labrum, clypeus and supraclypeal area pale; flagellum black or pale ventrally; thorax black to extensively pale laterally and slightly pale dorsally; pronotum and tegula pale; pterostigma pale; metafemur pale or slightly black basally; metatibia pale; hind tarsus pale or brown (usually) to black; abdomen dorsally nearly completely black, ventrally nearly completely black to completely pale; valvula 3 basally pale; mesepisternum smooth; claws bifid; lancet with 15–17 serrulae.

Male (based on two specimens)

3.5–4.0 mm. Head extensively pale around eyes; labrum, clypeus and supraclypeal area pale; flagellum pale ventrally; thorax black dorsally, extensively pale laterally; pronotum and tegula pale; pterostigma pale; metafemur pale; metatibia pale; hind tarsus pale or brown; abdomen dorsally nearly completely black, ventrally pale; sternum 9 pale; mesepisternum smooth; claws bifid or with small subapical tooth.

Type material examined

Lectotype *Pontania poppii*

RUSSIA • ♀; Kanin Peninsula; 68.0° N, 45.0° E; B. Poppius leg.; SDEI, GBIF-GISHym3865.

Notes

Lancet more similar to *parvulus* syntype NHRS-HEVA000006478 than NHRS-HEVA000006479. Lancet fits best with *wolteri* holotype. Abdomen ventrally pale. Head and thorax missing. Possible paralectotypes in MZH have long antennae.

Holotype *Pteronidea lindbergi*

RUSSIA – Murmansk oblast • ♀; Petsamo [Pechenga]; 69.54° N, 31.19° E; 20 Jul. 1929; H. Lindberg leg.; MZH, <http://id.luomus.fi/GL.3571>.

Notes

16–17 serrulae. Best morphological match: DEI-GISHym21379 (15–16 serrulae).

Holotype *Pteronidea wolteri*

RUSSIA – **Murmansk oblast** • ♀; Petsamo [Pechenga], Yläluostari [Luostari]; 69.43° N, 31.04° E; 10 Jul. 1930; W. Hellén leg.; MZH, <http://id.luomus.fi/GL.3598>.

Notes

Lancet fits rather well with *poppii* (lectotype and DEI-GISHym21379). Externally fits best with the *winteri* holotype.

Host plants

Unknown.

Genetics

COI

Based on 6 specimens, maximum within-species distance is 3.95% and the nearest neighbour, diverging by a minimum of 1.37%, is *Euura polaris*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.72% (0.51% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.76%, is *Euura leptostigma*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Norway, Russia, and Sweden.

128 *Euura punctifrons* (Malaise, 1921)

Figs 120, 361

Pachynematus punctifrons Malaise, 1921a: 9. Lectotype designated below.

Pachynematus glabriceps Lindqvist, 1949: 84–85. **Syn. nov.**

Diagnosis

The most similar species is *E. uda*, which is best distinguished by examination of saws and penis valves. In *E. uda*, tangium of lancet is more elongate, paravalva of penis valve is ventrally straight (concave in *E. punctifrons*) and anterior margin of paravalva below valvispina is straight or concave (convex in *E. punctifrons*). *Euura uda* tends to have also a larger subapical tooth of the claw than *E. punctifrons*.

Female

4.4–5.0 mm. Head black; labrum pale; clypeus black or slightly pale; supraclypeal area black; thorax black; pronotum black; tegula pale; pterostigma pale; metafemur mostly black to mostly pale; metatibia pale; hind tarsus pale to black; abdomen nearly completely black; valvula 3 black with dorsobasal pale area; mesepisternum smooth; claws with small subapical tooth; valvula 3 in dorsal view narrow and apically acute.

Male

4.5 mm. Head black; labrum pale; clypeus black or slightly pale; supraclypeal area black; thorax black; pronotum black; tegula black; pterostigma pale; metafemur black or slightly pale; metatibia pale; hind

tarsus black or brown; abdomen black; sternum 9 pale; mesepisternum smooth or slightly matt; claws with minute subapical tooth.

Type material examined

Lectotype *Pachynematus punctifrons*, here designated
SWEDEN – **Torne Lappmark** • ♀; Torneträsk; 68.22° N, 19.74° E; 400 m a.s.l.; R. Malaise leg.; NHRS, NHRS-HEVA000003566.

Holotype *Pachynematus glabriceps*
FINLAND – **Inari Lapland** • ♀; Utsjoki; 69.91° N, 27.03° E; 6 Jul. 1947; M. Nuorteva leg.; MZH, <http://id.luomus.fi/GL.3567>.

Host plants

Unknown.

Genetics

COI

Based on 7 specimens, maximum within-species distance is 7.34% and the nearest neighbour, diverging by a minimum of 1.52%, is *Euura connecta*.

Nuclear

Based on 4 specimens, maximum within-species distance is 0.23% (0.12% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.81%, is *Euura gehrsi*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Norway, and Sweden.

129 *Euura scotonota* (Förster, 1854) Figs 117, 368–369

Nematus scotonotus Förster, 1854a: 310–311. No type specimens found in ZSM. Type locality: Germany, Aachen.

Nematus polygoni Benson, 1961a: 228–229. Holotype ♀ (BMNH), not examined. Type locality: Germany, Bayern, Zwiesel. Synonymy by Lindqvist (1967b).

Diagnosis

Mostly black, abdomen ventrally pale (sterna as well as terga laterally), pterostigma pale, claws with small subapical tooth to bifid, mesepisternum smooth, valvula 3 in dorsal view elongate, thin and gradually tapering. The most similar species is *E. declinata*, females of which have black sterna (pale in *E. scotonota*). The differences between males are uncertain, because no males of *E. declinata* have been sequenced to confirm their identity. One studied candidate male seems to have a penis valve more similar to the drawing of the penis valve of the *declinata* holotype (unpublished manuscript by Conde) than to *E. scotonota*. The valvispina is straight and broad at the base in *E. declinata* whereas slightly curved and narrower at the base in at least some (most?) *E. scotonota*, but the apparent variability in *E. scotonota* (Figs 368–369) makes this distinction questionable. See also differences from *E. fuscodorsata* under that species. Another closely related species is *E. excisa* (claws with small subapical tooth, mesepisternum matt).

Host plants

Bistorta officinalis.

Genetics

COI

Based on 8 specimens, maximum within-species distance is 3.04% and the nearest neighbour, diverging by a minimum of 1.29%, is *Euura declinata*.

Nuclear

Based on 4 specimens, maximum within-species distance is 0.38% (0.2% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.71%, is *Euura excisa*.

Distribution and material examined

Palearctic. Specimens studied are from Bulgaria, Finland, France, Germany, and Italy. Since we treat *E. fuscodorsata* as a distinct species (not as a synonym of *E. scotonota*) and because its holotype has been the only basis for recording *E. scotonota* from Finland or Fennoscandia in general, *E. scotonota* may in fact be absent in this region. *Euura scotonota* should be removed from the faunal list of Finland.

130 *Euura sordidiapex* (Lindqvist, 1959)

Figs 130, 360

Pteronidea sordidiapex Lindqvist, 1959c: 57.

Pteronidea aspera Lindqvist, 1959c: 58. **Syn. nov.**

Diagnosis

Females are most similar to *E. leptostigma*, see discussion under that species. Male penis valve of *E. sordidiapex* (with smaller valvispina and paravalva similarly broad basally and apically) is slightly different from *E. leptostigma* and similar species (valvispina larger and paravalva apically broader than basally).

Female

5.5–6.0 mm. Head black or slightly pale around eyes; labrum pale; clypeus black to pale; supraclypeal area black; thorax black; pronotum and tegula black or slightly pale; pterostigma pale; metafemur pale or slightly black; metatibia pale; hind tarsus pale or brown; abdomen nearly completely black; terga 9–10, valvifer 2, and cerci pale; valvula 3 pale or brown with black margins; mesepisternum slightly matt; claws bifid; valvula 3 in dorsal view narrow and apically acute.

Male

4.5–5.5 mm. Head black; labrum pale; clypeus black or slightly pale; supraclypeal area black; thorax black; pronotum black; tegula black; pterostigma pale; metafemur mostly pale; metatibia pale; hind tarsus pale or brown; abdomen black; sternum 9 pale; mesepisternum smooth or slightly matt; claws bifid.

Type material examined

Holotype *Pteronidea sordidiapex*

FINLAND – **Lapin Lääni** • ♀; Kilpisjärvi; 69.04° N, 20.81° E; 2 Jul. 1950; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3591>.

Notes

Mesepisternum matt. Best morphological match: DEI-GISHym12536.

Holotype *Pteronidea aspera*

FINLAND – **Lapin Lääni** • ♀; Saana; 69.05° N, 20.85° E; 23 Jun. 1938; A. Nordman leg.; MZH, <http://id.luomus.fi/GL.3561>.

Notes

Mesepisternum slightly matt. Best morphological match: DEI-GISHym12536 (externally almost identical).

Hosts plants

Betula nana L. and *B. pubescens*.

Genetics

COI

Based on 12 specimens, maximum within-species distance is 3.65% and the nearest neighbours, diverging by a minimum of 0%, are *Euura leucopyga* and *E. parviserrata*.

Nuclear

Based on 11 specimens, maximum within-species distance is 0.53% (0.59% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.44%, is *Euura sulciceps*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Norway, and Sweden.

131 *Euura sulciceps* (Lindqvist, 1959)

Figs 121, 357

Pteronidea sulciceps Lindqvist, 1959c: 57–58.

Diagnosis

Mostly black body, bifid claws, valvula 3 somewhat expanded in middle, and structure of lancets (abruptly narrowing from base to apex, protruding serrulae, apical serrulae also rather acute, middle sutures more or less straight) should enable separation of females from the other similar species. The males are not clearly distinguishable from *E. leptostigma*, *E. leucopyga*, *E. parviserrata*, *E. polaris*, and *E. polepso* sp. nov.

Type material examined

Holotype *Pteronidea sulciceps*

NORWAY – Nordland • ♀; Umbukta, Krabfjäll; 66.15° N, 14.59° E; 13 Jul. 1957; S. Gaunitz leg.; MZH, <http://id.luomus.fi/GL.5118>.

Host plants

Unknown.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 0.15% and the nearest neighbours, diverging by a minimum of 0%, are *Euura leptostigma* and *E. polaris*.

Nuclear

Based on 4 specimens, maximum within-species distance is 0.41% (0.44% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.15%, is *Euura leptostigma*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Norway, and Sweden.

132 *Euura taegeri* (Lacourt, 1996) Figs 106, 340

Polynematus taegeri Lacourt, 1996b: 13–14. Holotype ♀ (MNHN), not examined. Type locality: France, Provence-Alpes-Cote-d’Azur, Ailefroide.

Diagnosis

Its small subapical claw tooth and the type of lancet (annuli with short and stout setae, all annuli bearing serrulae with denticles) suggest that the species may be most closely related to *E. infirma*. Ventrally strongly concave lancet, only basal-most annulus without setae, and more annuli (14–15) definitely suggest that *E. taegeri* is a species distinct from *E. infirma* (ventrally straight or slightly concave lancet, three basal annuli without setae, 12 annuli). The males are most similar to *E. annulata* in colouration and shape of penis valves. In *E. taegeri*, the valvispina may be somewhat broader than in *E. annulata* and pseudoceps may be dorsoapically slightly convex (slightly concave in *E. annulata*).

Female 4.5–5.0 mm. Male 4.0–4.5 mm.

Type material examined

Paratypes *Polynematus taegeri*

FRANCE – **Provence-Alpes-Cote-d’Azur** • 1 ♀; Ailefroide; 44.89° N, 6.45° E; 25 May 1990; J. Lacourt leg.; SDEI, DEI-GISHym12670 • 2 ♂♂; same data as for preceeding; SDEI, DEI-GISHym12668, DEI-GISHym12669.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Palearctic. Specimens studied are from France.

133 *Euura uda* (Holmgren, 1883) Figs 122, 365

Nematus udus Holmgren, 1883: 147–148, pl. 3 fig. 14. Lectotype ♂, designated by Lindqvist (1967a), not found in NHRS. Type locality: Russia, Novaja Zemlya, Matotschkin Scharr or Besimannija Bay. *Nematus* (*Pachynematus*) *acutiventris* Hellén, 1948: 115–116. Lectotype designated below. **Syn. nov.** *Pachynematus inopinatus* Lindqvist, 1949: 82–83. **Syn. nov.**

Diagnosis

The most similar species is *E. punctifrons*, see discussion under that species.

Female

5.0–5.5 mm. Head black; labrum pale; clypeus black; supraclypeal area black; thorax black; pronotum black; tegula pale; pterostigma pale; metafemur mostly black (to mostly pale?); metatibia pale; hind tarsus pale (to black?); abdomen nearly completely black; valvula 3 black (always without dorsobasal pale area?); mesepisternum smooth or slightly matt; claws with small subapical tooth; valvula 3 in dorsal view narrow and apically acute.

Type material examined

Lectotype *Nematus (Pachynematus) acutiventris*, here designated

FINLAND – **Lapin Lääni** • ♀; Kilpisjärvi, Pikku-Malla; 3 Jul. 1935; W. Hellén leg.; 69.05° N, 20.74° E; MZH, <http://id.luomus.fi/GL.3560>.

Holotype *Pachynematus inopinatus*

FINLAND – **Lapin Lääni** • ♀; Kilpisjärvi, Malla; 69.07° N, 20.69° E; 18 Jul. 1943; R. Frey leg.; MZH, <http://id.luomus.fi/GL.3580>.

Notes

Lancet as in *E. uda*, but claws with small subapical tooth as in *E. punctifrons*.

Host plants

Unknown.

Genetics

COI

Based on 7 specimens, maximum within-species distance is 0.3% and the nearest neighbour, diverging by a minimum of 3.04%, is *Euura connecta*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.36% (0.22% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.99%, is *Euura fuscomaculata*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Sweden.

134 *Euura bipartita* group sp. 1

Fig. 128

Notes

Only one female (DEI-GISHym84691) known. 5.4 mm. Nuclear data suggests that it is different from all the other sampled species. Externally most similar to *E. leptostigma*, *E. leucopyga*, *E. parviserrata*, *E. polaris*, *E. sordidiapex*, and *E. sulciceps*. Of these, *E. polaris* has the most similar lancet, but DEI-GISHym84691 may have somewhat longer and flatter serrulae. DEI-GISHym84691 has also a slightly matt mesepisternum which is smooth in *E. polaris*. A similar lancet is also found in *E. poppii*, which can be almost as dark as DEI-GISHym84691, but *E. poppii* seems to be (usually?) smaller (< 5 mm) and has a smooth mesepisternum.

Host plants

Unknown.

Genetics

COI

Only one sequence available. The nearest neighbour, diverging by a minimum of 1.98%, is *Euura connecta*.

Nuclear

Only one sequence available, a female with haplotypes diverging by 0.52%. The nearest neighbour, diverging by a minimum of 0.94%, is *Euura poppii*.

Distribution and material examined

Palearctic. Only one specimen studied from Finland.

135 *Euura polepso* Prous & Mutanen sp. nov.

urn:lsid:zoobank.org:act:2049F196-0E59-403C-8D3B-5AF1FEABA7D1

Figs 79–80, 133, 358

Diagnosis

Females are most similar to those of *E. leptostigma*, *E. leucopyga*, *E. parviserrata*, *E. polaris*, *E. sordidiapex*, and *E. sulciceps*, best distinguished by the lancet (lamnium 2.4–2.5 times as long as radix, distinct cypsellae, lamnium gradually broadening from tip to base, horizontal gap between apical and basal parts of consecutive serrulae large). The males are not clearly distinguishable from those of *E. leptostigma*, *E. leucopyga*, *E. parviserrata*, *E. polaris*, and *E. sulciceps*.

Etymology

The species name, a noun in apposition, is formed from a combination of the first letters of some of the names of the most similar species (*polaris*, *leptostigma*, *sordidiapex*).

Type material

Holotype

FINLAND – **Lapin Lääni** • ♀; Toskalharji [768:328]; 69.16° N, 21.58° E; 23 Jun. 2021; A. Liston, M. Mutanen, M. Prous and H. Nyström leg.; ZMUO, ZMUO.059303.

Paratypes

FINLAND – **Lapin Lääni** • 1 ♂; same data as for holotype; ZMUO, ZMUO.059951 • 1 ♂; same data as for holotype; 24 Jun. 2021; ZMUO, ZMUO.059855 • 1 ♀; Kilpisjärvi, Jehkas; 69.09° N, 20.80° E; 550–950 m a.s.l.; 28 Jun. 2020; M. Mutanen, M. Prous and A. Liston leg.; SDEI, DEI-GISHym84539 • 1 ♂; same data as for preceding; M. Mutanen leg.; ZMUO, ZMUO.041900.

NORWAY – **Sogn og Fjordane** • 1 ♀, Aurlandsvegen, Nedre Kaldeklettane Lok. 2; 61.021° N, 7.332° E; 1112 m a.s.l.; 26 Jun. 2011; E. Heibo leg.; CEH, N8571.

Other material examined

FINLAND – **Lapin Lääni** • 1 ♂; same data as for holotype; 24 Jun. 2021; ZMUO.059930 might also belong here.

Description

Female

Body 5.2–5.5 mm. Colour mostly black. Labrum pale; labial and maxillary palps brown; mandibles reddish-brown at apex; clypeus black or ventrally pale; gena slightly pale; tibia and tarsomeres 1–2 or

1–3 more or less pale; apical third to two-thirds of femora pale; all trochanters and trochantelli, or at least hind trochanters and trochantelli more or less pale; hind coxae basally pale; pronotum black or posteriorly slightly pale; tegula (except medial margin) pale; pterostigma and costa uniformly pale; hypopygium posteriorly, valvifer 2, and terga 8–10 extensively pale; valvula 3 basally pale; cerci pale. Clypeus distinctly emarginate; frontal area between antennae rather flat, not distinctly angulate (approaching “*Amauronematus*-type”); postocellar area about 2.5–3.5 times as broad as long; antenna about as long as costa; mesepisternum smooth or slightly matt; claws bifid; valvula 3 in dorsal view not or slightly tapering, with indistinct carina at posterior edge and sometimes with indistinct invagination posteriorly. Lancet with 19–20 serrulae; lamnium 2.4–2.5 times as long as radix; serrulae triangular



Fig. 79. *Euura polepso* Prous & Mutanen sp. nov., holotype, ♀ (ZMUO.059303).

with numerous microdenticles, not strongly protruding, and with cypsellae; hair-like setae half or less of annulus length, absent in apical 3–4 annuli.

Male

Body 5 mm. Colour mostly black, darker than female. Labrum brown; labial and maxillary palps brown; mandibles reddish-brown at apex; clypeus black or ventrally slightly pale; tibia and tarsi pale or brown; apical third to two-thirds of femora pale; trochanters and trochantelli black to slightly pale; pterostigma and costa more or less pale, costa somewhat darkened in middle; sternum 9 pale. Clypeus emarginate, less so than in female; frontal area between antennae rather flat, not distinctly angulate (approaching “*Amauronematus*-type”); postocellar area about 2.5–3.5 times as broad as long; antenna about as long



Fig. 80. *Euura polepso* Prous & Mutanen sp. nov., paratype, ♂ (ZMUO.041900).

as or somewhat shorter than costa and pterostigma combined; mesepisternum smooth or slightly matt; claws bifid; projection of tergum 8 distinct, about as long as broad and with truncate apex.

Host plants

Unknown.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 0% and the nearest neighbour, diverging by a minimum of 0.76%, is *Euura leptostigma*.

Nuclear

Based on 4 specimens, maximum within-species distance is 0.25% (0.31% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.41%, is *Euura polaris*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Norway.

136 *Euura caeruleocarpus* group

137 *Euura caeruleocarpus* (Hartig, 1837)

Figs 135, 371

Nematus propinquus Dahlbom, 1835a: 25. Nomen oblitum (Blank *et al.* 2009). Described based on larvae. Type material not located. Type locality: Sweden, Skåne, Lilla Raby near Lund. Synonymy with *brachyacanthus* by Thomson (1871).

Nematus caeruleocarpus Hartig, 1837: 187. Nomen protectum (Blank *et al.* 2009).

Nematus sulcipes Hartig, 1837: 186–187. Lectotype designated below. Synonymy by Kriechbaumer (1885).

Nematus brevispinis Förster, 1854a: 338–339. Lectotype designated below. Synonymy by Kriechbaumer (1885).

Nematus brachyacanthus Thomson, 1863: 629. Lectotype designated below. Synonymy by Cameron (1885).

Nematus insubricus Cobelli, 1892: 70–71. Holotype ♀ (ROV), not examined. Type locality: Italy, Milano area. Synonymy by Dalla Torre (1894).

Diagnosis

The most similar species is *E. vicina*, which is best distinguished by its inner hind tibial spur being longer than the apical breadth of hind tibia (shorter in *E. caeruleocarpus*). Occasionally, northern specimens of *E. caeruleocarpus* have a bicoloured pterostigma (basally or externally black and apically or internally brown or yellowish). Genetically, *E. villosa* is very close to *E. caeruleocarpus*, but morphologically these species can be distinguished well:

- head and thorax with long hair; hind tibia completely and hind tarsus mainly yellow; pterostigma yellow *E. villosa*
- head and thorax with short hair; hind tibia black at tip and hind tarsus completely black; pterostigma black, rarely bicoloured *E. caeruleocarpus*.

Female: 8.0–10.5 mm. Male: 7.5–8.5 mm.

Type material examined

Holotype *Nematus caeruleocarpus*

GERMANY – Niedersachsen • ♀; Harz; 51.8° N, 10.3° E; W. Saxesen leg.; ZSM, GBIF-GISHym3212.

Lectotype *Nematus sulcipes*, here designated

GERMANY • ♀; ZSM, GBIF-GISHym3446.

Lectotype *Nematus brevispinis*, here designated

GERMANY – Nordrhein-Westfalen • ♂; Aachen area; 50.77° N, 6.09° E; ZSM, GBIF-GISHym3210.

Lectotype *Nematus brachyacanthus*, here designated

SWEDEN • ♀; Skåne; MZLU, MZLU2017284.

Host plants

The main hosts are *Salix* spp., particularly *S. fragilis* L., *S. purpurea* L., *S. triandra* L. and *S. viminalis* L. (Miles 1936). Less frequently used are *Populus* spp. (e.g., Chambers 1947). Unconfirmed are *Paeonia officinalis* L., *Delphinium* sp. and *Aquilegia* sp. (Benson 1958a).

Genetics

COI

Based on 8 specimens, maximum within-species distance is 1.22% and the nearest neighbour, diverging by a minimum of 0.61%, is *Euura villosa*.

Nuclear

Based on 3 specimens, maximum within-species distance is 0.33% (0.33% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.5%, is *Euura villosa*.

Distribution and material examined

Palearctic. Specimens studied are from Austria, Bulgaria, Finland, Germany, Russia, and Sweden.

138 *Euura villosa* (Thomson, 1863)

Figs 136, 372

Nematus villosus Thomson, 1863: 629. Lectotype designated below.

Nematus arcticus Holmgren, 1869: 18. Lectotype designated below. Synonymy by Hellén (1943).

Nematus brachyacanthus var. *palliditarsus* Cameron, 1876b: 312–313. Holotype ♂ (BMNH), not examined. Type locality: Norway; Spitsbergen [Svalbard]. Synonymy by Benson (1934).

Nematus gelidus W.F. Kirby, 1882: 115–116. Holotype ♂ (BMNH), not examined. Type locality: Norway; Spitsbergen [Svalbard]. Synonymy by Benson (1934).

Diagnosis

Its large size (♀ 8–10 mm, ♂ 7–9 mm), black body with yellow legs (including complete hind tibia and most of hind tarsus), long hair on head and thorax, and yellow pterostigma distinguish the species well from the other *Euura*. *Euura caeruleocarpus* is genetically very close (see under that species for morphological differences).

Type material examined

Lectotype *Nematus villosus*, here designated

SWEDEN • ♀; Lapponia intermedia [central Lapland]; C.H. Boheman leg.; NHRS, NHRS-HEVA000003992.

Lectotype *Nematus arcticus*, here designated

NORWAY – Svalbard • ♂; Green Harbour [Grønfjorden]; 78.04° N, 14.25° E; NHRS, NHRS-HEVA000006480.

Host plants

Salix glauca is the only recorded host, but probably other *Salix* spp. are also used.

Genetics

COI

Only one sequence is available. The nearest neighbour, diverging by a minimum of 0.61%, is *Euura caeruleocarpus*.

Nuclear

Only one sequence is available, a female with haplotypes diverging by 0.39%. The nearest neighbour, diverging by a minimum of 0.5%, is *Euura caeruleocarpus*.

Distribution and material examined

Holarctic. Specimens studied are from Norway.

139 *Euura clitellata* group

We recognize six species in the group, but nuclear data strongly suggest that *E. clitellata* contains at least four species and *E. fallax* probably three. Additional research (particularly to sequence nuclear genes of more specimens to assess morphological variability) is necessary to better associate type specimens with putative species suggested by nuclear genes. *Euura vaga*, although morphologically a member of the group, is excluded because based on genetics it seems to be about as distant to the *clitellata* group as to other species groups. Claws with small subapical tooth and characters of lancet (no setae, sutures strongly bending apically, basal serrulae not strongly projecting posteriorly) and valvula 3 (in dorsal view distinctly broadened at base) distinguish the females from those of the other *Euura* groups and from *E. vaga* (basal serrulae strongly projecting posteriorly). Males have distinct penis valves enabling reliable identification of species (except within *E. clitellata* if these are split into additional species).

The width of the mesocutellum seems to correlate positively with the extent of expansion of the head. The *E. clitellata* subgroup and *E. fallax* usually have very pale heads, whereas *E. moerens*, *E. lichtwardti* and *E. clibrichella* have much darker heads.

140 *Euura clibrichella* (Cameron, 1878)

Figs 137, 373

Nematus clibrichellus Cameron, 1878: 32–33. Holotype ♂ (BMNH), not examined. Type locality: United Kingdom, Scotland, Sutherlandshire, Ben Clibrich.

Nematus thomsoni Cameron, 1882: 540. Syntypes ♀♀ (BMNH), not examined. Type locality: United Kingdom, Scotland, Braemar. Synonymy by Benson (1935).

Pachynematus pubescens Marlatt, 1896a: 91–92 (key), 100–101. Syntypes 3 ♀♀ (CUIC?), not examined. Type locality: USA, New Hampshire, Mt Washington.

Pachynematus gotarus Kincaid, 1900: 348–349. Holotype ♂ (USNMMENT00778181, USNM, <http://n2t.net/ark:/65665/3bd1b00d6-1001-4d9d-9b1f-0d1529d0741b>), not examined. Type locality: USA, Alaska, East Aleutians, Popof Island.

Pachynematus venustus MacGillivray, 1921a: 190–191. Holotype ♂ (CASTYPE826, CAS), not examined. Type locality: USA, Alaska, Pribolof Islands, St George Island.

Pachynematus vernus MacGillivray, 1921a: 191–192. Holotype ♂ (CASTYPE827, CAS), not examined. Type locality: USA, Alaska, Pribolof Islands, St George Island.

Diagnosis

Long hair on head and thorax, particularly in the male, and usually black body enables its separation from the other species of the *clitellata* group.

Host plants

Carex sp. (Dyar 1897).

Genetics

COI

Based on 8 specimens, maximum within-species distance is 0.15% and the nearest neighbour, diverging by a minimum of 1.38%, is *Euura moerens*.

Nuclear

Based on 4 specimens, maximum within-species distance is 0.43% (0% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.53%, is *Euura fallax*.

Distribution and material examined

Holarctic. Specimens studied are from Canada, Finland, Norway, Sweden, and the United Kingdom.

141 *Euura clitellata* (Serville, 1823)

Figs 138–141, 375–378

Nematus clitellatus Serville, 1823: 64. Holotype ♀ (MRSN), not examined. Type locality: France; vicinity of Paris. Best match: possibly ZMUO.029709 and ZMUO.040755, but wings slightly smoky.

Nematus kirbyi Dahlbom, 1835a: 40, pl. 1 fig.4. Lectotype ♂ (ZMHB), designated by Haris (1997), not examined. One originally unlabelled male specimen (MZLU2017282) under the name “*Nematus kirbyi*” in Dahlbom’s collection (MZLU) could be a paralectotype. Type locality: Germany or Scandinavia. Synonymy by Taeger & Blank (1998).

Nematus flaviventris Hartig, 1840: 24. Lectotype designated below. Synonymy by Taeger & Blank (1998).

Nematus leucocarpus Hartig, 1840: 27. Lectotype designated by Taeger & Blank (1998). Synonymy by Taeger & Blank (1998).

Nematus brachycercus Hartig, 1840: 25. Lectotype designated by Haris (1997). **Syn. nov.**

Nematus squalidus Eversmann, 1847: 21. Lectotype designated below. **Syn. nov.**

Nematus cinereus Eversmann, 1847: 18. Lectotype designated below. **Syn. nov.**

Nematus contractus Eversmann, 1847: 20. Lectotype designated below. Synonymy with *Pachynematus flaviventris* by Konow (1905b).

Nematus diaphanus Eversmann, 1847: 19–20. Lectotype designated below. Synonymy with *flaviventris* by Konow (1904d).

Nematus fruticum Eversmann, 1847: 18. Lectotype designated below. **Syn. nov.**

Nematus umbripennis Eversmann, 1847: 20–21. Lectotype designated below. Synonymy with *kirbyi* by Benson (1958a).

Nematus griseus Eversmann, 1847: 18–19. Syntypes ♀♀ (DEI-GISHym30040–47, ZIN). Type locality: Russia, Kasan. Tentatively synonymised by Enslin (1916a). Like *Nematus kirbyi* Dahlbom.

Tenthredo (Selandria) umbrosa Eversmann, 1847: 32. Lectotype designated below. **Syn. nov.**

Epitactus praecox Förster, 1854b: 435–436. Lectotype designated by Haris (1997). Synonymy with *kirbyi* by Mucbe (1974).

Nematus trisignatus Förster, 1854a: 292–294. Lectotype designated by Haris (1997). Synonymy by Enslin (1916a).

- Nematus microps* Förster, 1854b: 421–422. Lectotype designated by Haris (1997). Synonymy by Haris (1997).
- Nematus pectoralis* Snellen van Vollenhoven, 1867: 223–224. Lectotype ♀ (ZMAN), designated by Thomas (1987), not examined. Type locality: Netherlands, Brummen. Synonymy with *trisignatus* by Konow (1904c). Primary homonym of *Nematus pectoralis* Serville, 1823.
- Nematus turgidus* Zaddach, 1876: 82–83. Syntypes ♀♀, probably destroyed (Blank & Taeger 1998). Type locality: Russia, Insterburg [Chernyakhovsk], and Poland, Gdansk [Danzig]. Synonymy by Enslin (1916a).
- Nematus tener* Zaddach, 1884 in Brischke 1884: 128. Syntypes ♂♂, probably destroyed (Blank & Taeger 1998). Type locality: Poland, Gdansk [Danzig]. Synonymy by Konow (1904d).
- Pachynematus infumatus* Marlatt, 1896a: 93 (key), 107–108. Synonymy with *Pachynematus kirbyi* (Dahlbom) by Smith (1979).
- Pachynematus zaddachi* Konow, 1901c: 110. Lectotype designated by Haris (1997). Synonymy with *umbripennis* by Enslin (1916a).
- Pachynematus glesipennis* Konow, 1903a: 377 (key). Lectotype designated by Haris (1997). Synonymy with *umbripennis* by Enslin (1916a).
- Pachynematus foveolatus* Konow, 1903a: 379 (key). Lectotype ♂ (GBIF-GISHym4670, SDEI), designated by Haris (1997). Type locality: Russia, Irkutsk. Synonymy by Haris (1997).
- Pachynematus lentus* Konow, 1903a: 382 (key). Lectotype designated by Haris (1997). Synonymy by Muehe (1974).
- Pachynematus clitellatus* var. *transigens* Enslin, 1916a: 479. Lectotype ♀ (DEI-GISHym84486, ZSM), designated by Haris (1997). Type locality: Germany, Neuss. Synonymy by Haris (1997).
- Pachynematus laevigatus* var. *flavissimus* Enslin, 1916a: 483. Syntype (?) ♀ (DEI-GISHym84487, ZSM) [seems to match the original description]. Type locality: Germany, Oranienbaum. Synonymy by Taeger & Blank (1998).
- Pachynematus refractarius* MacGillivray, 1921b: 31–32. Holotype ♀ (INHS), not examined. Type locality: USA, Maine, Orono. Synonymy with *Pachynematus kirbyi* (Dahlbom) by Smith (1979). Based on the original description it could be similar to *Nematus kirbyi* Dahlbom.
- Pachynematus truncatus* Benson, 1948a: 60–65. Holotype ♂ (B.M.TYPEHYM.1.702, BMNH). Type locality: United Kingdom, England, Bucks., Slapton. Synonymy by Haris (1997). Secondary homonym of *Pontania truncata* Marlatt, 1896a [*Euura truncata* (Marlatt, 1896)].
- Pachynematus smithae* Ross, 1945: 106 (key), 116. Holotype ♂ (INHS), not examined. Type locality: USA, New Hampshire, Mt Washington. **Syn. nov.**
- Nematus* (*Pachynematus*) *omega* Benson, 1955: 103–104. Lectotype designated below **Syn. nov.**
- Pachynematus aequalis* Lindqvist, 1974a: 120. **Syn. nov.**

Diagnosis

Based on nuclear data, *E. clitellata* seems to be a complex of 3–5 species. Although we have not studied the holotype of *clitellatus*, based on the description given by Taeger & Blank (1998: 264) it could fit well, for example, with the specimen ZMUO.040755 that is extensively yellow, including hind tarsi. Specimens with that kind of colouration seem to be restricted to the nuclear cluster containing ZMUO.040755, which we have called *E. clitellata* sensu stricto (s. str.) (<http://www.boldsystems.org/pics/LEFIJ/ZMUO.040755%2B1599793934.JPG>). Generally, it seems that *E. clitellata* s. str. and the nuclear cluster 3 have yellow or paler hind tarsi compared to nuclear clusters 4 and 5, which have black or darker hind tarsi. Otherwise there seems to be little difference between the clusters and all of them vary widely in colouration (from mostly black to extensively pale) and habitus. There is also a nuclear cluster 2, represented by a single larva (ZMUO.040880). It is perhaps possible that *E. clitellata* s. str. and cluster 3 are conspecific, like the clusters 4 + 5, but it is very unlikely based on nuclear genes that *E. clitellata* s. str. + cluster 3 on one hand is conspecific with the cluster 4 + 5 on the other hand. In Europe, the clusters 3 and 5 seem to be restricted to northern Fennoscandia. For

the cluster 4 (including perhaps cluster 5), the earliest available name might be *Nematus brachycercus* Hartig, 1840.

Females of *E. clitellata* are very similar to *E. fallax*. If the mesoscutellum is partly pale, then there nevertheless seem still to be small differences in the colour pattern:

- mesoscutellum with black midline along its length or pale dots laterally, if almost completely pale then with black dots anteriorly and posteriorly *E. fallax*
- mesoscutellum completely pale or anteriorly (partly) pale and posteriorly black *E. clitellata*.

Type material examined

Lectotype *Nematus flaviventris*, here designated

GERMANY • ♀; northern Germany [according to Hartig 1840: 22]; ZSM, DEI-GISHym3277.

Notes

Haris (1997) may have intended to designate this specimen as the lectotype, but according to Stephan M. Blank none of four syntypes was labelled as lectotype and the other labels as described by Haris in the lectotype designation do not exactly fit any of the specimens. Unfortunately, the specimen may be lost. It was not found in the ZSM, but photos of lateral and dorsal views are available. Not studied by Taeger & Blank (1998).

Lectotype *Nematus leucocarpus*

GERMANY • ♀; northern Germany [according to Hartig 1840: 22]; ZSM, DEI-GISHym84485.

Notes

8.5 mm. The mesepisternum is completely pale, unlike any other specimen we have seen.

Lectotype *Nematus brachycercus*

GERMANY • ♀; northern Germany [according to Hartig 1840: 22]; ZSM, DEI-GISHym3208.

Lectotype *Nematus squalidus*, here designated

RUSSIA – Tatarstan • ♀; Kasan Province; 55.8° N, 49.1° E; E. Eversmann leg.; ZIN, DEI-GISHym30060.

Notes

Best morphological match: e.g., ZMUO.032426, ZMUO.039092, ZMUO.046267, ZMUO.045459, ZMUO.063011, DEI-GISHym31252, DEI-GISHym84266.

Lectotype *Nematus cinereus*, here designated

RUSSIA – Tatarstan • ♂; Kasan Province; 55.8° N, 49.1° E; E. Eversmann leg.; ZIN, DEI-GISHym30036.

Notes

Resembles *Nematus kirbyi*.

Lectotype *Nematus contractus*, here designated

RUSSIA – Tatarstan • ♀; Kasan / Ulyanovsk [Simbirsk] / Orenburg; ZIN, DEI-GISHym30052.

Notes

Similar to *Nematus kirbyi*.

Paralectotype *Nematus contractus*

RUSSIA – Tatarstan • ♂; Kasan / Ulyanovsk [Simbirsk] / Orenburg; ZIN, DEI-GISHym30053.

Notes

Perhaps *Nematinus bilineatus* (Klug, 1819).

Lectotype *Nematus diaphanus*, here designated

RUSSIA • ♀; Orenburg oblast; 51.8° N, 55.1° E; E. Eversmann leg.; ZIN, DEI-GISHym30051.

Notes

Similar to *Nematus kirbyi*.

Lectotype *Nematus fruticum*, here designated

RUSSIA–Tatarstan • ♂; Kasan Province; 55.8° N, 49.1° E; E. Eversmann leg.; ZIN, DEI-GISHym30035.

Notes

Similar to *Nematus kirbyi*.

Lectotype *Nematus umbripennis*, here designated

RUSSIA–Tatarstan • ♀; Kasan Province; 55.8° N, 49.1° E; E. Eversmann leg.; ZIN, DEI-GISHym30054.

Notes

Similar to *Nematus kirbyi*.

Lectotype *Tenthredo (Selandria) umbrosa*, here designated

RUSSIA–Tatarstan • ♂; Kasan Province; 55.8° N, 49.1° E; E. Eversmann leg.; ZIN, DEI-GISHym30048.

Notes

Similar to *Nematus kirbyi*.

Lectotype *Epitactus praecox*

GERMANY – Nordrhein-Westfalen • ♀; Aachen area; 50.77° N, 6.09° E; ZSM.

Notes

Similar to *Nematus kirbyi*.

Lectotype *Nematus trisignatus*

GERMANY – Nordrhein-Westfalen • ♀; Aachen area; 50.77° N, 6.09° E; ZSM.

Lectotype *Nematus microps*

GERMANY – Nordrhein-Westfalen • ♂; Aachen area; 50.77° N, 6.09° E; ZSM, DEI-GISHym12485.

Holotype *Pachynematus infumatus*

USA–Michigan • ♂; Ingham, Agricultural College; 42.746° N, 84.483° W; USNM, USNMENT00778520, <http://n2t.net/ark:/65665/322992bb4-e435-4a95-83cc-6b7a4796c66a>.

Notes

Similar to *Nematus kirbyi*.

Lectotype *Pachynematus zaddachi*

GERMANY – Mecklenburg-Vorpommern • ♂; Kalkhorst; 53.32° N, 13.07° E; 1 Aug. 1889; F.W. Konow leg.; SDEI, GBIF-GISHym3875.

Notes

Similar to *Nematus kirbyi*.

Lectotype *Pachynematus glesipennis*

RUSSIA – Irkutskaja oblast • ♂; Irkutsk; 52.29° N, 104.24° E; SDEI, GBIF-GISHym3876.

Lectotype *Pachynematus foveolatus*

RUSSIA – Irkutskaja oblast • ♂; Irkutsk; 52.29° N, 104.24° E; SDEI, GBIF-GISHym4670.

Lectotype *Pachynematus lentus*

GERMANY • ♀; Thüringen; SDEI, GBIF-GISHym3874.

Notes

Best morphological fit: DEI-GISHym21348 or ZMUO.059768.

Lectotype *Pachynematus clitellatus* var. *transigens*

GERMANY – Nordrhein-Westfalen • ♀; Neuss; 51.20° N, 6.69° E; ZSM, DEI-GISHym84486.

Holotype *Pachynematus truncatus*

UNITED KINGDOM – England • ♂; Buckinghamshire, Slapton; 52.12° N, 1.06° W; 26 May 1943; R.B. Benson leg.; BMNH, B.M.TYPEHYM.1.702.

Lectotype *Nematus (Pachynematus) omega*, here designated

SWITZERLAND – Valais • ♂; Ferpècle [Glacier]; 2100 m a.s.l.; 21–27 Jun. 1935; J.E. and R.B. Benson; BMNH, B.M.TYPEHYM.1.701.

Notes

Most similar to ZMUO.030823 and DEI-GISHym12503.

Holotype *Pachynematus aequalis*

RUSSIA – Murmansk oblast • ♀; Petsamo [Pechenga], Yläluostari [Luostari]; 69.43° N, 31.04° E; 5 Jul. 1938; V.J. Karvonen leg.; MZH, <http://id.luomus.fi/GL.5145>.

Notes

A COI sequence (658 bp) of the holotype is closest to BIOUG16846-H10 (Canada). Most similar to DEI-GISHym84245, but probably not conspecific. Head pale, only frontal area black; median mesoscutal lobe laterally and posteriorly pale; lateral mesoscutal lobes posterolaterally pale or pale only posterodorsal corners; anterior half of mesoscutellum pale, with or without black line in middle; mesoscutellar appendage black to pale; mesopostnotum pale; abdomen ventrally pale, dorsal half or middle part of mesepisternum pale; metafemur pale, pro- and mesofemur with black ring at base.

Host plants

A large number of genera of Poaceae Barnhart have been recorded as host plants, as well as unspecified species of *Juncus* L. and *Carex* L. (Taeger *et al.* 1998). It is currently impossible to attribute these records to the unresolved complex around *E. clitellata*, or to *E. fallax*.

Genetics

Based on nuclear genes, *Euura clitellata* as circumscribed here probably contains 3–5 species in Europe. Although we treat all these nuclear clusters as *E. clitellata*, the genetic distances are also summarised separately for the five clusters. Note that we recognize an additional nuclear cluster (*Euura clitellata* group sp. 1) that we excluded from *E. clitellata*, because the nuclear sequences are even more distinct and its inclusion would clearly render *E. clitellata* non-monophyletic.

COI

Euura clitellata s. str. Based on 26 specimens, maximum within-species distance is 0.76% and the nearest neighbour, diverging by a minimum of 0%, is *Euura clitellata* cluster 4. A secondary COI variant of ZMUO.040755 is 3.5% different from the primary variant and is closest to a specimen from Canada at a distance of 1.5% (09BBEHY-0204, the only representative of BOLD:AAI2591).

Cluster 2. Only one sequence available (ZMUO.040880). The nearest neighbour, diverging by a minimum of 1.37%, is *Euura clitellata* (*E. clitellata* s. str., cluster 5, and *clitellata* group sp. 1).

Cluster 3. Based on 10 specimens, maximum within-species distance is 0.46% and the nearest neighbour, diverging by a minimum of 0.15%, is *Euura clitellata* (*E. clitellata* s. str. and *clitellata* group sp. 1).

Cluster 4. Based on 26 specimens, maximum within-species distance is 1.37% and the nearest neighbour, diverging by a minimum of 0%, is *Euura clitellata* s. str.

Cluster 5. Based on 10 specimens, maximum within-species distance is 0.46% and the nearest neighbour, diverging by a minimum of 0.15%, is *Euura clitellata* group sp. 1.

Nuclear

Euura clitellata s. str. Based on 19 specimens, maximum within-species distance is 0.65% (0.42% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.54%, is *Euura clitellata* cluster 3.

Cluster 2. Only one sequence available. The nearest neighbour, diverging by a minimum of 1.51%, is *Euura clitellata* cluster 5.

Cluster 3. Based on 10 specimens, maximum within-species distance is 0.47% (0.21% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.54%, is *Euura clitellata* s. str.

Cluster 4. Based on 25 specimens, maximum within-species distance is 0.27% (0.39% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.27%, is *Euura clitellata* cluster 5.

Cluster 5. Based on 10 specimens, maximum within-species distance is 0.58% (0.68% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.27%, is *Euura clitellata* cluster 4.

Distribution and material examined

Palaearctic. Specimens studied are from Estonia (cluster 4), Finland, France, Germany, Russia, Sweden, and the United Kingdom.

142 *Euura fallax* (Serville, 1823)

Figs 142, 379

Nematus fallax Serville, 1823: 66. Lectotype designated by Lacourt (2000).

Nematus melanocerus Hartig, 1840: 26. Lectotype designated by Taeger & Blank (1998). Synonymy with *xanthocarpus* by Taeger & Blank (1998).

Nematus xanthocarpus Hartig, 1840: 23. Types lost (Taeger & Blank, 1998). Type locality: northern Germany. Synonymy by Lacourt (1999).

Nematus eupodius Hartig, 1840: 26. Lectotype designated by Haris (1997). Synonymy with *xanthocarpus* by Taeger & Blank (1998).

Nematus einersbergensis Hartig, 1840: 26. Lectotype designated by Taeger & Blank (1998). **Syn. nov.**
Nematus schmidtii Gimmerthal, 1844: 37. Syntypes ♀♀ (deposition unknown). Type locality: Latvia, vicinity of Riga. Synonymy with *xanthocarpus* by Taeger & Blank (1998).
Nematus eversmanni Förster, 1854b: 423–424. Lectotype designated by Haris (1997). Synonymy with *xanthocarpus* by Taeger & Blank (1998).
Nematus emarginatus Förster, 1854b: 424–425. Lectotype designated by Haris (1997). Synonymy with *xanthocarpus* by Taeger & Blank (1998).
Nematus circumscriptus Förster, 1854a: 301–302. Lectotype designated by Haris (1997). Synonymy with *xanthocarpus* by Konow (1904c).
Nematus erythropareus Zaddach, 1884 in Brischke 1884: 130. Holotype ♀, not located. Type locality: Austria, Tirol, Innsbruck. Synonymy with *xanthocarpus* by Taeger & Blank (1998).
Pachynematus sulcatus Benson, 1948a: 60–65. Synonymy with *xanthocarpus* by Haris (1997).
Pachynematus chambersi Benson, 1948a: 60–65. Synonymy with *xanthocarpus* by Haris (1997).
Pachynematus calcicola Benson, 1948a: 60–65. Synonymy with *xanthocarpus* by Taeger & Blank (1998).
Pachynematus angustatus Lindqvist, 1949: 85. **Syn. nov.**
Pachynematus virginalis Liston, 1980a: 241–242. Synonymy by Liston *et al.* (2006).

Diagnosis

Based on nuclear data, there are two main lineages that tend to look somewhat different. Specimens in one lineage (similar to *Nematus einersbergensis* Hartig) tend to be smaller and the head is not expanded behind the eyes, unlike in the more typical *E. fallax* that falls in the second main clade. However, specimens exist which form additional nuclear lineages that look more like *einersbergensis* (e.g., ZMUO.032994) or more like *fallax* (DEI-GISHym16246). These nuclear lineages are more closely related to each other than some of the lineages in *clitellata* (which very likely contains more than one species) and could perhaps still belong to single species.

Females are very similar to those of *E. clitellata*, see under that species.

Type material examined

Lectotype *Nematus fallax* [designated by Lacourt (2000), photos examined]
FRANCE – Ile-de-France • ♀; Paris; 48.9° N, 2.3° E; MRSN, EY34235.

Lectotype *Nematus melanocerus*
GERMANY • ♂; northern Germany [according to Hartig 1840: 22]; ZSM, DEI-GISHym12497.

Lectotype *Nematus eupodius*
GERMANY • ♂; northern Germany [according to Hartig 1840: 22]; ZSM, DEI-GISHym12495.

Lectotype *Nematus einersbergensis*
GERMANY – Niedersachsen • ♀; Einersberg; 51.81° N, 10.30° E; ZSM, DEI-GISHym84488.

Notes

Best morphological match: ZMUO.032994, ZMUO.029665, DEI-GISHym12609.

Lectotype *Nematus eversmanni*
RUSSIA – Tatarstan • ♂; Kasan Province; 55.8° N, 49.1° E; E. Eversmann leg.; ZIN, DEI-GISHym12486.

Notes

The penis valve fits with DEI-GISHym84275.

Lectotype *Nematus emarginatus*

GERMANY – **Rheinland-Pfalz** • ♂; Boppard; 50.22° N, 7.57° E; ZSM, DEI-GISHym12496.

Lectotype *Nematus circumscriptus*

GERMANY – **Nordrhein-Westfalen** • ♀; Aachen area; 50.77° N, 6.09° E; ZSM, DEI-GISHym12489.

Holotype *Pachynematus sulcatus*

UNITED KINGDOM – **Scotland** • ♂; Perthshire, Killin; 56.47° N, 4.32° W; 120 m a.s.l.; 31 May–14 Jun. 1932; R.B. Benson leg.; BMNH, B.M.TYPEHYM.1.700.

Holotype *Pachynematus chambersi*

UNITED KINGDOM – **England** • ♂; Bedfordshire, Ampthill; 52.03° N, 0.49° W; 100 m a.s.l.; 17 May 1947; V.H. Chambers leg.; BMNH, B.M.TYPEHYM.1.699.

Notes

Best morphological match: DEI-GISHym84450.

Holotype *Pachynematus calcicola*

UNITED KINGDOM – **England** • ♂; Yorkshire, Pen-y-Ghent; 54.16° N, 2.25° W; F.W. Edwards and W.H.T. Tams leg.; May 1933; BMNH, B.M.TYPEHYM.1.698.

Holotype *Pachynematus angustatus*

FINLAND – **Inari Lapland** • ♀; Utsjoki, Outakoski; 69.61° N, 25.98° E; 22 Jun. 1947; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3427>.

Holotype *Pachynematus virginialis*

UNITED KINGDOM – **Scotland** • ♂; Edinburgh, Duddingston Loch; 55.94° N, 3.15° W; 2 Jun. 1979; A. Liston leg.; RSME.

Host plants

Various genera of Poaceae have been recorded as host plants, as well as unspecified species of *Juncus* and *Carex*, but it is currently impossible to decide whether these records refer to *E. fallax*, or the unresolved complex of species around *E. clitellata*.

Genetics

COI

Based on 38 specimens, maximum within-species distance is 6.08% and the nearest neighbour, diverging by a minimum of 6.08%, is *Euura clitellata*.

Nuclear

Based on 24 specimens, maximum within-species distance is 1.08% (0.71% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.38%, is *Euura moerens*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, France, Germany, Portugal, Russia, Sweden, and the United Kingdom.

143 *Euura lichtwardti* (Konow, 1903)

Figs 143, 380

Nematus apicalis Hartig, 1837: 201. Lectotype designated by Haris (1997). Synonymy by Lindqvist (1955). Primary homonym of *Nematus apicalis* Stephens, 1835 [*Dineura stilata* (Klug, 1816)].

Pachynematus lichtwardti Konow, 1903a: 379 (key). Lectotype designated below.

Pachynematus kubesi Konow, 1905a: 154. Lectotype designated below. Synonymy by Lacourt (1999).

Diagnosis

Females are most similar to *E. moerens*. Metatarsomere 1 and metafemur are usually completely or nearly completely black in *E. lichtwardti*, but usually extensively pale (basal third of metatarsomere 1) in *E. moerens*. In males, tergum 8 has a distinct apical projection that distinguishes it clearly from *E. moerens* (absent or indistinct). The penis valves are also distinct from those in *E. moerens* and the other *Euura*. In males, sometimes terga 5–8 laterally and laterodorsally pale.

Type material examined

Lectotype *Nematus apicalis*

GERMANY [according to the title of Hartig 1837] • ♀; ZSM, GBIF-GISHym3196.

Lectotype *Pachynematus lichtwardti*, here designated

CZECH REPUBLIC – **Sudeten** • ♀; Altvater; 50.08° N, 17.21° E; 12 Jun. 1900; B. Lichtwardt leg.; SDEI, GBIF-GISHym3872.

Lectotype *Pachynematus kubesi*, here designated

CZECH REPUBLIC – **Central Bohemia** • ♀; Kolin; 50.03° N, 15.20° E; A. Kubes leg.; SDEI, GBIF-GISHym3873.

Host plants

Elytrigia repens (L.) Gould. (Kontuniemi 1965), *Calamagrostis* spp. (Kangas 1985; Macek *et al.* 2020).

Genetics

COI

Based on 4 specimens, maximum within-species distance is 4.06% and the nearest neighbour, diverging by a minimum of 4.26%, is *Euura moerens*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.06% (0.03% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.47%, is *Euura clitellata* cluster 5. Based on 3 specimens of NaK (1654 bp), maximum within-species distance is 0.12% (also 0.12% when considering haplotypes of ZMUO.032405).

Distribution and material examined

Palearctic. Specimens studied are from Czech Republic, Finland, Germany, Norway, Sweden, and the United Kingdom.

144 *Euura moerens* (Förster, 1854)

Figs 144, 381

Nematus moerens Förster, 1854a: 294–295. Lectotype designated below.

Nematus pygostolus Förster, 1854b: 431–432. Lectotype designated by Weiffenbach (1962). Synonymy by Weiffenbach (1962).

Nematus pleuralis Thomson, 1863: 628. Lectotype designated below. Synonymy by Enslin (1916a).

Pachynematus pullus Konow, 1903a: 379 (key). Lectotype designated below. Synonymy by Lindqvist (1976).

Pachynematus falonus Ross, 1945: 108 (key). Holotype ♂ (INHS), not examined. Type locality: Canada, Alberta, Edmonton.

Pachynematus torridonensis Liston, 1980b: 52–53. Synonymy by Liston (1995).

Diagnosis

Females are most similar to *E. lichtwardti*. Metatarsomere 1 and metafemur are usually extensively pale in *E. moerens*, but usually completely or nearly completely black *E. lichtwardti*. In males, the apical projection of tergum 8 is absent or indistinct unlike most other *Euura* (thus more like most *Pristiphora*). Penis valves reliably separate *E. moerens* from the other species.

Type material examined

Lectotype *Nematus moerens*, here designated

GERMANY – **Nordrhein-Westfalen** • ♀; Aachen area; 50.77° N, 6.09° E; ZSM, DEI-GISHym88919.

Notes

According to Taeger & Blank (1998) the lectotype was designated by Haris (1997), but no such designation was made.

Lectotype *Nematus pygostolus*

GERMANY – **Nordrhein-Westfalen** • ♂; Aachen area; 50.77° N, 6.09° E; ZSM, DEI-GISHym12488.

Lectotype *Nematus pleuralis*, here designated

SWEDEN • ♀; Stockholm; 59.31° N, 18.04° E; C.H. Boheman leg.; NHRS, NHRS-HEVA000006326.

Lectotype *Pachynematus pullus*, here designated

FRANCE – **Champagne-Ardenne** • ♀; Charleville-Mézières; 49.76° N, 4.72° E; 11 May 1895; SDEI, GBIF-GISHym3882.

Holotype *Pachynematus torridonensis*

UNITED KINGDOM – **Scotland** • Wester Ross, Coire MhicNobuil, near Allt Toll a'Mhaidaich; 57.57° N, 5.56° W; 150 m a.s.l.; 16 May 1978; A.D. Liston leg.; RSME.

Host plants

Calamagrostis arundinacea (L.) Roth (Kangas 1985), *Poa* sp. and *Festuca* sp. (Macek *et al.* 2020).

Genetics

COI

Based on 8 specimens, maximum within-species distance is 6.75% and the nearest neighbour, diverging by a minimum of 0.97%, is *Euura clitellata*.

Nuclear

Based on 7 specimens, maximum within-species distance is 0.23% (0.35% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.38%, is *Euura fallax*.

Distribution and material examined

Holarctic. Specimens studied are from Finland, France, Germany, Norway, Sweden, and the United Kingdom.

145 *Euura obducta* (Hartig, 1837)

Figs 145, 382

Nematus obductus Hartig, 1837: 201–202. Lectotype designated below.

Nematus conductus Ruthe, 1859: 305–306. Lectotype designated below. Synonymy by Konow (1904c).

Nematus graminis Cameron, 1874: 221–222. Syntypes ♀♀ (BMNH), not examined. Type localities: United Kingdom, Scotland, Glasgow and Aberdeen areas; England, Saint Albans. Synonymy by Konow (1904c).

Nematus palliventris Cresson, 1880: 5. Holotype ♀ (ANSP Type no. 388, ANSP), not examined. Type locality: USA, Nevada.

Pachynematus boulderensis Rohwer, 1920: 218–219. Holotype ♀ (USNMMENT00778746, USNM, <http://n2t.net/ark:/65665/3a7fb89a5-6012-4196-a47e-01edac6000c2>), not examined. Type locality: USA, Colorado, Boulder.

Diagnosis

The female is most similar to *E. vaga*, from which it differs by its apically or extensively black-marked metafemur (nearly always completely pale in *E. vaga*), more elongate valvula 3 in dorsal view, and more or less straight basal part of lamnium (curved outward in *E. vaga*). Also, the pterostigma is black in *E. obducta*, but pale in European specimens of *E. vaga*. Males, which are extremely rare, are best recognised by penis valves. The tergum 8 is deeply invaginated in the middle and the prominent apical projection is distinctly constricted at base, which enables identification of males also externally.

Type material examined

Lectotype *Nematus obductus*, here designated

GERMANY [according to the title of Hartig 1837] • ♀; ZMHB, GBIF-GISHym2785.

Lectotype *Nematus conductus*, here designated

ICELAND • ♀; 1856; Staudinger leg.; ZMHB, dbcac8 / ZMHB, GBIF-GISHym2829.

Host plants

Various genera of Poaceae, such as *Poa* L., *Elymus* L., *Phleum* L. and *Dactylis* L. (Kangas 1985; own data), and *Carex* (Macek *et al.* 2020).

Genetics

COI

Based on 9 specimens, maximum within-species distance is 2.89% and the nearest neighbour, diverging by a minimum of 7.26%, is *Euura clitellata*.

Nuclear

Only one sequence available, a female with haplotypes diverging by 0.1%. The nearest neighbour, diverging by a minimum of 2.89%, is *Euura fallax*.

Distribution and material examined

Holarctic. Specimens studied are from Austria, Canada, Estonia, Finland, France, Germany, Greenland (only genetics), Iceland, Portugal, Sweden, Switzerland, and the United Kingdom.

146 *Euura clitellata* group sp. 1

Fig. 374

A single male (ZMUO.035580) from Utsjoki (Finland) is clearly a different species from the others in the group, based on nuclear DNA. The penis valve is not clearly distinguishable from *E. clitellata*,

but externally (colouration and the projection of tergite 8) it is most similar to *E. fallax*. Of the North American species treated by Ross (1945), ZMUO.035580 is perhaps most similar (based on the penis valve and the projection of tergite 8) to *Euura aurata* (Marlatt 1896a: 91–93, 99–100) (*Pachynematus auratus* Marlatt, 1896), but the characters do not seem to fit perfectly. The dominant COI variant belongs to BOLD:ACF0333 (most European *E. clitellata* specimens), the second to BOLD:ACM0632 (North America) and the third is closest (2.4%) to BOLD:ABX5515 (North America and some secondary variants of several Finnish specimens of *E. clitellata*).

Host plants

Unknown.

Genetics

COI

Only one sequence available. The nearest neighbour, diverging by a minimum of 0.15%, is *Euura clitellata* (nuclear clusters 3 and 5). When secondary intraindividual COI variants of ZMUO.035580 are also included, maximum within species distance is 2.89% and the nearest neighbour, diverging by a minimum of 0.15%, is *Euura clitellata* (*E. clitellata* s. str. and nuclear clusters 3–5).

Nuclear

Only one sequence available. The nearest neighbour, diverging by a minimum of 1.43%, is *Euura moerens*.

Distribution and material examined

Palaearctic. The studied specimen is from northernmost Finland.

147 *Euura epilosa* group

148 *Euura epilosa* (Lindqvist, 1970)

Figs 147–148

Pteronidea epilosa Lindqvist, 1970: 102–103.

Diagnosis

The colouration and the lancet of *E. epilosa* are most similar to those of *E. nigricornis* and *E. miliaris*, but its antenna is distinctly shorter.

Type material examined

Holotype *Pteronidea epilosa*

RUSSIA – Irkutskaja oblast • ♀; Irkutsk, Oljhonsk, Popovo; 52.741° N, 106.309° E; 22 May 1967; B.N. Verzhutskii leg.; collected from *Spiraea media*; MZH, <http://id.luomus.fi/GL.5142>.

Notes

Recently discovered in Europe. A single female was collected in Bulgaria in 2022 by E. Heibo close to *Spiraea* sp. and several larvae on *Spiraea media* F.Schmidt in Slovakia by A. Lendel (Ladislav Roller, pers com.). Male unknown. The *Euura epilosa* group includes also *E. brachycera* (Lindqvist, 1975) (known from Irkutsk oblast and Primorsky Kray, Russia) and possibly *Nematus mandshuricus* Zhelochovtsev & Zinovjev, 1994 and *Euura vastidens* (Lindqvist, 1975). *Euura epilosa*, *E. brachycera* and *N. mandshuricus* have been reared from *Spiraea*, but *E. vastidens* from *Dasiphora fruticosa*.

Host plants

Spiraea media (Verzhutskii 1981). One generation per year.

Genetics

COI

Based on 3 specimens, maximum within-species distance is 1.37% and the nearest neighbour, diverging by a minimum of 6.79%, is *Euura brevivalvis*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.73% (0.05% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 3.45%, is *Euura brachycera*.

Distribution and material examined

Palearctic. Specimens studied are from Bulgaria, Russia, and Slovakia.

149 *Euura fahraei* group

Includes two species in Europe: *E. fahraei* (pale) and *E. tenuiserra* (dark). *Euura bicolor* (Jakowlew, 1891) from the East Palearctic also belongs to the group. The species is similar to *E. tenuiserra*, but the abdomen is ventrally black and the mesepisternum matt (abdomen ventrally pale and mesepisternum smooth in *E. tenuiserra*).

150 *Euura fahraei* (Thomson, 1863)

Figs 149, 383

Nematus fahraei Thomson, 1863: 637 [mandatory correction of original spelling *fähræi*]. Lectotype designated below.

Nematus melanodus Zaddach, 1884 in Brischke 1884: 133. Holotype ♂, probably destroyed (Blank & Taeger 1998). Type locality: Prussia? [leg. Andersch]. Synonymy by Konow (1895).

Pteronidea brunnea Lindqvist, 1971b: 11. Secondary homonym of *Nematus brunneus* Norton, 1864 [= *Euura brunnea* (Norton, 1864)]. **Syn. nov.**

Nematus brunnescens Vikberg, 1982: 63. Replacement name for *Pteronidea brunnea* Lindqvist, 1971.

Diagnosis

Its almost completely yellowish body and the structure of the lancet (apical sutures concave and overall inclined in basal direction, serrulae flat, setae present) enable identification of the females. Ventrally extensively pale body and shape of the penis valves enable reliable identification also of males.

Type material examined

Lectotype *Nematus fähræi*, here designated

SWEDEN – Skåne • ♀; Ringsjön; 55.88° N, 13.51° E; C.G. Thomson leg.; MZLU, MZLU2017305.

Holotype *Pteronidea brunnea*

FINLAND – Uusimaa • ♀; Espoo, Vantaa; 60.25° N, 24.90° E; 27 May 1967; V.J. Karvonen leg.; MZH, <http://id.luomus.fi/GL.3466>.

Host plants

Populus tremula.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 0.61% and the nearest neighbour, diverging by a minimum of 6.72%, is *Euura bicolor* (not known in the West Palearctic).

Nuclear

Based on 2 specimens, maximum within-species distance is 0.05%. The nearest neighbour, diverging by a minimum of 1.46%, is *Euura bicolor*.

Distribution and material examined

Palaearctic. Specimens studied are from Bulgaria, Estonia, Finland, Germany, Russia, Sweden, and the United Kingdom.

151 *Euura tenuiserra* (Lindqvist, 1944)

Figs 150, 384

Amauronematus tenuiserra Lindqvist, 1944b: 21–22.

Pteronidea semipunctata Lindqvist, 1958: 98. **Syn. nov.**

Diagnosis

Mostly black head and thorax, dorsally black and ventrally pale abdomen, and lancet (similar to *E. fahraei*, but possibly ventrally somewhat more concave) enable identification of the females. Penis valves are similar to those of *E. fahraei*, but externally the males of *E. tenuiserra* are much darker (mostly black). Females are superficially similar to those of *E. humeralis*, but their lancets are clearly different.

Type material examined

Holotype *Amauronematus tenuiserra*

RUSSIA – **Karelia** • ♀; Vaaseni [Vaziny]; 60.96° N, 34.01° E; 8 Jun. 1942; V. Karvonen leg.; MZH, <http://id.luomus.fi/GL.2772>.

Holotype *Pteronidea semipunctata*

SWEDEN • ♀; Uppland; R. Malaise leg.; NHRS, NHRS-HEVA000004009.

Host plants

Salix pentandra.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 3.34% and the nearest neighbour, diverging by a minimum of 6.08%, is *Euura bicolor* (not known in the West Palaearctic). The two sequenced Finnish specimens are identical (minimum of 3.04% different to the other specimens from Primorsky Krai, Russia), but in one of the specimens two additional secondary COI variants were detected with maximum distance of 1.98% to the primary variant.

Nuclear

Based on 4 specimens, maximum within-species distance is 1.2% (0.1% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.17%, is *Euura bicolor*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Russia, and Sweden.

152 *Euura flavescens* group

Externally, most species in the group can be confused with members of the *E. bipartita* group. Females can be difficult to distinguish from members of the *E. bipartita* group even based on lancets. Based

on penis valves, males are easier to distinguish from the *E. bipartita* group, but penis valves can be similar to members of the *melanocephalus*, *miliaris*, *vittata*, *toeniata*, and *variator* groups. Males are not clearly distinguishable from each other based on penis valves and often also not externally. Males of *E. flavescens* are often ventrally almost completely pale, whereas those of *E. dorsata*, *E. latibasis*, *E. seriepunctata*, and *E. serela* Prous & Mutanen sp. nov. are (usually?) ventrally darker, but may not always be distinguishable from *E. flavescens*. Males of *E. lienterica* (sometimes ventrally rather pale), *E. pravus*, *E. reticulata*, and *E. squamicauda* are usually nearly completely or mostly black, but those of *E. pravus* tend to be larger (6–7 mm, the other species less than 6 mm). Males of *E. elongatula*, *E. pallidinervis*, *E. pallidior*, and *E. renei* are not known.

153 *Euura dorsata* (Cameron, 1875)

Figs 151, 385

Nematus dorsatus Cameron, 1875: 129–130. Syntypes ♀♀ (BMNH?), not examined. Type locality: United Kingdom, Scotland, Inverness-shire, Rannoch, and Bishopton.

Diagnosis

Nearly completely pale, and thus resembling most specimens of *E. flavescens*, at least some *E. latibasis*, and *E. seriepunctata*. Serrulae of the lancet of *E. dorsata* are more protruding than in *E. flavescens* and *E. seriepunctata*. *Euura latibasis* might have a shorter lamnium compared to radix (lamnium 1.8–1.9 times as long as radix in *E. latibasis*, about 2.0–2.4 times as long in *E. dorsata*). *Euura fuscarima* of the *E. bipartita* group is also similar externally and has a similar lancet. The middle and apical sutures of the lancet of *E. fuscarima* are perhaps straighter than in *E. dorsata*.

Host plants

Betula pubescens including ssp. *czerepanovii* (N.I.Orlova) Hämet-Ahti.

Genetics

COI

Based on 2 specimens, maximum within-species distance is 0.31% and the nearest neighbour, diverging by a minimum of 1.67%, is *Euura latibasis*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0% (0.03% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 2.4%, is *Euura reticulata*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, and Sweden.

154 *Euura elongatula* (Lacourt, 1996)

Alpinematus elongatulus Lacourt, 1996a: 270–271.

Diagnosis

Only the holotype is known, which is most similar to *Pteronidea boreophila* Lindqvist, 1971 (= *E. flavescens*), but even darker. The serrulae seem to be similar to *E. flavescens*, but the saw has not been dissected, which would be required to see the characteristic details. Since the specimen is also unusually dark for *E. flavescens*, we have provisionally treated the species as valid.

Type material examined

Holotype *Alpinematus elongatulus*

FRANCE – **Hautes-Alpes** • ♀; Saint-Véran, La Chapelle-de-Clousis [Chapelle Notre Dame de Bon Secours de Clausis]; 44.67° N, 6.92° E; 2450 m a.s.l.; 12 Jul. 1975; J. Lacourt leg.; CTN, DEI-GISHym20819.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Palaearctic. Specimens studied are from France.

155 *Euura flavescens* (Stephens, 1835)

Figs 166, 386

Nematus flavescens Stephens, 1835: 29. Lectotype designated below.

Nematus testaceus Thomson, 1871: 153–154. Lectotype designated by Lindqvist (1960c). Synonymy by Cameron (1885). Primary homonym of *Nematus testaceus* Stephens, 1835 [= *Euura miliaris* (Panzer, 1797)].

Nematus dilutus Brischke, 1883: 141. Syntypes ♀♂, probably destroyed (Blank & Taeger 1998). Type locality: Russia, Kaliningradskaya oblast, Tschernjachovsk [Insterburg]; Poland, Gdansk [Danzig]; Germany, Rheinland-Pfalz, Herrstein, and Sachsen-Anhalt, Halle. Synonymy by Enslin (1913).

Pteronidea stichi Enslin, 1913: 321–326. Replacement name for *Nematus testaceus* Thomson, 1871.

Pteronidea fulvescens Lindqvist, 1949: 79. **Syn. nov.**

Pteronidea variegata Lindqvist, 1958: 103–104. **Syn. nov.**

Pteronidea boreophila Lindqvist, 1971b: 12–13. **Syn. nov.**

Diagnosis

Females are usually nearly completely pale yellowish like *E. dorsata*, and at least some *E. latibasis* and *E. seriepunctata*, but some specimens of *E. flavescens* are extensively black. Externally very similar is also *E. fuscarima* of the *E. bipartita* group. The best way to identify the species is by examining the lancet. On the dorsobasal part (next to the suture) of the basalmost annulus is a dorsally widening pale area (absent in the other similar species).

At least some of the darker specimens (abdomen dorsally mostly black; as in ZMUO.040671, ZMUO.041892, ZMUO.046542, ZMUO.058829, etc.) may belong to a different species, based on nuclear genes. An available name for such specimens might be *Pteronidea boreophila*. However, based on individual haplotypes of different nuclear genes, the haplotypes from the same specimen tend to group either with *E. lienterica* or *E. flavescens*, suggesting an alternative explanation, that these specimens may be of hybrid origin. A similar pattern has been shown for example in *Occidozyga* Kuhl & Hasselt, 1822 frogs where extensive gene flow can lead to inflated estimates of species numbers (Chan *et al.* 2021). In such cases standard distance and phylogenetic methods based on concatenated genes mask the reticulate

pattern and misleadingly indicate additional distinct lineages (Chan *et al.* 2021). Based on the lancet structure, we have identified these specimens (as well as the holotype of *boreophila*) as *E. flavescens*.

Type material examined

Lectotype *Nematus flavescens*, here designated
UNITED KINGDOM – **England** • ♀; London area; 51° N, 0° W; BMNH, B.M.TYPE HYM. 1.631.

Lectotype *Nematus testaceus*
SCANDINAVIA • ♀; MZLU, MZLU2017331.

Holotype *Pteronidea fulvescens*
RUSSIA – **Karelia** • ♀; Kenjärvi; 62.126° N, 34.011° E; 4 Jul. 1942; E. Kangas leg.; MZH, <http://id.luomus.fi/GL.3500>.

Notes

~8 mm. Best morphological match: DEI-GISHym21140 (~7.0 mm).

Holotype *Pteronidea variegata*
FINLAND – **Uusimaa** • ♀; Helsinki, Munksnäs [Munkkiniemi]; 60.22° N, 24.89° E; 23 Jun. 1932; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3559>.

Holotype *Pteronidea boreophila*
FINLAND – **Lapin Lääni** • ♀; Kilpisjärvi; 69.04° N, 20.81° E; 8 Jul. 1966; Karvonen leg.; MZH, <http://id.luomus.fi/GL.3457>.

Notes

Best morphological match: ZMUO.030845 (somewhat paler and slightly larger).

Host plants

Several different *Salix* spp., such as *S. caprea* L., *S. phylicifolia*, *S. myrsinifolia* Salisb. (Kangas 1985) and *S. viminalis* (Weiffenbach 1985).

Genetics

COI

Based on 27 specimens, maximum within-species distance is 1.82% and the nearest neighbour, diverging by a minimum of 0%, is *Euura lienterica*.

Nuclear

Based on 15 specimens, maximum within-species distance is 0.87% (0.63% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.27%, is *Euura lienterica*.

Distribution and material examined

Palearctic. Specimens studied are from Austria, Belgium, Bulgaria, Estonia, Finland, France, Norway, Russia, Sweden, and the United Kingdom.

156 *Euura latibasis* (Lindqvist, 1949)
Figs 152, 387

Pteronidea latibasis Lindqvist, 1949: 77–79.

Diagnosis

Females are from nearly completely pale to mostly black dorsally, and pale ventrally. Externally and based on the lancet, most similar to *E. dorsata* and *E. fuscарima* (*E. bipartita* group). Lamnium is 1.8–1.9 times as long as radix in *E. latibasis* ($n = 1$), but about 2.0–2.4 times as long in *E. dorsata* ($n = 2$) and 2.3–2.8 times as long in *E. fuscарima* ($n = 2$), but the difference might not hold for *E. latibasis* and *E. dorsata*. The middle and apical sutures of the lancet of *E. fuscарima* might also be more straight than in *E. latibasis*. *Euura seriepunctata* and *E. serela* sp. nov. have also quite a similar lancet, but the serrulae seem to be less protruding and the lamnium is 2.3–2.4 ($n = 1$) times as long as the radix in *E. seriepunctata* (the proportions could be similar in *E. serela* based on one basally damaged lancet).

Type material examined

Holotype *Pteronidea latibasis*

FINLAND – Varsinais-Suomi • ♀; Pargas (Parainen); 60.305° N, 22.301° E; leg. E. Reuter leg.; MZH, <http://id.luomus.fi/GL.3505>.

Notes

Best morphological fit: ZMUO.035649.

Host plants

Unknown.

Genetics

COI

Based on 3 specimens, maximum within-species distance is 0.15% and the nearest neighbour, diverging by a minimum of 1.67%, is *Euura dorsata*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0% (0.02% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.33%, is *Euura lienterica*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland.

157 *Euura lienterica* (Holmgren, 1883)

Figs 160–162, 164–165, 388

Nematus lientericus Holmgren, 1883: 146, pl. 2 fig. 9. Lectotype designated below.

Nematus parvulus Holmgren, 1883: 146–147, pl. 2 fig. 11. Lectotype designated below. Synonymy by Lindqvist (1944a).

Pontania tenuitarsis Konow, 1901b: 84 (key). Lectotype designated below. **Syn. nov.**

Amauronematus alberich Benson, 1934: 208–211. **Syn. nov.**

Pteronidea vaccinii Lindqvist, 1964: 128–129. **Syn. nov.**

Pteronidea facialis Lindqvist, 1969: 234, 237. **Syn. nov.**

Pteronidea carinata Lindqvist, 1969: 238–239. **Syn. nov.**

Nematus carinalis Vikberg, 1982: 63. Replacement name for *Pteronidea carinata* Lindqvist, 1969.

Diagnosis

Most similar to *E. reticulata*. The head of *E. lienterica* is usually more square-shaped in dorsal view and longer in lateral view, the pterostigma (usually?) paler, and the mesepisternum is smooth, whereas in

E. reticulata the head is more rectangular in dorsal view or shorter in lateral view, the pterostigma darker, and the mesepisternum is usually slightly matt. Based on extensive sequencing data, the colouration (mostly black to mostly pale) and size (4.5–6.5 mm) varies remarkably in *E. lienterica* females. Lancets are also rather variable (Figs 160–162, 164–165).

Female

4.5–6.5 mm. Head extensively pale around eyes to nearly black; labrum, clypeus, and supraclypeal area pale; flagellum black to nearly completely pale; thorax nearly completely pale to black; pronotum and tegula completely pale to partly pale; pterostigma pale yellowish; metafemur completely pale to nearly completely black; metatibia and -tarsi nearly completely pale to extensively dark brown; abdomen dorsally mostly black, ventrally completely pale to nearly completely black. Mesepisternum (usually?) smooth. Middle annuli of lancet usually somewhat S-shaped, basalmost annulus straight.

Male

4.5–5.5 (6.0?) mm. Body mostly black. Head partly brown around eyes to completely black; labrum, clypeus, and supraclypeal area mostly black to mostly pale; flagellum black to slightly pale ventrally; thorax black; pronotum and tegula extensively pale to completely black; pterostigma yellowish or brownish; metafemur extensively pale to nearly completely black; metatibia and -tarsi nearly completely pale to extensively dark brown; abdomen dorsally black, ventrally black to mostly pale; sternum 9 completely pale to nearly completely black.

Pteronidea vaccinii is morphologically not distinguishable from *E. lienterica*, but the collecting locality is unusually far South (southern Finland) whereas all other specimens have been collected above or close to the treeline in the North. A specimen of *E. lienterica* (PR.603VV, not sequenced) has been reared from *Betula nana*, and *Vaccinium* has been reported for *E. reticulata* (Kontuniemi 1960), a similar species living in the same habitats as *E. lienterica*. Our own observations suggest that *E. lienterica* could feed on *Vaccinium* (see below) and that *E. reticulata* could feed on *Salix*, *Betula*, and *Vaccinium* (see discussion under that species). Whether *E. lienterica* can feed both on *Betula* and *Vaccinium* (and perhaps also on *Salix*), needs further investigation.

Type material examined

Lectotype *Nematus lientericus*, here designated

RUSSIA – **Novaja Zemlya** • ♀; Matotschkin Scharr [Matochkin Strait]; 73.3° N, 55.6° E; 1875; NHRS, NHRS-HEVA000006473.

Notes

Best morphological fit: DEI-GISHym21408.

Lectotype *Nematus parvulus*, here designated

RUSSIA – **Nenets Autonomous Okrug** • ♀; Vaygach Island; 69.970° N, 59.674° E; 1875; NHRS, NHRS-HEVA000006479.

Paralectotype *Nematus parvulus*

RUSSIA – **Nenets Autonomous Okrug** • 1 ♀; same data as for lectotype; NHRS, NHRS-HEVA000006478.

Notes

Head of NHRS-HEVA000006478 is extensively brown around eyes; thorax, abdomen and metafemora black; short antenna. NHRS-HEVA000006479 is somewhat paler. Best morphological matches: PR.603VV and DEI-GISHym12558.

Lectotype *Pontania tenuitarsis*, here designated

NORWAY – Troms • ♀; Tysfjorden; 68.204° N, 16.080° E; E. Strand leg.; SDEI, GBIF-GISHym3867.

Notes

18–19 serrulae.

Holotype *Amauronematus alberich*

NORWAY – Bear Island (Bjørnøya) • ♀; Nordhama; 74.441° N, 19.040° E; 28 Jul. 1932; G.C.L. Bertram and D. Lack leg.; BMNH, B.M.TYPEHYM.1.419.

Holotype *Pteronidea vaccinii*

FINLAND – Häme • ♀; Pälkäne; 61.335° N, 24.272° E; 7 Jun. 1963; J. Kangas leg.; MZH, <http://id.luomus.fi/GL.3597>.

Notes

18 serrulae, 5 mm. Head shape most similar to DEI-GISHym21408.

Holotype *Pteronidea facialis*

FINLAND – Inari Lapland • ♀; Inari; 68.911° N, 27.031° E; 2 Jul. 1965; V.J. Karvonen leg.; MZH, <http://id.luomus.fi/GL.3564>.

Notes

6.5 mm.

Holotype *Pteronidea carinata*

FINLAND – Lapin Lääni • ♀; Kilpisjärvi; 69.04° N, 20.81° E; 5 Jul. 1950; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3568>.

Notes

5.5 mm.

Host plants

Vaccinium uliginosum L. based on reared type specimens of *Pteronidea vaccinii*, which we treat as *E. lienterica*. One larva (ZMUO.064842) was reared ex ovo from *V. myrtillus* L., but it died in the second or third instar although *V. uliginosum* was also offered, indicating a suboptimal host or unsuitable rearing conditions. We have identified a specimen (PR.603VV, mostly black, lancet most similar to sequenced DEI-GISHym12555) reared from *Betula nana* also as *E. lienterica*. At this point it remains unclear which is the preferred host, or whether multiple host plants are accepted (which could be similar to *E. reticulata*), or if more than one species of sawfly is involved. Although adults can be very common in arctic habitats, we have not collected any larvae in the field, which probably indicates that the host plants are low-growing *Vaccinium*, *Betula*, and/or dwarf *Salix*, which are much more difficult to collect from than taller plants.

Genetics

COI

Based on 31 specimens, maximum within-species distance is 1.82% and the nearest neighbour, diverging by a minimum of 0%, is *Euura flavescens*.

Nuclear

Based on 27 specimens, maximum within-species distance is 1.2% (0.86% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.27%, is *Euura flavescens*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Norway, Russia, and Sweden.

158 *Euura pallidinervis* (Hellén, 1951)

Fig. 156

Pteronidea pallidinervis Hellén, 1951b: 108–109.

Diagnosis

Its large size (9–10 mm), short antenna and mostly black body distinguish this species from the others in the *E. flavescens* group. The lancet is not distinguishable from *E. renei* and *E. serela* sp. nov., but these species are smaller (5.5–6.8 mm) and much paler. Male unknown.

Type material examined

Syntype *Pteronidea pallidinervis*

RUSSIA – **Karelia** • ♀; Kestenga, Mäntynturi; 66.323° N, 30.067° E; 28 Jun. 1935; G.J. Kerrich leg.; MZH, <http://id.luomus.fi/GL.3516>.

Notes

Largely destroyed: parts of thorax and abdomen, two hind wings, one mid leg, and parts of both hind legs remain. Interpretation of the species is largely based on the possible syntype ♀ from Utsjoki (below).

Possible syntype *Pteronidea pallidinervis*

FINLAND – **Inari Lapland** • ♀; Utsjoki; 69.91° N, 27.03° E; W. Hellén leg.; MZH, <http://id.luomus.fi/GP.110177>.

Host plants

Unknown. One of the type specimens was collected from *Betula nana* (Hellén 1951b).

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Palearctic. Specimens studied are from Finland.

159 *Euura pallidior* (Hellén, 1970)

Fig. 153

Amauronematus pallidior Hellén, 1970: 15–16.

Diagnosis

Nearly completely pale like *E. dorsata*, most *E. flavescens*, at least some *E. latibasis*, *E. seriepunctata*, and *E. fuscарima* (*E. bipartita* group). The lancet does not seem to be distinguishable from *E. latibasis* (ZMUO.035649) and is similar also to *E. fuscарima*, but the mesepisternum is slightly matt and head shape is similar to *E. reticulata* (antero-posteriorly contracted) in *E. pallidior*. Male unknown.

Type material examined

Holotype *Amauronematus pallidior*

RUSSIA – **Karelia** • ♀; Paanajärvi; 66.3° N, 30.1° E; 200 m a.s.l.; 16 Jun. 1917; R. Frey leg.; MZH, <http://id.luomus.fi/GL.2752>.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Palaearctic. Specimens studied are from Finland.

160 *Euura pravus* (Konow, 1895)

Figs 154, 389

Amauronematus pravus Konow, 1895: 176–177. Lectotype designated by Muche (1975).

Amauronematus torneensis Malaise, 1921b: 123–124. Lectotype designated below. **Syn. nov.**

Diagnosis

A rather large species (females 6.5–8.0 mm, males 6.0–7.0 mm) whose females are usually extensively pale. The serrulae of the lancet are most similar to *E. flavescens*, but a pale area on the dorsobasal part (next to the suture) of the basalmost annulus is missing in *E. pravus*. Externally rather similar to *E. renei*, but the median mesoscutal lobe has a large triangular black fleck (pale in *E. renei*) and antennae are black in *E. pravus* (ventrally pale in *E. renei*).

Female

6.5–8.0 mm. Head extensively to mostly pale; labrum, clypeus and supraclypeal area pale; flagellum black; thorax dorsally black to extensively pale, ventrally extensively or nearly completely pale; pterostigma uniformly pale or with dark margins; abdomen dorsally mostly black, ventrally mostly black to completely pale; metafemur and metatibia pale; hind tarsus black or brown; mesepisternum distinctly or slightly matt; claws bifid; valvula 3 rather truncate in lateral view (as in *E. brevivalvis*).

Male

6.0–7.0 mm. Head extensively pale around eyes to nearly completely black; labrum pale; clypeus slightly or extensively pale; supraclypeal area black or pale; thorax black; pronotum and tegula black to extensively pale; pterostigma pale with dark margins; metafemur extensively black to completely pale; metatibia pale; hind tarsus black or brown; abdomen dorsally nearly completely black, ventrally black or slightly pale; sternum 9 pale; mesepisternum distinctly or slightly matt; claws bifid; apical projection of tergum 8 small, about as broad as long or broader than long.

Type material examined

Lectotype *Amauronematus pravus*

ESTONIA • ♀; Dorpat [Tartu]; 58.372° N, 26.721° E; SDEI, GBIF-GISHym3866.

Lectotype *Amauronematus torneensis*, here designated
SWEDEN – Torne Lappmark • ♀; Torneträsk; 68.22° N, 19.74° E; 400 m a.s.l.; R. Malaise leg.;
NHRS, NHRS-HEVA000003944.

Host plants

Betula pubescens (Tenow 1963), *B. nana* (Vikberg 1982).

Genetics

COI

Based on 7 specimens, maximum within-species distance is 0.16% and the nearest neighbour, diverging by a minimum of 1.67%, is *Euura flavescens*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.12% (0.08% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.06%, is *Euura lienterica*.

Distribution and material examined

Holarctic. Specimens studied are from Canada (only genetics), Estonia, Finland, Norway, and Sweden.

161 *Euura renei* (Lindqvist, 1958)

Fig. 157

Pteronidea renéi Lindqvist, 1958: 104. Holotype ♀ not found in NHRS. Type locality:
Sweden, Torne Lappmark, Torneträsk. DEI-GISHym12067 is almost identical to a paratype
<http://id.luomus.fi/GL.5235>.

Diagnosis

Most similar to *E. lienterica*, *E. pravus*, *E. reticulata*, and *E. serela* sp. nov. Sutures of the lancet tend to be somewhat S-shaped in *E. lienterica*, but are more or less straight in *E. renei*. Median mesoscutal lobe has a large triangular black fleck in *E. pravus* and *E. serela*, but is completely or nearly completely pale in *E. renei*. Black antennae in *E. pravus* can further help to distinguish it from *E. renei* (ventrally pale). *Euura reticulata* is usually darker and smaller than *E. renei*, but can be of similar size and colouration, in which case the head shape (antero-posteriorly contracted *E. reticulata*) could help to separate the species. 6.0–6.8 mm; antennae as long as costa or shorter; lamnium 2.8–2.9 times as long as radix.

Host plants

Perhaps *Salix lapponum*, if the reared specimen PR.607VV is conspecific with DEI-GISHym12067.

Genetics

COI

Only one sequence available. The nearest neighbour, diverging by a minimum of 0.15%, is *Euura flavescens*.

Nuclear

Only one sequence available, a female with haplotypes diverging by 0.27%. The nearest neighbour, diverging by a minimum of 0.75%, is *Euura seriepunctata*.

Distribution and material examined

Palaeartic. Specimens studied are from Finland (if the specimen PR.607VV reared from *Salix lapponum* is correctly identified), Norway, and Sweden.

162 *Euura reticulata* (Holmgren, 1883)

Figs 159, 390

Nematus arcticus Thomson, 1871: 134. Lectotype designated below. Synonymy by Lindqvist (1954).

Primary homonym of *Nematus arcticus* Holmgren, 1869 [*Euura villosa* (Thomson, 1863)].

Nematus reticulatus Holmgren, 1883: 143, pl. 1 fig. 2. Lectotype designated below.

Nematus morionellus Holmgren, 1883: 144, pl. 1 fig. 3. Lectotype designated below. Synonymy by Lindqvist (1944a).

Nematus mysticus Holmgren, 1883: 145, pl. 1 fig. 7. Lectotype designated below. Synonymy by Lindqvist (1944a).

Nematus anceps Holmgren, 1883: 145, pl. 1 fig. 6. Lectotype designated below. Synonymy by Lindqvist (1967a).

Nematus occipitalis Holmgren, 1883: 144, pl. 1 fig. 4. Lectotype designated below. Synonymy by Lindqvist (1967a).

Nematus picticollis Holmgren, 1883: 147, pl. 1 fig. 13a–b. Syntypes ♀♀ (NHRS), not examined. Type locality: Russia, Novaja Zemlya, Matotschkin Scharr. Synonymy by Lindqvist (1944a).

Nematus arcticola Dalla Torre, 1894: 207. Replacement name for *Nematus arcticus* Thomson, 1871.

Pontania popofiana Kincaid, 1900: 353. Syntypes (10 ♀♀, 6 ♂♂) (USNMMENT00778201, USNM, <http://n2t.net/ark:/65665/3240d29be-a367-4853-a1ce-76ecf6dfc128>), not examined. Type locality: USA, Alaska, East Aleutians, Popof Island.

Pontania glinka Kincaid, 1900: 355–356. Lectotype ♀ (USNMMENT00778180, USNM, <http://n2t.net/ark:/65665/33b04de0e-ef1d-451c-8c05-35cddd9ef1cc>), not examined. Type locality: USA, Alaska, East Aleutians, Popof Island.

Pontania forsiusi Enslin, 1915: 354–355. Synonymy by Benson (1961b).

Amauronematus arcticola Enslin, 1915: 388–389. Replacement name for *Nematus arcticus* Thomson, 1871. Secondary homonym of *Nematus arcticola* Dalla Torre, 1894 [= *Euura reticulata* (Holmgren, 1883)].

Amauronematus alsius Benson, 1935: 31–33. Synonymy by Benson (1961b).

Diagnosis

Females vary from mostly black to mostly pale and 4.5–6.5 mm. See discussion under the similar species *E. lienterica* and *E. renei* for distinguishing characters.

Female

4.5–6.5 mm. Head extensively pale around eyes to nearly black; labrum, clypeus, and supraclypeal area pale; flagellum black to partly pale; thorax nearly completely pale to mostly black; pronotum and tegula completely pale to partly pale; pterostigma brown; metafemur completely pale to mostly brown; metatibia and -tarsi nearly completely pale to extensively brown; abdomen dorsally mostly black, ventrally completely pale to nearly completely black. Mesepisternum usually slightly matt. Middle annuli of saw straight. Lamnium 2.4–2.8 times as long as radix. A small (4.5 mm) and very dark female specimen which has been sequenced is for example ZMUO.041895.

Male

4.5–5.5 (6.0?) mm. Body (usually?) nearly completely black. Labrum pale to black; pterostigma brown or dark brown; metafemur nearly completely black; metatibia and -tarsi nearly pale brown to dark brown; sternum 9 extensively pale to black.

Type material examined

Lectotype *Nematus arcticus*, here designated
SWEDEN • ♀; Dalarna alpina; C.H. Boheman leg.; MZLU, MZLU2017307.

Lectotype *Nematus reticulatus*, here designated

RUSSIA – **Novaja Zemlya** • ♀; Matotschkin Scharr [Matochkin Strait]; 73.3° N, 55.6° E; 1875; NHRS, NHRS-HEVA000006452.

Paralectotypes *Nematus reticulatus*

RUSSIA – **Novaja Zemlya** • 3 ♀♀; Matotschkin Scharr [Matochkin Strait]; 73.3° N, 55.6° E; 1875; NHRS, NHRS-HEVA000006448 to NHRS-HEVA000006450.

Notes

Heads of the lectotype and paralectotype HEVA000006450 look more like *E. lienterica*, but the mesepisternum appears slightly matt. The heads of the other two syntypes are missing. Setae of the lancet of the type specimens seem to be somewhat different (particularly: fewer setae on the basalmost annular suture) from sequenced specimens.

Lectotype *Nematus morionellus*, here designated

RUSSIA – **Novaja Zemlya** • ♀; Matotschkin Scharr [Matochkin Strait]; 73.3° N, 55.6° E; 1875; NHRS, NHRS-HEVA000006451.

Notes

This is a very dark specimen of *E. reticulata* (lancet; identified as such) or *E. lienterica* (head) (antenna missing).

Lectotype *Nematus mysticus*, here designated

RUSSIA – **Novaja Zemlya** • ♀; Besimannija bay [Bezimyannaya Bay]; 72.86° N, 53.59° E; 1875; NHRS, NHRS-HEVA000006471

Lectotype *Nematus anceps*, here designated

RUSSIA • ♀; Novaja Zemlya; 1875; NHRS, NHRS-HEVA000006467.

Notes

Rather dark (e.g., mesepisternum). Lancet looks more like *E. reticulata* and mesepisternum seems matt, but the head looks more like *E. lienterica*.

Lectotype *Nematus occipitalis*, here designated

RUSSIA • ♀; Novaja Zemlya; 1875; NHRS, NHRS-HEVA000006453.

Notes

It is not clear whether this specimen belongs to *E. reticulata* or *E. lienterica*.

Holotype *Pontania forsiusi*

FINLAND – **Fjell-Lappland** • ♀; Kittilä; 67.7° N, 25.0° E; R. Krogerus leg.; ZSM, GBIF-GISHym3284.

Holotype *Amauronematus alsius*

UNITED KINGDOM – **Scotland** • Cairngorm Mts, Lairig Ghru; 57.09° N, 3.69° W; above 610 m a.s.l.; 10 Jun. 1934; R.B. and J.E. Benson leg.; BMNH, B.M.TYPEHYM.1.640.

Host plants

We reared and sequenced three larvae, one each on *Salix* sp., *Vaccinium uliginosum*, and *Betula nana*. The larvae are likely offspring of a female (ZMUO.067423) for which these plants were simultaneously offered, although we did not observe the female ovipositing and the larvae were discovered 16 days later. The larvae are probably sisters, because they are genetically almost identical. The three larvae

developed slowly, the last one was preserved in alcohol 1.5 months after it was found, but appeared to be still in the feeding stage. Another female (PR.604VV, not sequenced) oviposited in *S. herbacea* and *S. polaris* Wahlenb.

Genetics

COI

Based on 20 specimens, maximum within-species distance is 3.8% and the nearest neighbour, diverging by a minimum of 0.61%, is *Euura seriepunctata*.

Nuclear

Based on 16 specimens, maximum within-species distance is 0.48% (0.39% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.88%, is *Euura renei*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Norway, Russia, Sweden, and the United Kingdom.

163 *Euura seriepunctata* (Malaise, 1921)

Figs 155, 391

Pteronidea seriepunctata Malaise, 1921a: 6–7. Lectotype designated below.

Diagnosis

Female

Are (usually?) nearly completely pale, see differences discussed under similar species (*E. dorsata*, *E. flavescens*, *E. latibasis*, and *E. serela* sp. nov.). Lamnium 2.3–2.4 (n = 1) times as long as radix.

Male.

Head extensively pale around eyes; flagellum black or ventrally pale; thorax dorsally black or slightly pale, ventrally nearly completely pale to black; abdomen dorsally black, ventrally extensively pale; legs mostly pale, hind tarsi black.

Type material examined

Lectotype *Pteronidea seriepunctata*, here designated

SWEDEN – **Torne Lappmark** • ♀; Torneträsk; 68.22° N, 19.74° E; 400 m a.s.l.; R. Malaise; NHRS, NHRS-HEVA000003963.

Host plants

Unknown.

Genetics

COI

Based on 6 specimens, maximum within-species distance is 0.31% and the nearest neighbours, diverging by a minimum of 0.61%, are *Euura flavescens* and *E. renei*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.08% (0% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.7%, is *Euura serela* sp. nov.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Sweden.

164 *Euura squamicauda* (Vikberg, 1982)
Figs 167, 392

Pteronidea caudalis Lindqvist, 1968: 194. Secondary homonym of *Nematus caudalis* Eversmann, 1847 [= *Euura leucotrocha* (Hartig, 1837)].

Nematus squamicauda Vikberg, 1982: 63. Replacement name for *Pteronidea caudalis* Lindqvist, 1968.

Diagnosis

Females (5.5–6.5 mm) are externally very similar to darker specimens of *E. lienterica* and many species in the *bipartita* group, but valvula 3 is orientated distinctly dorsally. Separation of males from darker specimens of the other *flavescens* group species is not clear. Contrary to the original description, the pterostigma is hardly bicolored.

Type material examined

Holotype *Pteronidea caudalis*

SWEDEN – Torne Lappmark • ♀; Torneträsk; 68.22° N, 19.74° E; 400 m a.s.l.; R. Malaise leg.; NHRS, NHRS-HEVA000003965.

Host plants

Salix lanata L. based on three females (two of them sequenced) ovipositing in the male catkins. A sequenced larva (ZMUO.042092) was collected from *Salix* sp. where *S. lanata* was present.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 0.15% and the nearest neighbour, diverging by a minimum of 5.47%, is *Euura dorsata*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.13% (0.2% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.65%, is *Euura reticulata*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Norway, and Sweden.

165 *Euura serela* Prous & Mutanen sp. nov.

urn:lsid:zoobank.org:act:B19DC2EB-4225-4287-B14D-E71F41C0A562

Figs 81–82, 158, 393

Diagnosis

Most similar to *E. latibasis*, *E. renei*, and *E. seriepunctata*. Serrulae in *E. latibasis* may be more protruding than in *serela* sp. nov. Lamnium of *E. serela* (although base of the lancet is damaged in the only available specimen) may be similar to those of *E. renei* and *E. seriepunctata* (more than 2.3 times as long as radix), while lamnium is 1.8–1.9 times as long as radix in *E. latibasis*. Black hind tarsi in *E. latibasis* and *E. renei* might help to separate them from *E. serela* (pale hind tarsi). *Euura renei* has a pale median mesoscutal lobe and extensively black abdomen dorsally, whereas the median mesoscutal lobe of *E. serela* has a large triangular black fleck and the abdomen is more extensively pale. *Euura seriepunctata* may be overall paler (nearly completely pale, except for dorsal black dots or line on the abdomen) than *E. serela*. However, as only one female of *E. serela* and a few (*E. latibasis*, *E. renei*) or small numbers (*E. seriepunctata*) of specimens of the other species are known, the mentioned differences between the species might be even weaker.

Etymology

The species name, a noun in apposition, is a combination of the first letters of the names of the most similar species (*seriepunctata*, *renei*, *latibasis*).



Fig. 81. *Euura serela* Prous & Mutanen sp. nov., holotype, ♀ (ZMUO.035752).

Type material

Holotype

FINLAND – **Inari Lapland** • ♀; Utsjoki, Ailegas; 69.877° N, 27.065° E; 6 Jul. 2018; M. Mutanen, N. Mutanen and A. Mutanen leg.; ZMUO, ZMUO.035752.

Paratype

FINLAND – **Lapin Lääni** • 1 ♂; Pöyrisjärvi; 68.673° N, 23.859° E; 17 Jul. 2015; M. Mutanen leg.; ZMUO, ZMUO.028330.



Fig. 82. *Euura serela* Prous & Mutanen sp. nov., sp. nov. paratype, ♂ (ZMUO.028330).

Description

Female holotype (ZMUO.035752)

Body 5.5 mm. Colour mostly pale. Mandibles reddish-brown at apex; antennomeres 1–2 somewhat darkened; maxilla (except palps), dorsal dentorial maculae and area around and between ocelli brown or black; eyes black; propleuron, prosternum, anterior triangle on median mesoscutal lobe, lateral mesoscutal lobe anteriorly and posteriorly, mesoscutellar appendage centrally, and mesepisternum ventrally brown or black; mesepimeron somewhat darkened; metapleuron partly black; metanotum (except anterolateral corners) black; coxae basally slightly black; abdominal terga 1–7 centrally brown or black and with brown or black dots laterally. Clypeus deeply emarginate; frontal area between antennae raised, angulate; postocellar area about 2.5 times as broad as long; antenna somewhat longer than costa; mesepisternum smooth; claws bifid; valvula 3 in dorsal view not or only slightly tapering, slightly longer than broad, without posterior invagination. Lancet with 18 serrulae; lamnium distinctly longer than radix; serrulae triangular with numerous microdenticles, not strongly protruding, and with indistinct cypsellae; hair-like setae mostly (except on basalmost and some apical annuli) longer than half of annulus length, absent on apical 3 annuli.

Male paratype (ZMUO.028330)

Body 5 mm. Colour mostly black. Labrum pale; labial and maxillary palps brown; mandibles reddish-brown at apex, basally pale; clypeus mostly pale; supraclypeal area slightly pale; orbits ventrally and dorsally pale; pronotum posteriorly extensively pale; tegula pale; all tibiae and tarsomere 1 or tarsomeres 1–3 of fore and middle legs pale; hind tarsus brown or slightly pale; apical half to two-thirds of femora pale; trochanters and trochantelli slightly to extensively pale; coxae apically pale; pterostigma and costa brown; sternum 9 and tergum 8 posteriorly (except projection in middle) pale. Clypeus distinctly emarginate; frontal area between antennae raised, angulate; postocellar area about 2.5 times as broad as long; antenna about as long as costa and pterostigma combined; mesepisternum smooth; claws bifid; projection of tergum 8 distinct, about as long as broad and with truncate apex.

Host plants

Unknown.

Genetics

COI

Specimens belong to BOLD:ADD3400. Based on 2 specimens, maximum within-species distance is 0.15% and the nearest neighbours, diverging by a minimum of 2.89%, are *Euura flavescens*, *E. pravus*, and *E. reticulata*.

Nuclear

Only one sequence available, a female with haplotypes diverging by 0.06%. The nearest neighbour, diverging by a minimum of 0.7%, is *Euura seriepunctata*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland.

166 *Euura gregaria* group

The group is defined based on its characteristic claw shape (the part between the apical and subapical tooth forming a semicircle) and genetic data. We do not recognize the European and Nearctic species as separate (see below under *Euura gregaria*). *Euura evenensis* (Zhelochovtsev, 1981) from Magadan oblast may belong to this group (Zhelochovtsev & Zinovjev 1981), but this requires confirmation. *Euura evenensis* was described based only on males and it does not seem to be conspecific with *E. gregaria* (males 3.0–4.5 mm) as it is larger (5–7 mm).

167 *Euura gregaria* (Marlatt, 1896)

Figs 188, 417

Pachynematus gregarius Marlatt, 1896b: 256–257. Syntypes 1 ♀ 1 ♂ (USNM), not examined. Type localities: USA, New Hampshire and New Jersey.

Pontania decrepita MacGillivray, 1921b: 33. Syntype ♀, not examined. Type locality: USA, New York, Ithaca.

Pachnematus [sic!] *rarus* MacGillivray, 1921b: 30–31. Syntype ♀, not examined. Type locality: USA, Maine, Orono.

Pachynematus dentatus Lindqvist, 1937: 132–135. Lectotype designated below. **Syn. nov.**

Diagnosis

Its colouration (at least labrum, clypeus, tegula, legs, and abdomen ventrally pale), size (female 4.5–5.5 mm, male 3.0–4.5 mm), and characteristic shape of the subapical tooth of claws (far removed from apical tooth, about as long as apical tooth, and area between the teeth forming a semicircle) help in identifying the species. In the male, the combination of black pronotum (posteriorly pale in female) and pale tegula further helps in recognizing the species. Size (1 mm) and shape of the penis valve is most similar to that in the *E. dolichura* group (0.7–0.8 mm) and *E. microphyes* (0.8 mm), but its claws and colouration should enable separation of *E. gregaria* from these taxa. We do not consider the small differences between *gregarius* and *dentatus* listed by Wong (1967) to be significant and treat them as synonymous. While COI divergence between one North American (USA) specimen and Finnish specimens is 3.3–4.4% (810 bp) or 2.1–5.2% (420–423 bp of overlapping barcoding region), the nuclear divergence is only 0.2% (based on 1774 bp of NaK and EF1a F2), corresponding to an average haplotype divergence for *Euura* female individuals.

Female

4.5–5.5 mm. Head black or extensively brown around eyes, antenna black, labrum and clypeus pale; thorax black, pronotum black, tegula pale; pterostigma pale; abdomen dorsally black, ventrally pale, valvula 3 black; legs nearly entirely pale, except brown hind tarsi and apex of hind tibia. Claws with large subapical tooth, forming almost a semicircle with curved apical tooth; valvula 3 in dorsal view short and gradually tapering.

Male

3.0–4.5 mm. Differences from female: similar to female, but sometimes also the mesepisternum is pale and partly the abdomen dorsally.

Type material examined

Lectotype *Pachynematus dentatus*, here designated

FINLAND – **Uusimaa** • ♀; Helsinki, Munksnäs [Munkkiniemi]; 60.22° N, 24.89° E; 28 Jul. 1937; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.2443>.

Host plants

Salix phylicifolia (Lindqvist 1937), *S. myrsinifolia*, *S. pentandra*.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 4.41% and the nearest neighbour, diverging by a minimum of 6.28%, is *Euura salicis*. When secondary intraindividual COI variants are also included, maximum within-species distance is 5.32% and the nearest neighbour, diverging by a minimum of

6.08%, is *E. salicis*. A specimen from North America (E4) is 2.1–5.2% different from the European specimens (based on 420–423 bp of overlapping barcoding region).

Nuclear

Based on 2 specimens, maximum within-species distance is 0.03% (0.02% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 2.49%, is *Euura jugicola*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and the USA.

168 *Euura melanocephalus* group

The group is mostly defined based on genetics, because the species are very similar in morphology. The penis valves are not clearly distinguishable from those of the *miliaris* group, or *E. anthracina* and *E. hyperborea*. Although males of not all species in the *miliaris* group are known for certain, their antennae seem to be longer than the costa and pterostigma, while the antennae are about as long as the costa and pterostigma in the *melanocephalus* group. *Euura hyperborea* males are darker (black pronotum, tegula, and sterna) and have longer hair on the head and thorax than in the *melanocephalus* group. Males of *E. anthracina* might not be distinguishable from those of the *melanocephalus* group species with a pale pterostigma (*E. cadderensis*, *E. ferruginea*, *E. kangasi*). Based on the lancets and valvula 3, females are most similar to those of *E. anthracina*, *E. hyperborea*, and *E. distinguenda*, but can be distinguished from these species by paler colouration (extensively pale yellowish abdomen and often extensively pale thorax). We recognize five species in the group, two of which have a black pterostigma (*E. bohemani* and *E. melanocephalus*), although the males of *E. cadderensis*, *E. ferruginea* and *E. kangasi* can also have a rather dark pterostigma.

169 *Euura bohemani* (Thomson, 1871)

Figs 189, 418

Nematus bohemani Thomson, 1871: 143. Lectotype designated below.

Pteronidea pseudonotabilis Enslin, 1916a: 417–418. Lectotype designated below. Synonymy by Lindqvist (1954).

Pteronidea pseudonotabilis var. *simplex* Forsius, 1921: 28. Syntypes ♀♀ (MZH?), not examined. Type locality: southern Finland. Synonymy by Taeger *et al.* (2010).

Pteronidea pseudonotabilis var. *t-magnum* Malaise, 1931b: 51. Lectotype designated below. Synonymy by Taeger *et al.* (2010).

Pteronidea fuscinervis Lindqvist, 1959c: 54–56. Synonymy by Hellén (1976).

Diagnosis

Black pterostigma, lancet (radix shorter than lamnium, 19–20 serrulae), and colouration of the abdomen (mostly yellowish or reddish with narrowing medio-dorsal black line) distinguish the females from the other *Euura*. Similar is also *Nematus umbratus*, which has fewer serrulae (13–16(17?)) and a different colour pattern of the abdomen. Males might not always be distinguishable from those of *E. melanocephalus* if colouration of mesepisternum is not stable (black in *E. bohemani*, dorsally pale in *E. melanocephalus*). It might not always be possible either to distinguish the males from those of *E. cadderensis*, *E. ferruginea* and *E. kangasi*, which can have a rather dark pterostigma.

Type material examined

Lectotype *Nematus bohemani*, here designated
SWEDEN • ♀; Lapponia Media [central Lapland]; C.H. Boheman leg.; MZLU, MZLU2017315.

Lectotype *Pteronidea pseudonotabilis*, here designated
FINLAND – Uusimaa • ♀; Karislojo [Karjalohja]; 60.243° N, 23.723° E; R. Forsius leg.; ZSM, GBIF-GISHym3389.

Lectotype *Pteronidea pseudonotabilis* var. *t-magnum*, here designated
RUSSIA • ♀; Kamchatka oblast; R. Malaise leg.; NHRS, NHRS-HEVA000003996.

Holotype *Pteronidea fuscinervis*
FINLAND – Häme • ♀; Pälkäne; 61.335° N, 24.272° E; 15 Jun. 1958; J. Kangas leg.; MZH, <http://id.luomus.fi/GL.3429>.

Hosts plants

Salix spp., including *S. caprea*, *S. fragilis*, *S. pentandra*, *S. phylicifolia* L. (Kangas 1985), *S. myrsinifolia* (Kontuniemi 1960).

Genetics

COI

Based on four specimens, maximum within-species distance is 0.3% and the nearest neighbour, diverging by a minimum of 1.82%, is *Euura ferruginea*.

Nuclear

Only one sequence is available. The nearest neighbour, diverging by a minimum of 0.83%, is *Euura ferruginea*.

Distribution and material examined

Palearctic. Specimens studied are from Estonia, Finland, Russia, and Sweden.

170 *Euura cadderensis* (Cameron, 1875)

Figs 190, 419

Nematus cadderensis Cameron, 1875: 127–129. Syntypes ♀♀♂♂ (BMNH?), not examined. Type locality: United Kingdom, Scotland; Glasgow area, Rannoch and Kingussie. Both *Salix cinerea* and *Betula* are mentioned as host plants.

Amauronematus moricei Konow, 1902a: 388–389. Lectotype designated below. **Syn. nov.**

Pteronidea macroserrata Lindqvist, 1943: 105–107. Lectotype designated below. Synonymy by Lindqvist (1960c).

Pteronidea nuortevai Lindqvist, 1958: 96–97. **Syn. nov.**

Diagnosis

Possibly not morphologically distinguishable from *E. ferruginea*. Serrulae may be more protruding in *E. cadderensis* than in *E. ferruginea*, although variability at least within *E. ferruginea* can make the difference weak to non-existent. *Euura kangasi* is also very similar, but may have black hind tarsi which seem to be paler in *E. cadderensis* and *E. ferruginea*. *Euura ferruginea* can be rather dark (abdomen dorsally and thorax completely or nearly completely black) which might not be the case for *E. cadderensis* females. Based on the host (*Betula*) and nuclear data, we keep *E. cadderensis* as a distinct species.

The lectotype of *Pteronidea macroserrata* is also the lectotype of *Amauronematus moricei*. Lindqvist (1943) examined this specimen as well as a second syntype of *A. moricei* and determined the second

syntype (not located by us), as *Pteronidea ferruginea*, with which *Amauronematus moricei* has previously mostly been synonymised.

Type material examined

Lectotype *Amauronematus moricei*, here designated
GERMANY – **Brandenburg** • ♀; Finkenkrug; 52.56° N, 13.03° E; 30 m a.s.l.; SDEI, GBIF-GISHym4745.

Lectotype *Pteronidea macroserrata*, here designated
GERMANY – **Brandenburg** • ♀; Finkenkrug; 52.56° N, 13.03° E; 30 m a.s.l.; SDEI, GBIF-GISHym4745.

Notes

The lectotype of *Amauronematus moricei* and *Pteronidea macroserrata* is the same specimen, making these names objective synonyms. Two paralectotypes of *Pteronidea macroserrata* (Finland, Nurmes, MZH?), were not examined. They were reared from larvae on *Betula* (Lindqvist 1943).

Holotype *Pteronidea nuortevai*

FINLAND – **Häme** • ♀; Vuohiniemi; 60.95° N, 24.13° E; 29 Jul. 1948; P. Nuorteva leg.; MZH, <http://id.luomus.fi/GL.3440>.

Notes

Completely pale and with prominent serrulae.

Host plants

Betula pubescens. According to some specialists only *Betula* spp., but others state that *Salix* spp. are host plants (e.g., Kontuniemi 1960; Kangas 1985).

Genetics

COI

Based on 5 specimens, maximum within-species distance is 0.46% and the nearest neighbours, diverging by a minimum of 0%, are *Euura ferruginea* and *E. kangasi*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.26% (0.44% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.27%, is *Euura ferruginea*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Germany.

171 *Euura ferruginea* (Förster, 1854)

Figs 191, 420

Nematus ferrugineus Förster, 1854a: 282–283. Lectotype designated below.

Nematus glottianus Cameron, 1882: 536–537. Syntypes ♀♀ (BMNH?), not examined. Type locality: United Kingdom, Scotland, near Port Glasgow. Synonymy by Enslin (1916a).

Amauronematus morawitzi Jakowlew, 1891: 24–25. **Syn. nov.**

Pteronidea ferruginea var. *plagiata* Enslin, 1916a: 451. Lectotype designated below. Synonymy by Lacourt (1999).

Pteronidea maculifrons Lindqvist, 1960c: 2–3. **Syn. nov.**

Nematus majusculus Lacourt, 1991: 70–71. Holotype not examined; paratype with same data examined.

Syn. nov.

Diagnosis

Possibly not morphologically distinguishable from *E. cadderensis*: see details under that species.

Type material examined

Lectotype *Nematus ferrugineus*, here designated

BELGIUM • ♀; Liège; 50.6° N, 5.6° E; ZSM, GBIF-GISHym3276.

Holotype *Amauronematus morawitzi*

RUSSIA – Leningradskaya oblast • ♀; St Petersburg; 59.9° N, 30.4° E; F. Morawitz leg.; ZIN, DEI-GISHym30175.

Lectotype *Pteronidea ferruginea* var. *plagiata*, here designated

FINLAND – Uusimaa • ♀; Karislojo [Karjalohja]; 60.243° N, 23.723° E; R. Forsius leg.; ZSM, GBIF-GISHym3379.

Holotype *Pteronidea maculifrons*

FINLAND – Central Finland • ♀; Pihtipudas; 63.36° N, 25.55° E; 8–9 Jun. 1946; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3432>.

Paratype *Nematus majusculus*

FRANCE – Hautes-Alpes • 1 ♀; Saint-Véran, La Chapelle-de-Clousis [Chapelle Notre Dame de Bon Secours de Clausis]; 44.67° N, 6.92° E; 2450 m a.s.l.; 12 Jul. 1975; J. Lacourt leg.; CTN, DEI-GISHym12673.

Host plants

Salix spp., including *S. lapponum* according to an ex larva rearing by TN.

Genetics

COI

Based on 9 specimens, maximum within-species distance is 3.65% and the nearest neighbour, diverging by a minimum of 0%, is *Euura cadderensis*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.6% (0.53% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.27%, is *Euura cadderensis*.

Distribution and material examined

Palaeartic. Specimens studied are from Belgium, Estonia, Finland, France, Germany, Norway, Russia, Slovakia, and Sweden.

172 *Euura kangasi* (Lindqvist, 1964)

Figs 192, 421

Pteronidea kangasi Lindqvist, 1964: 124–127.

Diagnosis

Very similar to *E. cadderensis* and *E. ferruginea*, which seem to have paler hind tarsi (black in *E. kangasi*). Females of *E. kangasi* apparently have a completely pale thorax but distinctly blackened

basal abdominal terga, while *E. cadderensis* and *E. ferruginea* can be from completely pale to much darker, but the thorax and abdomen are black to a similar degree.

Type material examined

Holotype *Pteronidea kangasi*

FINLAND – Häme • ♀; Pälkäne; 61.335° N, 24.272° E; 15 Jul. 1962; J. Kangas leg.; reared ex larva on *Salix pentandra*; MZH, <http://id.luomus.fi/GL.3439>.

Host plants

Salix pentandra (Lindqvist 1964), *S. fragilis*, *S. myrsinifolia*, *S. phylicifolia*.

Genetics

COI

Based on 3 specimens, maximum within-species distance is 0% and the nearest neighbour, diverging by a minimum of 0%, is *Euura cadderensis*.

Nuclear

Based on 3 specimens, maximum within-species distance is 0.23% (0% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.5%, is *Euura ferruginea*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland.

173 *Euura melanocephalus* (Hartig, 1837)

Figs 193, 422

Tenthredo salicis Retzius, 1783: 72. Described by indication on Degeer (1771: pl. 37 figs 12–22).

Syntypes ♀♂ and larvae [probably lost/destroyed]. Type locality: Sweden. Primary homonym of *Tenthredo salicis* Linnaeus, 1758 [= *Euura salicis* (Linnaeus, 1758)].

Nematus melanocephalus Hartig, 1837: 219. Described based on the German translation by Götze (1779) of Degeer (1771). Syntypes ♀♂ and larvae [probably lost/destroyed]. Type locality: Sweden.

Nematus perspicillaris Hartig, 1840: 24. Lectotype designated below. Synonymy by Kriechbaumer (1884).

Nematus pyrrhonotus Zaddach, 1883 in Brischke 1883: 130–131. Syntypes ♀♀ (NMW), not examined. Type locality: Austria, Vienna area. Synonymy by Konow (1905b) with *Pteronus dimidiatus* Konow nec Lepeletier [*E. melanocephalus*].

Pteronus xanthostomus Rohwer, 1910: 91. Lectotype designated below. Synonymy by Liston *et al.* (2006).

Pteronidea melanocephala var. *mesothoracica* Enslin, 1916a: 414. Syntypes ♂♂. Types have not been located. Type locality: not stated. Synonymy by Lacourt (1999).

Diagnosis

Black pterostigma, pale costa, lancet (radix shorter than lamnium, 19–20 serrulae), and colouration of the abdomen (completely yellow) distinguish female *E. melanocephalus* from the other *Euura*. Similar is also *Nematus umbratus*, but it has fewer serrulae (13–16(17?)). If stable, the extensively pale mesepisternum of *E. melanocephalus* males might distinguish them from the other species in the group.

Mostly pale, pterostigma black, claws bifid, valvula 3 rather broad, hardly tapered, and with small invagination posteriorly.

Type material examined

Lectotype *Nematus perspicillaris*, here designated

GERMANY • ♀; northern Germany [according to Hartig 1840: 22]; ZSM, DEI-GISHym 3377.

Lectotype *Pteronus xanthostomus*, here designated

NETHERLANDS – Noord-Brabant • ♀; Gemert; 51.56° N, 5.70° E; USNM, USNMENT00779592, <http://n2t.net/ark:/65665/3eaf2ca2a-e822-48ff-ad47-f5aefe11b4f9>.

Notes

Liston *et al.* (2006) incorrectly wrote that USNMENT00779592 is the holotype. According to archive sources at the USNM, several other sawfly specimens were reared from the same batch of cocoons, but only this single specimen was preserved. However, the information in Rohwer (1915) only allows the assumption that the original description was based on syntypes.

Host plants

Salix fragilis (Urban 1999), *Corylus avellana* L., *Ulmus* sp. (based on *ex larva* reared specimens). *Populus* and *Betula* have also been recorded (reviewed in Urban 1999). Larvae reared *ex ovo* from *Salix fragilis* did accept *Ulmus* L., *Corylus* L. and *Populus* in the presence of *Salix fragilis* (although with clearly lower preference), but *Betula* was accepted only when no other food was available (Urban 1999). Two generations per year in central Europe (Urban 1999).

Genetics

COI

Based on 2 specimens, the maximum within-species distance is 0% and the nearest neighbour, diverging by a minimum of 2.13%, is *Euura ferruginea*.

Nuclear

Based on 1774 bp of NaK and EF1a F2, only one specimen available. The nearest neighbour, diverging by a minimum of 0.39%, is *Euura kangasi*.

Distribution and material examined

Palearctic. Specimens studied are from Austria, Belgium, Finland, and Germany.

174 *Euura miliaris* group

Valvula 3 (short and broad in dorsal view), lancet (basalmost suture strongly bending apically, setae almost absent to present in most annuli), and bifid claws enable separation of the females from the other *Euura*. Penis valves of *E. miliaris* are not clearly different from the *melanocephalus* group and *E. anthracina*, but antenna might be longer than costa and pterostigma, while antennae are about as long as costa and pterostigma in *melanocephalus* group and *E. anthracina*. Three species are recognized in the group.

175 *Euura fagi* (Zaddach, 1876)

Figs 194, 545

Nematus fagi Zaddach, 1876: Taf. II, 1. Holotype ♀, probably destroyed (Blank & Taeger 1998). Type locality: Poland, Gdansk [Danzig], Jäschkenthale.

Diagnosis

Usually almost completely pale and very similar to *E. miliaris*. First metatarsomere is about 4 times as long as broad and darker in *E. fagi* (about 3 times as long as broad and paler in *E. miliaris*). A male from Czech Republic (DEI-GISHym13853) is confirmed to be *E. fagi* based on COI. The male has a penis valve (Fig. 545) similar to *E. viridis*, but malar space is about as long as diameter of front ocellus, like in *E. miliaris* (the malar space is longer in *E. viridis*, at least usually).

Host plants

Fagus sylvatica L.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 1.98% and the nearest neighbour, diverging by a minimum of 3.20%, is *Euura miliaris*.

Nuclear

Only one sequence available, a female with haplotypes diverging by 0%. The nearest neighbour, diverging by a minimum of 1.18%, is *Euura miliaris*.

Distribution and material examined

Palaearctic. Specimens studied are from Czech Republic, Finland, Germany, Slovenia, Sweden, Switzerland, and the United Kingdom.

176 *Euura miliaris* (Panzer, 1797)

Figs 195, 423

Tenthredo miliaris Panzer, 1797: 45:13. Holotype ♀, probably lost or destroyed. Type locality: Germany.

Nematus dorsalis Serville, 1823: 73. Lectotype ♀ (MNHN), designated by Lacourt (2000), not examined.

Type locality: France, Département de l'Isère. Synonymy by (Konow 1904e).

Nematus testaceus Stephens, 1835: 29. Syntypes ♀♀ (BMNH?), not examined. Type localities: United Kingdom, England, Kent, Darenth Wood, and Devonshire.

Nematus fulvus Hartig, 1837: 194. Synonymy by Kriechbaumer (1884).

Nematus purus Förster, 1854a: 278–279. Lectotype designated below. Synonymy by Dalla Torre (1894).

Nematus fulvus var. *basalis* Costa, 1859: 18–19. Syntypes ♀♀ (MZFN?), not examined. Type locality: Italy, Naples area. Synonymy by Dalla Torre (1894).

Nematus trimaculatus Snellen van Vollenhoven, 1862: 69–71, pl. 4. Lectotype ♀ (RMNH), designated by Thomas (1987), not examined. Type locality: Netherlands Zuid-Holland, Leiden. Synonymy with *N. fulvus* by Kaltenbach (1869). Primary homonym of *Nematus trimaculatus* Serville, 1823 [= *Euura ribesii* (Scopoli, 1763)].

Nematus solitarius Zaddach, 1883 in Brischke 1883: 179. Holotype ♀ (ZMHB), not examined. Type locality: Denmark, Copenhagen? Synonymy by Konow (1904e).

Pteronus magus Marlatt, 1896a: 44–46 (key), 67. Holotype ♀ (ANSP), not examined. Type locality: Canada. **Syn. nov.** Based on Smith (2004), a very good match is DEI-GISHym31136.

Pteronidea miliaris var. *nigronotata* Enslin, 1916a: 453. Syntypes ♀♀ (not located in ZSM). Type locality: not stated. Synonymy by Lacourt (1999).

Diagnosis

Pale specimens are very similar to *E. fagi*: see differences mentioned under that species. Abdomen of live females can be green. In northern Fennoscandia, females can be dorsally extensively black, like

Pteronus magus from North America (see Smith 2004). Larvae from Canada belonging to BIN cluster BOLD:AAN8145 fit perfectly with *E. miliaris*, but not with *E. fagi* or *E. nigricornis*.

Type material examined

Holotype *Nematus fulvus*

GERMANY – Niedersachsen • ♀; Harz; 51.8° N, 10.3° E; W. Saxesen leg.; ZSM, GBIF-GISHym3286.

Lectotype *Nematus purus*, here designated

GERMANY – Niedersachsen • ♀; Hannover; ZSM, GBIF-GISHym3396.

Paralectotype *Nematus purus*

GERMANY • ♀; ZSM, GBIF-GISHym3397.

Notes

Pteronus magus. Based on Smith (2004), a very good morphological match is DEI-GISHym31136.

Host plants

A wide spectrum of *Salix* spp. (Taeger *et al.* 1998).

Genetics

COI

Based on 6 specimens, maximum within-species distance is 2.45% and the nearest neighbour, diverging by a minimum of 3.20%, is *Euura fagi*.

Nuclear

Based on 3 specimens, maximum within-species distance is 0.07% (0.13% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.18%, is *Euura fagi*.

Distribution and material examined

Holarctic. Specimens studied are from Austria, Canada, China (only genetics), Denmark, Finland, France, Germany, and Sweden.

177 *Euura nigricornis* (Serville, 1823)

Figs 196, 424

Nematus nigricornis Serville, 1823: 65. Syntypes ♀♂, not located in MNHN. Type locality: France, Paris area.

Nematus zetterstedti Dahlbom, 1835a: 40, plate fig. 5. Syntypes ♀♀ (ZMLU), not examined [but examined by Lindqvist (1956)]. Type locality: not stated. Synonymy with *miniatus* by Thomson (1863).

Nematus miniatus Hartig, 1837: 189–190. Lectotype designated below. Synonymy by Konow (1903c).

Nematus sibiricus Jakowlew, 1888: 368–369. Synonymy by Konow (1903c).

Nematus biannulatus Costa, 1890: 5, pl. III fig. 2. Holotype ♀, not located. Type locality: Greece. Synonymy by Konow (1903c).

Diagnosis

Black antennae and mesepisternum distinguish the females from the darker specimens of *E. miliaris*. Male not known for certain.

Type material examined

Lectotype *Nematus miniatus*, here designated

GERMANY – **Niedersachsen** • ♀; Harz; 51.8° N, 10.3° E; W. Saxesen leg.; NFVG, GBIF-GISHym4677.

Holotype *Nematus sibiricus*

RUSSIA – **Irkutskaja oblast** • ♀; Irkutsk; 52.29° N, 104.24° E; ZIN, DEI-GISHym30174.

Host plants

Populus tremula. Records from *Salix* (Georgiev *et al.* 2002) and *Betula* (Boevé 1990) need confirmation.

Genetics

COI

Based on 6 specimens, maximum within-species distance is 2.28% and the nearest neighbour, diverging by a minimum of 3.65%, is *Euura miliaris*.

Nuclear

Only one sequence available, a female with haplotypes diverging by 0.01%. The nearest neighbour, diverging by a minimum of 1.7%, is *Euura miliaris*.

Distribution and material examined

Palaearctic. Specimens studied are from Belgium, Czech Republic (uncertain male), Finland, Germany, Russia, and Sweden.

178 *Euura miltonota* group

Valvula 3 (narrow and acute at apex in dorsal view) and lancet (18–24 serrulae, ventrally concave, short spine-like setae, apical sutures slightly or distinctly inclined basally, middle part of basal sutures strongly bent apically) enable separation of the females from those of the other *Euura*. Males in the group have two types of penis valves. Most of the species (*E. miltonota*, *E. sagmarius*, *E. nimbus*) have rather characteristic penis valves compared to the other *Euura*: valvura distinctly longer than ventral margin of paravalva, invagination between valvispina and paravalva broad, ventroapical margin of paravalva broad and round, valvar strut distinctly removed from ventral margin of paravalva along its entire length. *Euura halo* Prous, Liston & Mutanen sp. nov. penis valve is more similar to that of some other species outside the group (see details under that species).

179 *Euura miltonota* (Zaddach, 1883)

Figs 197, 425

Nematus miltonotus Zaddach, 1883 in Brischke 1883: 135, 143. Syntypes ♀♀, probably destroyed (Blank & Taeger 1998). Type localities: Poland, Gdansk [Danzig]; Russia, Kaliningrad [Königsberg]; Germany, Mecklenburg.

Amauronematus jaroslawensis Jakowlew, 1891: 25. Holotype ♀ (DEI-GISHym30176, ZIN). Type locality: Russia, Yaroslavl oblast, Yaroslavskiy Rayon. Synonymy by Enslin (1915).

Amauronematus hercyniae Konow, 1896: 163. Syntypes ♀♂, no specimens located. Type localities: Germany and Russia. Synonymy by Enslin (1915).

Diagnosis

Females are almost completely yellowish (abdomen can be green while alive). Females of *E. sagmarius* can be almost as pale, but they are more reddish or brownish in colour and abdomen is still mostly black dorsally (possibly always mostly pale in *E. miltonota*). Because they use different willow hosts,

with different habitat requirements, it is also unlikely that these species occur in the same localities. Its extensively pale head around eyes and abdomen ventrally pale should enable separation of *E. miltonota* males from the others in the group (mostly black).

Type material examined

Holotype *Amauronematus jaroslawensis*

RUSSIA – Yaroslavl oblast • ♀; Yaroslavskiy Rayon; ZIN, DEI-GISHym30176.

Host plants

Salix viminalis (Miles 1935; Roller *et al.* 2022).

Genetics

COI

Based on 5 specimens, maximum within-species distance is 1.82% and the nearest neighbours, diverging by a minimum of 1.06%, are *Euura nimbus* and *E. sagmarius*.

Nuclear

Based on 4 specimens, maximum within-species distance is 1.05% (0.25% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.95%, is *Euura nimbus*.

Distribution and material examined

Palearctic. Specimens studied are from Czech Republic, Germany, Russia, and Slovakia.

180 *Euura nimbus* (Benson, 1960)

Figs 198, 426

Amauronematus nimbus Benson, 1960: 177–179.

Amauronematus lanceatus Hellén, 1970: 17–18. Lectotype designated below. **Syn. nov.**

Diagnosis

Mostly black colouration, centrally pale brown pterostigma, and 20–23 serrulae of the lancet should usually enable identification of the females. Some specimens of *E. sagmarius* are almost as dark, but at least usually still seem to have partly pale or brownish mesepisternum (black in *E. nimbus*). Males might not be clearly distinguishable from *E. sagmarius*. Based on nuclear genes there are two clusters of *E. nimbus*, but no clear morphological differences between them.

Type material examined

Holotype *Amauronematus nimbus*

SWITZERLAND – Valais • ♀; near Verbier; 46.10° N, 7.23° E; 2440–2590 m a.s.l.; 27 Jun. 1959; J.E. and R.B. Benson leg.; BMNH, B.M.TYPEHYM.1.767.

Notes

Head more like DEI-GISHym19984, sawsheath in lateral view more like ZMUO.030875.

Lectotype *Amauronematus lanceatus*, here designated

FINLAND – Lapin Lääni • ♀; Kilpisjärvi; 69.04° N, 20.81° E; 23 Jun. 1963; O. Ranin leg.; MZH, <http://id.luomus.fi/GL.3400>.

Paralectotypes *Amauronematus lanceatus*

FINLAND – **Inari Lapland** • 1 ♀; Utsjoki; 69.91° N, 27.03° E; 20 Jun. 1960; O. Ranin leg.; MZH, <http://id.luomus.fi/GL.3401>. – **Kittilä Lapland** • 1 ♀; Muonio, Pallastunturi; 68.100° N, 23.999° E; 1 Aug. 1951; J. Kaisila leg.; MZH, <http://id.luomus.fi/GL.3402>.

Notes

Best matches: DEI-GISHym19983, ZMUO.030875. A COI sequence (325 bp) of the lectotype (<http://id.luomus.fi/GL.3400>) is identical to, e.g., DEI-GISHym84692 (*E. sagmarius*) and ZMUO.030875 (*E. nimbus*).

Host plants

Salix lanata and other grey willows.

Genetics

COI

Based on 19 specimens, maximum within-species distance is 2.45% and the nearest neighbour, diverging by a minimum of 0%, is *Euura sagmarius*.

Nuclear

Based on 16 specimens, maximum within-species distance is 1.31% (0.96% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.45%, is *Euura sagmarius*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Norway, Sweden, and Switzerland.

181 *Euura sagmarius* (Konow, 1895)

Figs 199, 427

Amauronematus sagmarius Konow, 1895: 177–178. Lectotype designated by Muche (1975).

Amauronematus viduatinus Malaise, 1931b: 40–41. Lectotype designated below. **Syn. nov.**

Amauronematus viduatinus var. *apiciscerra* Malaise, 1931b: 41. Lectotype designated below. **Syn. nov.**

Diagnosis

The palest females have a nearly completely reddish head and thorax (except antenna), while the abdomen is still dorsally mostly black, separating them from *E. miltonota* (mostly yellowish, including the abdomen dorsally). The darkest specimens might not be reliably distinguishable from *E. nimbus* if the mesepisternum becomes completely black (usually at least slightly brownish or reddish). Males might not be clearly distinguishable from *E. nimbus*.

Female ZMUO.064651 with almost completely black mesepisternum (slightly brown line in the middle), labrum, clypeus and malar space pale, head behind and above eyes slightly brownish, abdomen ventroapically mostly pale.

Type material examined

Lectotype *Amauronematus sagmarius*

RUSSIA – **Volgograd oblast** • ♀; Sarepta [Volgograd]; 48.69° N, 44.53° E; SDEI, GBIF-GISHym4100.

Lectotype *Amauronematus viduatinus*, here designated

RUSSIA – **Kamchatka oblast** • ♀; Nischne-Kamtchatsk, Lake Azhabachye; 56.166° N, 161.893° E; R. Malaise leg.; NHRS, NHRS-HEVA000006398.

Paralectotype *Amauronematus viduatinus*

RUSSIA – **Kamchatka oblast** • 1 ♀; same data as for lectotype; NHRS, NHRS-HEVA000006394.

Lectotype *Amauronematus viduatinus* var. *apiciscerra*, here designated

RUSSIA – **Kamchatka oblast** • ♀; Klutchi [Klyuchi]; 56.32° N, 160.85° E; R. Malaise leg.; NHRS, NHRS-HEVA000006404.

Host plants

Salix phylicifolia and possibly some other *Salix* spp.

Genetics

COI

Based on 21 specimens, maximum within-species distance is 2.74% and the nearest neighbour, diverging by a minimum of 0%, is *Euura nimbus*.

Nuclear

Based on 20 specimens, maximum within-species distance is 1.34% (0.88% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.45%, is *Euura nimbus*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Norway, Russia, and Sweden.

182 *Euura halo* Prous, Liston & Mutanen sp. nov.

urn:lsid:zoobank.org:act:E9A11B4C-D445-48E4-82DC-92247F381EEF

Figs 83–84, 200, 428

Diagnosis

Their mostly black colouration, narrow pale band at the base of dark brown pterostigma, and particularly the lancet (18–19 serrulae; short spine like setae, apical sutures slightly or distinctly inclined basally, middle part of basal sutures strongly bent apically) distinguish the females from the other *Euura*. However, the superficial resemblance to some gall-making *Euura* is close. Male penis valve (large and basally broad valvispina, indistinct invagination between valvispina and ventroapical lobe of paravalva) is most similar to *E. uda*, *E. freyja*, and *E. myosotidis*. Besides external characters, penis valves of *E. uda* (1.3 mm; claws with small subapical tooth) and *E. myosotidis* (1.2–1.4 mm; broad yellowish pterostigma) are distinctly larger than in *E. halo* sp. nov. (1.0 mm; bifid claws and dark brown pterostigma with whitish line at base). *Euura freyja* penis valves are smaller (0.8–0.9 mm) and the species does not have a distinct whitish line at the base of pterostigma.

Etymology

The species name, a noun in apposition, refers to an optical phenomenon (produced by light interacting with ice crystals in the atmosphere) observed by AL, MM, and MP in Utsjoki in 2023 when some of the specimens of the species were collected.

Type material

Holotype

FINLAND – **Inari Lapland** • ♀; Utsjoki, Allasuolu; 69.768° N, 26.184° E; 4 Jul. 2018; M. Mutanen, N. Mutanen and A. Mutanen leg.; rearing code 118/2018, ex larva *Salix* sp.; ZMUO, ZMUO.038878.

Paratypes

FINLAND – **Inari Lapland** • 1 ♀; same locality as for holotype; 17 Jun. 2023; A. Liston leg.; SDEI, DEI-GISHym81435 • 1 ♂; same locality as for holotype; 20 Jun. 2023; A. Liston, M. Mutanen and

M. Prous leg.; ZMUO, ZMUO.067421. – **Northern Ostrobothnia** • 1 ♂; Kiiminki; 65.1478° N, 25.8383° E; 14 May 2023; M. Mutanen leg.; ZMUO, ZMUO.077412.

Description

Female

Body 4.3–4.4 mm. Colour mostly black. Labrum pale; labial and maxillary palps brown; mandibles reddish-brown at apex, pale at base; clypeus ventrally pale; supraclypeal area black or pale; temples and orbits ventrally, dorsally and posteriorly somewhat brown; legs more or less brown or pale, except coxae basally and tarsi apically black; femora pale to largely black; pronotum posteriorly or posteriorly and centrally extensively pale; tegula pale; pterostigma and costa dark brown with whitish line at base of pterostigma; hypopygium, valvifer 2, and terga 9–10 pale; all sterna and terga laterally more or less pale or pale colour increasing gradually from sternum 5 and tergum 5 laterally; cerci pale. Clypeus shallowly emarginate; frontal area between antennae rather flat, not distinctly angulate (approaching



Fig. 83. *Euura halo* Prous, Liston & Mutanen sp. nov., holotype, ♀ (ZMUO.038878).

“*Amauronematus*-type”); postocellar area about 1.8–2.5 times as broad as long; antenna slightly shorter than costa; mesepisternum smooth; claws bifid, subapical tooth shorter than apical; valvula 3 in dorsal view slightly tapering, narrow, without invagination posteriorly. Lancet with 18–19 serrulae; serrulae triangular with sparse microdenticles, not strongly protruding, and with cypsellae; spine-like setae minute.

Male

Body 3.7 mm. Colour mostly black, darker than female. Labrum brown; labial and maxillary palps brown; mandibles reddish-brown at apex, brown or dark brown at base; clypeus ventrally slightly brown; hind coxa apically extensively pale; fore and middle trochanters and trochantelli slightly pale; hind trochanters and trochantelli extensively pale; all femora apically slightly pale; all tibiae pale; fore and middle tarsi basally pale; pterostigma and costa dark brown with whitish line at base of pterostigma; sternum 9 pale. Clypeus indistinctly emarginate, more or less truncate; frontal area between antennae rather flat, not distinctly angulate (approaching “*Amauronematus*-type”); postocellar area about 2.5–3.0 times as broad as long; antenna slightly shorter than costa and pterostigma combined; mesepisternum smooth; claws bifid, subapical tooth shorter than apical; projection of tergum 8 distinct, about as long as broad and with truncate apex. Penis valve 1.0 mm, valvispina large and broad at base, about as broad as ventroapical lobe of paravalva, invagination between ventroapical lobe and valvispina indistinct, paravalva with slight invagination ventrally, valviceps apically broader than basally.

Host plants

Salix sp.



Fig. 84. *Euura halo* Prous, Liston & Mutanen sp. nov., paratype, ♂ (ZMUO.067421).

Genetics

COI

Based on 4 specimens, maximum within-species distance is 0% and the nearest neighbours, diverging by a minimum of 8.05%, are *Euura erecta* and *E. viduata*.

Nuclear

Based on 4 specimens, maximum within-species distance is 0% (0.16% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.64%, is *Euura nimbus*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland.

183 *Euura myosotidis* group

The group is mostly defined based on genetic data. The species in the group tend to have a broad pterostigma, which can be somewhat useful in identifying some of the species, but cannot be unambiguously used to define the group. Most of the species can be identified rather well based on morphological characters, but females of *E. platystigma* and *E. semiopaca* can be difficult to distinguish from some members of the *bipartita* group. Seven species are recognized in the group.

184 *Euura dissimilis* (Förster, 1854)

Figs 201, 429

Nematus melanosternus Hartig, 1840: 27. Lectotype ♂ (ZSM), designated by Taeger & Blank (1998), not examined. Type locality: Austria, North Tyrol, Stübaier Alps. Synonymy by Taeger & Blank (1998). Primary homonym of *Nematus melanosternus* Serville, 1823 [= *Euura punicea* (Christ, 1791)].

Nematus dissimilis Förster, 1854a: 314–315. Lectotype ♂ (ZSM), designated by Taeger & Blank (1998), not examined. Type locality: Germany, Nordrhein-Westfalen, Aachen area.

Diagnosis

Most similar to *E. platystigma* and *E. semiopaca*. Strong subapical tooth (as long as or longer than apical tooth) of claws should distinguish the species from *E. platystigma* and sometimes also from *E. semiopaca*. Extensively pale head and dorsally pale mesepisternum should distinguish the females from *E. semiopaca* (mostly black head and thorax). Penis valves are similar to *E. semiopaca*, but the subapical tooth of claws is perhaps larger in *E. dissimilis* than in *E. semiopaca*. In addition, at least some of the males of *E. semiopaca* have a black mesepisternum (dorsal half pale in *E. dissimilis*).

Females and males: antenna black, head extensively pale around eyes, dorsal half of mesepisternum pale, claws with large subapical tooth or bifid, abdomen ventrally pale, terga dorsally partly pale.

Host plants

Unknown.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 0.46% and the nearest neighbour, diverging by a minimum of 4.26%, is *Euura sordidiapex*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.39%. The nearest neighbour, diverging by a minimum of 1.05%, is *Euura myosotidis*.

Distribution and material examined

Palaeartic. Specimens studied are from France, and Germany.

185 *Euura hypoxantha* (Förster, 1854)

Figs 206, 430

Nematus hypoxanthus Förster, 1854a: 313–314. Lectotype designated below.

Nematus palliatus Thomson, 1863: 635. Lectotype designated below. Synonymy by Konow (1904e).

Nematus orbitalis Cameron, 1884: 265–266. Syntypes ♀♂ (BMNH?), not examined. Type localities: United Kingdom, Scotland; Cadder Wilderness and Ballantrae, and Germany. Synonymy by Konow (1904e).

Pteronidea nigronota Lindqvist, 1958: 102. Holotype ♀ (MZH?), not examined. Type locality: Finland, Munksnäs. Synonymy by Lindqvist (1959a).

Diagnosis

Females are most similar to *E. jugicola*. Mesepisternum is (usually?) extensively pale and black colour on abdominal terga decreases gradually from base to apex in *E. hypoxantha*, while mesepisternum is (usually?) black, and black colour on terga decreases abruptly from base to apex in *E. jugicola*. Also, the abdomen can be green in living *E. hypoxantha* females, but pink in *E. jugicola*. Details of the lancet (setae long and hair-like, all visible sutures in dorsal part inclined basally) and colouration (pale and round pterostigma, pale mesepisternum) should distinguish the species from the other *Euura* which have a lancet with the radix longer or about as long as lamnium. Males are extensively pale and have distinctive penis valves, with a large valvispina and a distinct hump dorsobasally.

Type material examined

Lectotype *Nematus hypoxanthus*, here designated

GERMANY – Nordrhein-Westfalen • ♂; Aachen area; 50.77° N, 6.09° E; ZSM, DEI-GISHym3301.

Lectotype *Nematus palliatus*, here designated

SWEDEN – Skåne • ♀; Lund; 55.71° N, 13.19° E; MZLU, MZLU2017322.

Host plants

Many different *Salix* spp. (Taeger *et al.* 1998), less frequently *Populus* spp. (Chambers 1952).

Genetics

COI

Based on 7 specimens, maximum within-species distance is 2.43% and the nearest neighbour, diverging by a minimum of 4.26%, is *Euura poppii*.

Nuclear

Based on 6 specimens, maximum within-species distance is 0.53% (0.19% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1%, is *Euura jugicola*.

Distribution and material examined

Palaeartic. Specimens studied are from Austria, Belgium, Estonia, Finland, Germany, Norway, Russia, and Sweden.

186 *Euura jugicola* (Thomson, 1871)

Figs 207, 431–432

Nematus jugicola Thomson, 1871: 146–147. Lectotype designated below.

Pteronidea karvoneni Lindqvist, 1969: 237–238. Synonymy by Hellén (1976).

Diagnosis

Females are most similar to *E. hypoxantha*: see details under that species. The abdomen of living specimens can be extensively pink, and the mesepisternum is usually (always?) slightly matt. In North America, at least males can have a black pterostigma (yellow to brown in Europe). Penis valves are most similar to *E. fuscodorsata* and *E. parvilabris* (*E. bipartita* group). Legs and abdomen ventrally are extensively pale in *E. jugicola* but in *E. parvilabris* mostly black. *Euura fuscodorsata* is paler (e.g., mesepisternum pale, whereas black in *E. jugicola*) and the males seem to have a smaller subapical tooth of claws than in *E. jugicola*. In males, hind tarsi and tip of hind tibia from black to pale, in female (always?) largely pale.

Type material examined

Lectotype *Nematus jugicola*, here designated

SWEDEN – **Dalarna** • ♀; Dalecarlia alpinus [mountainous part of Dalarna province]; C.H. Boheman leg.; NHRS, NHRS-HEVA000003972.

Holotype *Pteronidea karvoneni*

FINLAND – **Lapin Lääni** • ♀; Kilpisjärvi; 69.04° N, 20.81° E; 2 Jul. 1964; V.J. Karvonen leg.; MZH, <http://id.luomus.fi/GL.3504>.

Host plants

Salix spp., including *S. glabra* Scop. (Weiffenbach 1975), *S. aurita* L., *S. myrsinifolia*, and *S. phylicifolia* (Kangas 1985).

Genetics

COI

Based on 10 specimens, maximum within-species distance is 4.1% and the nearest neighbours, diverging by a minimum of 5.32%, are *Euura connecta* and *E. semiopaca*.

Nuclear

Based on 7 specimens, maximum within-species distance is 0.3% (0.44% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.98%, is *Euura myosotidis*.

Distribution and material examined

Holarctic. Specimens studied are from Canada, Finland, Italy, Sweden, and the USA.

187 *Euura myosotidis* (Fabricius, 1804)

Figs 202, 433–434

Tenthredo myosotidis Fabricius, 1804: 41–42. Syntypes, sex not stated (1 specimen in NHMD according to Zimsen 1964), not examined. Type locality: Germania.

Nematus interruptus Serville, 1823: 67. Lectotype ♀ (MNHN), designated by Lacourt (2000), not examined. Type locality: France, Ile-de-France, Paris. Synonymy by Konow (1903c).

Nematus segmentarius Förster, 1854a: 283–284. Lectotype designated below. Synonymy by Dalla Torre (1894).

Nematus ambiguus Förster, 1854a: 279–280. Lectotype ♀ (ZSM), designated by Taeger & Blank (1998), not examined. Type locality: Germany, Nordrhein-Westfalen, Aachen area. Synonymy by Konow (1903c).

Nematus incompletus Förster, 1854a: 297–298. **Syn. nov.**

Nematus smaragdinus Stein, 1881: 60–62. Syntypes ♀♀ (BMNH?), not examined. Type locality: Czech Republic, Bohemia, Chodau [Chodov]. **Syn. nov.**

Nematus pulchellus Cameron, 1882: 537–538. Syntypes, sex not stated (BMNH?), not examined. Type locality: United Kingdom, Scotland, Clydesdale. **Syn. nov.**

Nematus decipiens W.F. Kirby, 1882: 107. Replacement name for *Nematus ambiguus* Förster, 1854.

Nematus chlorogaster Zaddach, 1884 in Brischke 1884: 149–150. Syntypes ♀♀ ♂♂, not located. Type localities: Gdansk [Danzig], Kaliningrad [Königsberg], Frankfurt a.M, Kiel, Munich, Vienna, Sweden. **Syn. nov.**

Pteronus atriceps Marlatt, 1896a: 44 (key), 52. Holotype ♀ (USNM?), not examined. Type locality: USA, Nevada. **Syn. nov.** Synonymy based on Poinar & Smith (2003). Additionally, a specimen originally identified as *atriceps*-group from USA (8e) is morphologically and genetically not distinguishable from *E. myosotidis*.

Pteronus californicus Marlatt, 1896a: 44–45 (key), 60. Holotype ♀ (USNM?), not examined. Type locality: USA, California. **Syn. nov.** Synonymised with *Pteronus atriceps* Marlatt by Smith (1979).

Pteronus myosotidis var. *fallaciosus* Konow, 1903b: 308. Lectotype designated below. Synonymy by Enslin (1916a).

Pteronidea myosotidis var. *pseudopavida* Enslin, 1916a: 428. Syntypes, sex not stated, not located. Type locality: not stated. Synonymy by Lacourt (1999).

Pteronidea myosotidis var. *zaddachi* Enslin, 1916a: 428. Syntypes, sex not stated, not located. Type locality: not stated. Synonymy by Lindqvist (1960c).

Pteronidea segmentaria var. *signata* Enslin, 1916a: 426. Lectotype designated below. **Syn. nov.**

Pteronidea segmentaria var. *tessinensis* Enslin, 1916a: 426. Lectotype designated below. **Syn. nov.**

Pteronidea transversalis Lindqvist, 1977: 94–95. **Syn. nov.**

Diagnosis

Broad and yellowish pterostigma, colouration of the body (typically yellowish legs and abdomen ventrally, otherwise mostly black), bifid claws, in dorsal view narrow and pointed valvula 3, lancets (somewhat papilliform serrulae, with broad and round ventrobasal tip) and penis valves (valvispina large, distinctly expanded basally, ventroapical margin of paravalva broad and perpendicular to valvispina or inclined apically) enable reliable identification of the species. Sometimes, the abdomen can be mostly or nearly completely pale and also the thorax and head can be more extensively pale. In females, the abdomen of living specimens is sometimes green (“*Nematus incompletus*” form) rather than yellow, but there does not appear to be a correlation between this colour pattern and genetic data. The species is genetically diverse (as indicated also by the level of heterozygosity in females), but there is no clear indication of the existence of more than one species.

Type material examined

Lectotype *Nematus segmentarius*, here designated

GERMANY – Nordrhein-Westfalen • ♀; Aachen area; 50.77° N, 6.09° E; ZSM, DEI-GISHym3418.

Lectotype *Pteronus myosotidis* var. *fallaciosus*, here designated

SPAIN – Galicia • ♀; Coruna; 43.34° N, 8.42° E; SDEI, GBIF-GISHym3860.

Syntype *Nematus incompletus*

GERMANY – Nordrhein-Westfalen • ♀; Aachen area; 50.77° N, 6.09° E; ZSM, DEI-GISHym3302.

Notes

Specimen almost completely destroyed: only left forewing remaining.

Lectotype *Pteronidea segmentaria* var. *signata*, here designated
GERMANY – **Thüringen** • ♂; Erfurt, Steiger; 50.94° N, 11.03° E; 6 Jul. 1890; ZSM, GBIF-GISHym3424.

Lectotype *Pteronidea segmentaria* var. *tessinensis*, here designated
SWITZERLAND – **Ticino** • ♀; Valle Maggia; 46.24° N, 8.71° E; ZSM, GBIF-GISHym3447.

Holotype *Pteronidea transversalis*
RUSSIA – **Krasnoyarskiy Kray** • ♀; Tjunojar; 11 Jul. 1973; B.N. Verzhutskij leg.; MZH, <http://id.luomus.fi/GL.5143>.

Host plants

A wide range of herbaceous Fabaceae Lindl.: *Lathyrus* spp. (Kontuniemi 1960; Macek *et al.* 2020; rearings by VV), *Lotus corniculatus* L. (Perkins 1929a), *Trifolium* spp. (Macek *et al.* 2020; rearings by VV and mm), and *Vicia* spp. (Kangas 1985; Macek *et al.* 2020).

Genetics

COI

Based on 58 specimens, maximum within-species distance is 4.71% and the nearest neighbour, diverging by a minimum of 5.47%, is *Euura hypoxantha*. We excluded a COI sequence of ZMUO.040362 from the calculation, because it has an unusual three nucleotide deletion (but not frame shifting) and is a minimum of 6.98% different from the other *E. myosotidis*. A similar (0.94% different) secondary variant with the deletion was detected in ZMUO.035000. The variant with the deletion may be a NUMT that is occasionally co-amplified.

Nuclear

Based on 16 specimens, maximum within-species distance is 0.94% (0.87% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.98%, is *Euura jugicola*.

Distribution and material examined

Holarctic. Specimens studied are from Belgium, Bulgaria, Canada (only genetics), Estonia, Finland, France, Germany, Greece, Iran, Italy, Portugal, Russia, Spain, Sweden, Switzerland, United Kingdom, and the USA.

188 *Euura platystigma* (Lindqvist, 1949)
Figs 203, 435

Pteronidea platystigma Lindqvist, 1949: 74–75.

Diagnosis

Females are most similar to *E. semiopaca*, which tends to be darker. In *E. platystigma*, pale are the head extensively around eyes, antennae ventrally, the abdominal sterna, and downturned parts of terga (mostly black or usually darker in *E. semiopaca*). Subapical tooth might also usually be smaller than in *E. semiopaca*. Males of *E. platystigma* also tend to be paler than those of *E. semiopaca*, but the differences in penis valves are much clearer (invagination between valvispina and ventroapical margin of paravalva absent or indistinct and shorter valvispina in *E. platystigma*; in *E. semiopaca* the invagination between valvispina and ventroapical margin of paravalva is distinct and the valvispina is longer). See also differences discussed under *E. dissimilis*, which is not known in Fennoscandia.

Type material examined

Holotype *Pteronidea platystigma*

FINLAND – Inari Lapland • ♀; Utsjoki, Outakoski; 69.61° N, 25.98° E; 25 Jun. 1947; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3540>.

Host plants

Astragalus alpinus L. (Vikberg 1978).

Genetics

COI

Based on 11 specimens, maximum within-species distance is 0.61% and the nearest neighbour, diverging by a minimum of 4.26%, is *Euura semiopaca*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.2% (0.23% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.03%, is *Euura myosotidis*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Norway, and Sweden.

189 *Euura semiopaca* (Lindqvist, 1958)

Figs 204, 436–437

Pteronidea semiopaca Lindqvist, 1958: 97.

Pachynematus tenuiserra Lindqvist, 1949: 80–81. Secondary homonym of *Amauronematus tenuiserra* Lindqvist, 1944 [= *Euura tenuiserra* (Lindqvist, 1944)]. **Syn. nov.**

Euura scandica Vårdal & Heibo, 2014 in Prous *et al.* 2014: 53. Replacement name for *Pachynematus tenuiserra* Lindqvist, 1949.

Diagnosis

Most similar to *E. platystigma* and *E. dissimilis*: see discussion under those species.

Type material examined

Holotype *Pteronidea semiopaca*

FINLAND – Inari Lapland • ♀; Utsjoki, Outakoski; 69.61° N, 25.98° E; 25 Jun. 1947; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3519>.

Notes

Mesepisternum of holotype very slightly matt; pronotum colouration darker than in *E. platystigma*; claws with rather large subapical tooth. A paratype (<http://id.luomus.fi/GL.3518>) seems to be *E. sagmarius*.

Holotype *Pachynematus tenuiserra*

FINLAND – Lapin Lääni • ♀; Saana; 69.05° N, 20.85° E; A. Nordman leg.; MZH, <http://id.luomus.fi/GL.3594>.

Host plants

Astragalus frigidus (L.) A.Gray.

Genetics

COI

Only one sequence is available. The nearest neighbour, diverging by a minimum of 4.26%, is *Euura platystigma*.

Nuclear

Only one sequence available. The nearest neighbour, diverging by a minimum of 1.19%, is *Euura myosotidis*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Sweden.

190 *Euura tibialis* (Newman, 1837)

Figs 205, 438

Nematus tibialis Newman, 1837: 260. Syntypes ♀♀, not located. Type locality: United Kingdom, England, Isle of Wight.

Nematus hortensis Hartig, 1837: 197. Lectotype designated below. Synonymy by Cameron (1876c).

Nematus xanthobaptus Förster, 1854b: 430–431. Lectotype designated below. Synonymy with *N. hortensis* by Kriechbaumer (1885).

Nematus trilineatus Norton, 1867: 215. Holotype ♀ (ANSP Type no. 10334, ANSP), not examined. Type locality: Canada.

Nematus catachloris Snellen van Vollenhoven, 1869: 120, pl. 3. Lectotype ♀ (ZMAN), not examined, designated by Thomas (1987). Type locality: Netherlands, Leiden area. Synonymy with *N. hortensis* by Dalla Torre (1894).

Nematus similis Norton, 1880: 222–224, pl. IV. Syntypes 3 ♀♀ (USNMMENT00778331, USNM, <http://n2t.net/ark:/65665/3755cb4a5-8c5f-42b9-ae22-7f22c41f1ad8>), not examined. Type locality: USA, Missouri.

Nematus robiniae Forbes, 1885: 116. Holotype ♀ (INHS), not examined. Type locality: USA, Illinois, Normal.

Pteronus solitarius Rohwer, 1908: 107–108. Holotype ♀ (USNMMENT00779506, USNM, <http://n2t.net/ark:/65665/3ba054722-da5b-4824-b22c-87a160eacfc7>), not examined. Type locality: USA, Colorado, Trinidad.

Diagnosis

Bifid claws, valvula 3 (narrow and pointed in dorsal view), penis valves, and colour pattern enable reliable identification of the species. The body is dorsally at least partly black, laterally and ventrally completely or nearly completely pale and antenna, metatibia, and metatarsus are black. Males are extremely rare.

Type material examined

Lectotype *Nematus hortensis*, here designated
GERMANY • ♀; ZSM, GBIF-GISHym3292.

Lectotype *Nematus xanthobaptus*, here designated
GERMANY – Nordrhein-Westfalen • ♀; Köln; 50.95° N, 6.95° E; ZSM, GBIF-GISHym3458.

Host plants

Trees of the Fabaceae. In the West Palaearctic, *Robinia pseudoacacia* L. is the usual host plant, but other species of *Robinia* L. (Liston 2011) and *Sophora japonica* L. (Schedl 2010) are occasionally used, and in North America *Gleditsia triacanthos* L. (Raizenne 1957).

Genetics

COI

Based on 5 specimens, maximum within-species distance is 1.07% and the nearest neighbours, diverging by a minimum of 7.49%, are *Euura connecta*, *E. leptostigma*, and *E. leucopyga*.

Nuclear

Only one sequence available, a female with haplotypes diverging by 0.17%. The nearest neighbour, diverging by a minimum of 1.41%, is *Euura myosotidis*.

Distribution and material examined

Holarctic. Specimens studied are from Belgium, Bulgaria, Estonia, Germany, Italy, and Romania.

191 *Euura oligospila* group

The species group was revised by Prous *et al.* (2021): see there for details of type material, synonymy, host plants, distribution, and identification characters.

Females of the group are extremely similar to those of *E. bergmanni*, *E. respondens*, and *E. sylvestris* of the *E. bergmanni* group. These *E. bergmanni* group species tend to have a basal extension at the base of tangium (forming a concavity at the base of tangium), which seems to be absent in the *oligospila* group (this was overlooked by Prous *et al.* 2021). There may be some small additional differences between the lancets of the *E. oligospila* group and *E. bergmanni* and *E. respondens* (see Prous *et al.* 2021). *Euura sylvestris* seems to have a longer malar space (more than 1.4 times as long as diameter of front ocellus), usually less deeply emarginate clypeus, and more rectangular head in dorsal view than *oligospila* group (malar space usually less than 1.4 times as long as diameter of front ocellus). Penis valves enable more reliable separation of the *oligospila* group from the *bergmanni* group and the other *Euura*. The valviceps in the *oligospila* group is basally about as broad as apically, has a weak or distinct constriction in the middle, and the invagination between valvispina and paravalva is indistinct (Prous *et al.* 2021). Two species are recognised.

192 *Euura frenalis* (Thomson, 1888)

Figs 220, 439

193 *Euura oligospila* (Förster, 1854)

Figs 221, 440

Pteronidea angustiserra Lindqvist, 1969: 241–242. **Syn. nov.**

Type material examined

Holotype *Pteronidea angustiserra*

FINLAND – South Ostrobothnia • ♀; Mustasaari; 63.11° N, 21.68° E; 24 Jul. 1963; J. Perkiömäki leg.; MZH, <http://id.luomus.fi/GL.3443>.

Notes

Pteronidea angustiserra was incorrectly synonymised with *E. sylvestris* by Prous *et al.* (2021). A COI sequence (658 bp) of the holotype is identical to ZMUO.029674 and ZMUO.028386.

194 *Euura pallescens* group

The small subapical tooth of the claws, lancet (radix longer than lamnium, tangium distinctly curved), valvula 3 (short, in lateral view about as long as broad if not disrupted), distinctive penis valves, and at least ventrally pale abdomen separate the group from the other *Euura*. Three species are recognised.

195 *Euura montana* (Zaddach, 1883)

Figs 210, 441

Nematus montanus Zaddach, 1883 in Brischke 1883: 142–143. Syntypes ♀♂, probably destroyed (Blank & Taeger 1998). Type locality: Switzerland.

Nematus jemilleri Stein, 1894: 55–58. Syntypes ♀♂ (BMNH?), not examined. Type locality: Germany, Bayern, and Czech Republic, Chodau. Synonymy by Konow (1904c).

Diagnosis

Mostly pale mesepisternum, black mesepimeron, and dorsally extensively black hind tibia and often hind femur usually enable separation of the species from the others in the group. The more or less straight basalmost suture of the lancet may distinguish the females from *E. pallescens* (basalmost suture distinctly inclined apically), but not from *E. styx*. The broad valvispina reliably distinguishes the males from the two other species (narrow valvispina). Abdomen and thorax dorsally from nearly completely black to mostly pale.

Host plants

Picea abies (L.) H.Karst. and probably at least some other species of *Picea* (Enston & Williams 2024). One generation per year.

Genetics

COI

Based on 6 specimens, maximum within-species distance is 0.78% and the nearest neighbour, diverging by a minimum of 0%, is *Euura pallescens*.

Nuclear

Based on 6 specimens, maximum within-species distance is 0.18% (0.12% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.64%, is *Euura pallescens*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, France, Germany, and Slovakia.

196 *Euura pallescens* (Hartig, 1837)

Figs 211, 442

Nematus pallescens Hartig, 1837: 216. Lectotype designated below.

Nematus olivaceus Thomson, 1871: 120–121. Lectotype designated below. Synonymy by Konow (1890).

Nematus ruficeps Zaddach, 1883 in Brischke 1883: 131. Holotype ♀, probably destroyed (Blank & Taeger 1998). Type locality: Denmark, Sonderburg. Synonymy by Konow (1890).

Nematus pachycerus Borries, 1896: 232–233. Syntypes ♀♂, not located, possibly destroyed. Type locality: Denmark, Dyrehaven. Synonymy by Blank *et al.* (2009).

Diagnosis

Females are typically nearly completely pale, males dorsally extensively black. Pale mesepisternum, mesepimeron, hind tibia and femur should enable separation of the species from the others in the group. The distinctly apically inclined basalmost suture of the lancet also distinguishes the females from the other two species (basalmost suture more or less straight). Penis valves are most similar to *E. styx*. Ventroapical lobe of paravalva is more or less symmetrical in *E. pallescens*, but asymmetrical (dorsally straight and ventrally convex) in *E. styx*.

Type material examined

Lectotype *Nematus pallescens*, here designated
GERMANY – **Niedersachsen** • ♀; Harz; 51.8° N, 10.3° E; W. Saxesen leg.; ZSM, GBIF-GISHym3373.

Lectotype *Nematus olivaceus*, here designated
SWEDEN – **Skåne** • ♀; Wittsjö [Vittsjö]; 56.35° N, 13.66° E; in coniferous forest; MZLU, MZLU2017280.

Host plants

Picea abies. One generation per year.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 1.37% and the nearest neighbour, diverging by a minimum of 0%, is *Euura montana*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.36% (0.12% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.6%, is *Euura pallescens* group specimen DEI-GISHym80693 (looks like *E. montana*, lancet Fig. 213) from Primorsky Krai, Russia.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Germany, and Sweden.

197 *Euura styx* (Benson, 1958)
Figs 212, 443–444

Pachynematus styx Benson, 1958b: 301–303.

Diagnosis

The mostly black mesepisternum seems to distinguish *E. styx* from the others in the group. Most of the studied specimens from Finland have a dark brown pterostigma with a small pale area at the base, but the holotype of *styx* Benson and a specimen from Oulu (ZMUO.033769) have a uniformly yellowish pterostigma like the other species of the group. The specimen of *E. styx* with a yellowish pterostigma is not genetically different from those with a dark pterostigma. Based on the specimen NG.1551 (432 bp of COI is identical to all the other sequenced specimens of *styx* and clearly different from the other species) and a paratype of *styx*, the penis valve is most similar to *E. pallescens*. Ventroapical lobe of paravalva is asymmetrical (dorsal margin straight and ventrally convex) in *E. styx*, but more or less symmetrical in *E. pallescens*.

Type material examined

Holotype *Pachynematus styx*
GERMANY – **Niedersachsen** • ♀; Sieber; 51.70° N, 10.43° E; 600 m a.s.l.; 1955; W. Thalenhorst leg.; reared ex larva from *Picea abies*; BMNH, B.M.TYPEHYM.1.791.

Host plants

Picea abies (Benson 1958b). One generation per year.

Genetics

COI

Based on 4 specimens, maximum within-species distance is 0.15% and the nearest neighbour, diverging by a minimum of 1.98%, is *Euura pallescens* group specimen DEI-GISHym80693 from Primorsky Krai.

Nuclear

Based on 4 specimens, maximum within-species distance is 0.06% (0.18% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.71%, is *Euura montana*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland and Germany.

198 *Euura papillosa* group

Bifid claws, short and narrow valvula 3 in dorsal view, pale elongate pterostigma, extensively pale body and structure of lancet (radix about as long as lamnium, setae long, basalmost annulus roughly 0.5 times as long as broad, basal sutures in dorsal part inclined basally and apical sutures apically) distinguish the females from those of the other *Euura*. Males are also extensively pale. Penis valves can be distinguished from the other *Euura*. Penis valve length 1.1–1.3 mm, paravalva broader apically than basally, ventral and anterior margins of paravalva distinctly angled, straight and rather narrow and long valvispina, symmetrically narrowing and round pseudoceps at apex, ventroapical margin of paravalva broad, inclined basally and without distinct invagination between paravalva and valvispina, basal third of valvar strut merging with ventral margin of paravalva. *Euura papillosa* group females lay eggs on the underside (abaxial) surface of leaves (Urban 2001), in contrast to most other *Euura* that lay eggs inside the leaf or petiole tissue. This habit of egg laying is shared with *E. spiraeae* (Robbins 1927; Hara *et al.* 2022) and the *ribesii* group (Viitasaari 1980) with a similar type of lancet. *Euura hypoxantha* and *E. jugicola* (*myosotidis* group) also have a similar type of lancet, but egg laying habits of these species have not been described to our knowledge. Two species are recognised.

199 *Euura papillosa* (Retzius, 1783)

Figs 208, 445

Tenthredo papillosa Retzius, 1783: 72, by indication on Degeer (1771): 982, pl. 37 figs 1–11. Type material lost. Type locality: Sweden.

Tenthredo fuscata Christ, 1791: 452, by indication on Degeer (1771): 982, pl. 37 figs 1–11. Type material lost. Type locality: Sweden.

Nematus melanaspis Hartig, 1840: 27. Lectotype designated below. Synonymy by Blank *et al.* (2009).

Nematus lacteus Thomson, 1871: 155–156. Lectotype designated below. Synonymy with *melanaspis* by Konow (1890).

Nematus sulphureus Zaddach, 1876: pl. II figs 6, 14. Description based on larvae: adult ♀♂ were described later in Brischke (1883). Type material probably destroyed (Blank & Taeger 1998). Type locality: not stated. Synonymy with *melanaspis* by Konow (1890).

Nematus citreus André, 1880b: 203–204. Syntypes, sex not stated, not located. Type locality: not stated. Synonymy with *melanaspis* by Konow (1890).

Nematus maculiger Cameron, 1882: 538–539. Syntypes ♀♂ (BMNH?), not examined. Type localities: United Kingdom; Scotland, Clydesdale and England, Worcester. Synonymy with *melanaspis* by Konow (1890).

Nematus brunnicornis Zaddach, 1883 in Brischke 1883: 136–137. Syntypes ♀♂, probably destroyed (Blank & Taeger 1998). Type locality: Poland and/or Germany; Prussia, ?Harz Mountains. Synonymy with *melanaspis* by Enslin (1916a).

Pteronidea sveae Lindqvist, 1958: 99–100. Synonymy with *melanaspis* by Lindqvist (1967b).

Diagnosis

Dorsally mostly black colouration distinguishes the females from closely related *E. pavidus* (dorsally extensively pale). The pale parts of the abdomen of living *E. papillosa* females are also usually (always?) green, rather than yellow in *E. pavidus*. Males might not be clearly distinguishable from *E. pavidus*. A mitochondrial genome in GenBank (MZ726800, named as *Euura bridgmanii*, voucher ZYT-202105-02) that was published as *Pontania dolichura* (Sun *et al.* 2022) belongs to *E. papillosa*. This was confirmed based on the nuclear sequences extracted from the raw Illumina data of the voucher ZYT-202105-02 (NCBI Sequence Read Archive accession SRR15883156).

Type material examined

Lectotype *Nematus melanaspis*, here designated

GERMANY • ♀; northern Germany [according to Hartig 1840: 22]; ZSM, GBIF-GISHym3345.

Lectotype *Nematus lacteus*, here designated

SWEDEN – Skåne • ♀; Lund; 55.71° N, 13.19° E; MZLU, MZLU2017317.

Holotype *Pteronidea sveae*

FINLAND – Uusimaa • ♀; Helsinki, Munksnäs [Munkkiniemi]; 60.22° N, 24.89° E; 5 Aug. 1956; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3508>.

Host plants

A wide spectrum of species of *Salix*, *Populus tremula* (Pschorn-Walcher & Altenhofer 2000), *P. nigra* L. and hybrid poplar cultivars (Chambers 1952; Chevin & Savina 2016).

Genetics

COI

Based on 29 specimens, maximum within-species distance is 4.92% and the nearest neighbour, diverging by a minimum of 2.74%, is *Euura pavidus*.

Nuclear

Based on 4 specimens, maximum within-species distance is 0.57% (0.12% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.62%, is *Euura pavidus*.

Distribution and material examined

Palearctic. Specimens studied are from Austria, China (only genetics), Finland, Germany, Japan, and Sweden.

200 *Euura pavidus* (Serville, 1823)

Figs 209, 446–447

Nematus pavidus Serville, 1823: 67. Lectotype ♀ (MNHN), designated by Lacourt (2000), not examined. Type locality: France, Ile-de-France, Paris.

Nematus ochraceus Hartig, 1837: 218–219. Not found in ZSM. Type locality: Germany. Synonymy by Cameron (1885).

Nematus cylindricus Hartig, 1840: 24. Lectotype designated below. **Syn. nov.**

Nematus semiorbitalis Förster, 1854a: 288–289. Syntypes ♀♀ (GBIF-GISHym3421–23), not found in ZSM. Type locality: Germany. Synonymy by Cameron (1885).

Cryptocampus quadrum Costa, 1859: 25. Syntypes ♀♀ (MZFN?), not examined. Type locality: Italy, Naples area. Synonymy by Cameron (1885).

Nematus wttewaalli Snellen van Vollenhoven, 1862: 65–68, pl. 4. Lectotype ♀ (RMNH), designated by Thomas (1987), not examined. Type locality: Netherlands, Utrecht. Synonymy by Cameron (1885).

Nematus cameronii Dalla Torre, 1894: 212. A name for *Nematus aurantiacus* Cameron, 1880, nec Hartig (1837). Holotype ♀ (BMNH?), not examined. Type locality: United Kingdom, England, Dorset, Glanvilles Wootton.

Pteronidea pavida var. *notanda* Enslin, 1916a: 423. Lectotype designated below. Synonymy by Lacourt (1999).

Diagnosis

Closest to *E. papillosa*, see differences discussed under that species.

Type material examined

Lectotype *Nematus cylindricus*, here designated
GERMANY • ♀; northern Germany [according to Hartig 1840: 22]; ZSM, GBIF-GISHym3248.

Notes

Most paralectotypes are also *E. pavida*, but apparently include also *E. gracilidentata* (GBIF-GISHym3249, 3250, and maybe 3256) and *E. similator* (GBIF-GISHym3255).

Lectotype *Pteronidea pavida* var. *notanda*, here designated
FRANCE – Basse-Normandie • ♀; Lisieux; A. Loisele leg.; ZSM, GBIF-GISHym3364.

Host plants

A wide spectrum of species of *Salix*, but *S. caprea* is a preferred host; occasionally on *Populus tremula*, whereas mentions of *Alnus* spp. are probably the result of misidentification (Pschorn-Walcher & Altenhofer 2000).

Genetics

COI

Based on 12 specimens, maximum within-species distance is 0.61% and the nearest neighbour, diverging by a minimum of 2.74%, is *Euura papillosa*.

Nuclear

Based on 4 specimens, maximum within-species distance is 0.15% (0.03% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.62%, is *Euura papillosa*.

Distribution and material examined

Palaearctic. Specimens studied are from Austria, Belgium, Bulgaria, Finland, France, Germany, Norway, and Sweden.

Euura punicea group s. lat.

This clade comprises most of the former *Amauronematus*, including the former *Pontoprastia* (*amentorum* group), but not *Brachycoluma* (*viduata* group), and is mainly defined based on genetic data (Fig. 3A). Members tend to have a characteristic “*Amauronematus*”-type head (e.g., Fig. 86), i.e., medial surface of

head near antennal sockets is not distinctly elevated or angular below medial pit. Various other species have sometimes been included in *Amauronematus* because of a similar type of head (e.g., *E. anthracina*, *E. fahraei*, various members of *E. bipartita* and *flavescens* groups), but these are genetically more distant. The following groups are included: *aegra*, *amentorum*, *histrion*, *humeralis*, *longiserra*, *opacipleuris*, *punicea* s. str., *toeniata*, *tunicata*, *variator*, *vittata*, and *Euura brunnea* not assigned to a group.

201 *Euura aegra* group

Four species are recognized. Most specimens are more or less black, but females of *E. aegra* and *E. lindqvisti* can have an extensively reddish mesepisternum and the abdomen ventrally and apically extensively pale. *Euura aegra* and *E. hebes* have a “*Pristiphora*-type” valvula 3 (i.e., with a distinct and deep invagination posteriorly), which by itself distinguishes these species from most other *Euura*. In addition, their “*Amauronematus*-type” head, bifid claws, matt mesepisternum, and structure of the saws help to distinguish these two species from the few other *Euura* with a similar, but less deeply invaginate valvula 3, and from *Pristiphora*. The valvula 3 of *Euura lindqvisti* is similar to most other *Euura*, so that the species could most easily be confused with *E. nimbus* and darker specimens of *E. sagmarius*, but again the “*Amauronematus*-type” head, bifid claws, matt mesepisternum, and its saw structure should enable its separation from the other species. *Euura sempersolis* is the darkest of the four species and has valvula 3 “intermediate” between *E. aegra-hebes* and *E. lindqvisti* (i.e., without distinct invagination and not as long and pointed as in *E. lindqvisti*), but the saw is rather similar to *E. aegra* and *E. hebes*. Males within the group are also mostly black and very similar to each other or even to some other groups that are closely related (former *Amauronematus*). We have not attempted here to distinguish the males morphologically, although this might be possible after examination of greater numbers of specimens, instead, we have used nuclear genes to associate them with females.

202 *Euura aegra* (Konow, 1895)

Figs 230, 454

Amauronematus aeger Konow, 1895: 181. Lectotype designated by Oehlke & Wudowenz (1984).
Amauronematus dalecarlicus Malaise, 1921a: 2–3. Synonymy by Lindqvist (1962a).

Diagnosis

Mostly black, brown or pale pterostigma, “*Amauronematus*-type” head, bifid claws, square-shaped valvula 3 with distinct invagination. Most similar species is *E. hebes* (character states in parentheses), from which it differs by having smoother mesepisternum (usually strongly matt) and paler pronotum (completely black or nearly so). Males possibly not clearly distinguishable from other *aegra* group species. Females sometimes with extensively brown mesepisternum and head (e.g., ZMUO.031774, ZMUO.031807).

Type material examined

Lectotype *Amauronematus aeger*

GERMANY • ♀; Thüringen; SDEI, GBIF-GISHym4086.

Holotype *Amauronematus dalecarlicus*

SWEDEN – Dalarna • ♀; Säter; 60.312°N, 15.524°E; E. Klefbeck leg.; NHRS, NHRS-HEVA000003833.

Host plants

Betula pubescens. According to Kangas (1985) also *B. pendula*.

Genetics

COI

Based on 6 specimens, maximum within-species distance is 3.5% and the nearest neighbour, diverging by a minimum of 0%, is *Euura lindqvisti*.

Nuclear

Based on 6 specimens, maximum within-species distance is 0.14% (0.29% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.2%, is *Euura lindqvisti*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Germany, Norway, and Sweden.

203 *Euura hebes* (Konow, 1907)

Figs 230, 454

Amauronematus hebes Konow, 1907: 17–18. Lectotype designated by Mucbe (1975).

Amauronematus pristiphorinus Malaise, 1921a: 2. Synonymy by Lindqvist (1941b).

Amauronematus pribaicolicus Lindqvist, 1970: 100–102. **Syn. nov.**

Amauronematus pristiphoroides Lindqvist, 1972: 72–73. **Syn. nov.**

Pristiphora albomarginata Lindqvist, 1974a: 117–118. **Syn. nov.**

Amauronematus harpicola Bogacheva, 1977: 87. Lectotype ♀ (ZMMU), designated by Zinovjev & Schmidt (1994), not examined. Type locality: Russia, Polar Urals, Kharp Biological Station. **Syn. nov.**

Diagnosis

Mostly black, brown or pale pterostigma, “*Amauronematus*-type” head, bifid claws, square-shaped valvula 3 with distinct invagination. Most similar species is *E. aegra* (character states in parentheses), from which it differs by having more matt mesepisternum (usually weakly matt) and darker pronotum (usually extensively pale). Males possibly not clearly distinguishable from other *aegra* group species.

Although *pribaicolicus*, *pristiphoroides*, and *albomarginata* have colouration (pronotum and clypeus usually at least partly pale, valvula 3 completely or mostly black) and mesepisternum sculpture (slightly matt) more similar to *aegra* than *hebes* (pronotum and clypeus completely or nearly completely black, valvula 3 extensively pale; mesepisternum strongly matt) we consider these nominal taxa as synonyms of *hebes* based on the saw, host plant, and genetics. Based on the description provided by Zinovjev & Schmidt (1994), colouration of *harpicola* (reared from *Salix*) seems overall more similar to *pribaicolicus* than *hebes*, but colouration of the sawsheath (valvula 3) fits with typical *hebes*. Saws of the above-mentioned nominal taxa do not seem to be different. The species is not monophyletic based on current sampling of nuclear genes, but this is the case even for individual females when haplotypes of nuclear genes are separated, indicating incomplete lineage sorting and not necessarily the presence of additional species.

Type material examined

Lectotype *Amauronematus hebes*

SWEDEN • ♀; Northern Lapland; SDEI, GBIF-GISHym4093.

Holotype *Amauronematus pristiphorinus*

SWEDEN – Torne Lappmark • ♀; Torneträsk; 68.22° N, 19.74° E; 400 m a.s.l.; R. Malaise leg.; NHRS, NHRS-HEVA000003841.

Holotype *Amauronematus pribalicus*

RUSSIA – **Irkutskaja oblast** • ♀; Irkutsk, Oljhonsk, Popovo; 52.741° N, 106.309° E; 10 Apr. 1968; B.N. Verzhutskij leg.; MZH, <http://id.luomus.fi/GL.5128>.

Holotype *Amauronematus pristiphoroides*

RUSSIA – **Kamchatka oblast** • ♀; Nischne-Kamtchatsk, Lake Azhabachye; 56.166° N, 161.893° E; R. Malaise leg.; NHRS, NHRS-HEVA000006425.

Holotype *Pristiphora albomarginata*

FINLAND – **Kittilä Lapland** • 1 ♀; Muonio, Pallastunturi; 68.100° N, 23.999° E; 13 Jun. 1967; O. Ranin leg.; MZH, <http://id.luomus.fi/GL.3403>.

Notes

A COI sequence (658 bp) of the holotype is most similar to DEI-GISHym19918 (*E. hebes*).

Host plants

Salix sp. or spp. (Kontuniemi 1960): at least grey-leaved species are hosts.

Genetics

COI

Based on 19 specimens, maximum within-species distance is 4.1% and the nearest neighbour, diverging by a minimum of 0.15%, is *Euura lindqvisti*.

Nuclear

Based on 13 specimens, maximum within-species distance is 0.73% (0.65% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.18%, is *Euura lindqvisti*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Russia, and Sweden.

204 *Euura lindqvisti* (Hellén, 1951)

Figs 233, 457

Amauronematus lindqvisti Hellén, 1951b: 107–108. Lectotype designated below.

Amauronematus edenticulatus Lindqvist, 1970: 100. **Syn. nov.**

Diagnosis

From mostly black to extensively pale (black or extensively pale mesepisternum), brown pterostigma with some pale basally, centrally or anteriorly, “*Amauronematus*-type” head, bifid claws, elongate gradually narrowing valvula 3 without invagination, malar space about 1.4–1.5 times as long as diameter of front ocellus (females). Externally, the most similar species are *viduata* group, *opacipleuris* group, darker species of *miltonota* group, *E. berolinensis*, and *E. nigriventris*. Length of malar space and structure of the lancet (with 17–20 serrulae, practically without microdenticles, long setae) distinguish it from the similar species. Males possibly not clearly distinguishable from other *aegra* group species.

Lectotype of *lindqvisti* GP.110166: mesepisternum upper half reddish, tegula pale (like holotype *edenticulatus* from *Salix*), not reared. A specimen of *edenticulatus* (non-type) from Irkutsk reared from *Betula* (GP.110176) has pale tegula but black mesepisternum. Specimen from Finland reared from *Betula* (GP.110168) has black tegula and black mesepisternum. Among the type series of *lindqvisti* most specimens have black mesepisternum, but tegula varies continuously from black to pale. All

specimens with slightly or extensively pale mesepisternum have pale tegula. Unless two similar species are involved, *E. lindqvisti* may feed both on *Salix* and *Betula* (Tenow 1963).

Type material examined

Lectotype *Amauronematus lindqvisti*, here designated

FINLAND – **Inari Lapland** • ♀; Utsjoki, Outakoski; 69.61° N, 25.98° E; 14 Jun. 1947; W. Hellén leg.; MZH, <http://id.luomus.fi/GP.110166>.

Holotype *Amauronematus edenticulatus*

RUSSIA – **Irkutskaja oblast** • ♀; Irkutsk, Oljhonsk, Popovo; 52.741° N, 106.309° E; 13 Apr. 1968; B.N. Verzhutskij leg.; MZH, <http://id.luomus.fi/GL.5129>.

Host plants

Mainly *Betula* spp., including *B. nana* and *B. pubescens*, but apparently also *Salix* spp. (Tenow 1963; holotype of *edenticulatus*).

Genetics

COI

Based on 7 specimens, maximum within-species distance is 2.13% and the nearest neighbour, diverging by a minimum of 0%, is *Euura aegra*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.29% (0.41% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.18%, is *Euura hebes*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Russia, and Sweden.

205 *Euura sempersolis* (Kiaer, 1898)

Figs 232, 456

Amauronematus sempersolis Kiaer, 1898: 41–42. Lectotype designated below.

Amauronematus tristis Lindqvist, 1959d: 9–10. Synonymy by Hellén (1970).

Diagnosis

Nearly completely black, brown or pale pterostigma, “*Amauronematus*-type” head, bifid claws, valvula 3 short and somewhat triangular. Most similar species are dark specimens of the *tillbergi* group and *E. hebes*, from which it can be distinguished by the structure of the saw (serrulae basally with small but distinct protrusion and with large space between serrulae). Additionally, valvula 3 does not have a distinct invagination (present in *E. hebes*). Males possibly not clearly distinguishable from other *aegra* group species.

Type material examined

Lectotype *Amauronematus sempersolis*, here designated

NORWAY – **Finnmark** • ♀; Sør-Varanger, Strand; 69.524° N, 29.978° E; Jun. 1892; S. Schneider leg.; MZH, <http://id.luomus.fi/GL.5237>.

Holotype *Amauronematus tristis*

FINLAND – **Kittilä Lapland** • ♀; Muonio, Pallastunturi; 68.100° N, 23.999° E; 22 Jun. 1942; W. Hellén leg.; MZH, <http://id.luomus.fi/GL.2759>.

Notes

Kiaer (1898) wrote that he described *Amauronematus sempersolis* from a syntype series of four individuals of both sexes collected by Sparre Schneider in Sydvaranger, northern Norway, in June 1892. Lindqvist (1959d) discussed five (!) presumed syntype specimens (4 females, 1 male) of *A. sempersolis* borrowed from Tromsø Museum. He wrote that they belonged to four different taxa and that none of them agreed with Kiaer's description, except possibly the male, which he identified as belonging to the *Euura histrio* species group, and that therefore the females could not be syntypes. He did not designate a lectotype, and concluded by stating that he was unable to identify Kiaer's species from the description. All these specimens had apparently been previously examined by O. Conde in 1939, according to corresponding determination labels (Lindqvist 1959d). Lindqvist (1973) again discussed the potential syntypes of *A. sempersolis*, but this time in the light of an additional female specimen which at that time was in the collection of W. Hellén. This is almost certainly the specimen currently in the FMNH collection, designated above as lectotype, because both Hellén (1970) and Lindqvist (1973) cite different parts of the determination label (<http://id.luomus.fi/GL.5237>) written by O. Conde in 1939. Hellén also mentioned that the specimen is labelled "Strand 1892". Note that "Strand" certainly refers to the collection locality, not to Embrik Strand, the well-known Norwegian naturalist.

Although the specimen now designated as lectotype was already labelled as such by an unknown person, there is no unequivocally valid previously published designation. Hellén (1970), referred to this specimen as [translated from German] "the female specimen (Strand 1892) marked as 'type' by Conde", but did not make clear whether the male syntype had also been labelled by Conde as a type. Lindqvist (1973) ended his text on *A. sempersolis* with the commentary [translated]: "As regards the type selected by Conde, which in his opinion should be identical to *hebes*, one must emphasise that this specimen does not represent the true *hebes*, but *A. tristis* described by me (1959d: 9). The sawsheath of this species [*tristis*] and the matt mesopleura agree with Kiaer's description, whereas the labrum and the tegulae are always completely black, which differs from the *sempersolis* description. The type selected by Conde and identified as *hebes* can accordingly not be accepted as [belonging to the syntype series of] *sempersolis*". Thus, Lindqvist's comments cannot be regarded as a lectotype designation.

It seems that Conde and Lindqvist were correct in regarding the type series of *A. sempersolis* as consisting of more than one species, but we disagree with the opinion of Lindqvist (1973), that the female now designated as lectotype significantly differs from Kiaer's description in two colour characters, and is therefore not part of the syntype series. Firstly, the labrum of the *A. sempersolis* lectotype is indeed markedly paler than the rest of the head, but the labrum of *A. tristis* is not "always black" as claimed by Lindqvist (1973). We have examined many specimens with a more or less pale labrum, and Lindqvist (1959d) himself even noted such colouration in his description of *A. tristis* [translated from German]: "Labrum [...] occasionally blackened". Secondly, Kiaer (1898) wrote [translated from Latin]: "[...] variably orbits of eyes, tegulae, angles of pronotum [...] more or less testaceous". Because of his use of the words "variably" and "more or less testaceous", this description does not preclude the existence of syntype specimens with at least extensively black tegulae. Admittedly, the *sempersolis* lectotype has completely black tegulae, but because all other characters in Kiaer's description fit, we find it unreasonable to reject its original status as a syntype merely because of this trivial discrepancy. Furthermore, it is possible that Kiaer mistook the large and pale humeral plates of the lectotype for the tegulae.

Host plants

Probably monophagous on *Betula nana*.

Genetics

COI

Based on 11 specimens, maximum within-species distance is 2.44% and the nearest neighbour, diverging by a minimum of 0.76%, is *Euura hebes*.

Nuclear

Based on 8 specimens, maximum within-species distance is 0.18% (0.15% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.2%, is *Euura lindqvisti*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Norway, Sweden, and the United Kingdom.

206 *Euura amentorum* group

The species group was revised by Liston *et al.* (2023): see there for details of type material, synonymy, host plants, distribution, and identification characters.

Based on the penis valves drawn by Lindqvist (1961a), fig. 22 refers to a species in the *bipartita* group (possibly, e.g., *E. leucopyga*), figs 23–24, and possibly 20 refer to species in the *flavescens* group (most likely *E. lienterica* or *E. reticulata*). Lindqvist (1961a: figs 18–19, 21) refer to the *amentorum* group, and possibly to the correct species.

207 *Euura amentorum* (Förster, 1854)

Figs 222, 448

Notes

The COI sequence (563 bp) of a male (<http://id.luomus.fi/GP.110189>) is closest to the female ZMUO.038756.

208 *Euura dahlbomi* (Thomson, 1871)

Figs 224, 449

209 *Euura freyja* (Liston, Taeger & Blank, 2009)

Figs 227, 451–452

210 *Euura itelmena* (Malaise, 1931)

Fig. 226

211 *Euura latiserra* (Malaise, 1921)

Fig. 223

212 *Euura microphyes* (Förster, 1854)

Figs 225, 450

213 *Euura pohjola* Liston *et al.* 2023

Figs 228, 453

214 *Euura ursaminor* Liston *et al.* 2023

Fig. 229

215 *Euura histrio* group

We recognize 16 species of the *histrio* group in the West Palaearctic, only one of which (*E. elbrus*, if it is a valid species) may be absent in Fennoscandia. Based on our sequencing data, there could be one or two additional species in the West Palaearctic, but also one or two additional synonyms. The few potentially additional species cannot be morphologically clearly distinguished from *E. striata*, *E. tenuis* and/or *E. septentrionalis*. Neither are they genetically so distinct that separate species status is unambiguously indicated. If the one or two additional lineages are not distinct species, it is unclear under which species

these should be classified. One of the lineages is perhaps not *E. septentrionalis* (which is on *Betula*), because many of the specimens have been reared from *Salix*. *Euura amicula*, *E. hartigi*, *E. histrio*, *E. nigrina*, *E. nuorbinjargi*, *E. propinquator*, *E. rufa*, *E. schlueteri*, *E. stenogaster*, and *E. histriato* Prous, Liston & Mutanen sp. nov. can be relatively well defined based on colouration, valvula 3 and/or lancets. These species are also well supported or at least not contradicted by nuclear data (no genetic data for *E. nigrina*) and often also based on host plants. Males of most species are more difficult to recognize than females, and we have largely relied on nuclear data to associate them.

216 *Euura amicula* (Saarinen, 1950)

Figs 234, 458

Amauronematus amicula Saarinen, 1950b: 47–49. Holotype ♀ (<http://id.luomus.fi/GL.3586>, MZH).
Type locality: Finland, Lapin Lääni, Outakoski.

Diagnosis

Extensively pale species (can be pink in life), but darker (median mesoscutal lobe and mesoscutellar appendage at least partly black) than *E. rufa* (median mesoscutal lobe and mesoscutellar appendage pale). Some specimens of *E. striata* are similarly pale, but have lamnium 1.6–1.7 times as long as radix (2.0–2.2 times as long in *E. amicula*, $n = 2$).

Type material examined

Holotype *Amauronematus amicula*

FINLAND – **Inari Lapland** • ♀; Utsjoki, Outakoski; 69.61° N, 25.98° E; 19 Jun. 1947; A. Saarinen leg.; MZH, <http://id.luomus.fi/GL.3586>.

Host plants

Salix phylicifolia.

Genetics

COI

Based on 21 specimens, maximum within-species distance is 2.74% and the nearest neighbours, diverging by a minimum of 0%, are *Euura nuorbinjargi*, *E. striata*, *E. tenuis*, *E. tota*, *E. betulae* (DEI-GISHym80673 from Primorsky Krai), *E. histrio*, *E. rufa*, and *E. septentrionalis*.

Nuclear

Based on 19 specimens, maximum within-species distance is 0.97% (0.91% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.15%, is *Euura striata*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, and Sweden.

217 *Euura betulae* (Schmidt, 1997)

Fig. 235

Amauronematus betulae Schmidt, 1997: 279–280. Holotype ♀ (<http://id.luomus.fi/GL.2501>, MZH).
Type locality: Finland, Juuma [735:60].

Diagnosis

The holotype is externally very similar to *E. septentrionalis*, but the lamnium is 1.5–1.6 times as long as the radix (holotype; DEI-GISHym80673) compared to 1.8–1.9 (based on Schmidt 1997) or 2.0–2.2

(*taiganus* holotype, ZMUO.037302) in *E. septentrionalis*. We have associated only one other specimen (DEI-GISHym80673 from Primorsky Krai, Russia) with the holotype, based on the lancet and similar colouration. No males have been associated with the female.

Type material examined

Holotype *Amauronematus betulae*

FINLAND – **Kuusamo** • ♀; Juuma; 66.27° N, 29.38° E; 16 Jun. 1985; M. Ahola leg.; MZH, <http://id.luomus.fi/GL.2501>.

Host plants

Since the holotype (collected on 16 Jun. 1985 by M. Ahola) is not a reared specimen, the host is not known for certain. Schmidt (1997: 280) mentioned that in his oviposition experiments a female or females (number of specimens not given) laid eggs on *Betula nana* and *B. pubescens*, but rejected willows. We have not examined any such specimens.

Genetics

COI

Only one sequence available. The nearest neighbours, diverging by a minimum of 0%, are *Euura amicula*, *E. histrio*, *E. nuorbinjargi*, *E. rufa*, *E. septentrionalis*, *E. striata*, and *E. tenuis*.

Nuclear

Only one sequence available, a female with haplotypes diverging by 0.7%. The nearest neighbour, diverging by a minimum of 0.07%, is *Euura histrio*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Russia.

218 *Euura elbrus* Sundukov, 2017

Fig. 236

Nematus nivalis Muche, 1973a: 223–224. Secondary homonym of *Pontania nivalis* Vikberg, 1970b [= *Euura nivalis* (Vikberg, 1970)].

Euura elbrus Sundukov, 2017a: 13. Replacement name for *Nematus nivalis* Muche, 1973.

Diagnosis

The saw is most similar to *E. propinquator*, although colouration of the abdomen (hind margins of dorsal parts of terga not as extensively pale as in *E. propinquator*) and the likely host plant might indicate a different species. Lamnium 1.4 (?) times as long as radix.

Type material examined

Holotype *Nematus nivalis*

RUSSIA – **Elbrus Region** • ♀; Itkol; 43.25° N, 42.54° E; 2800 m a.s.l.; 9 Jul. 1971; ZMHB, dbcac7 / GBIF-GISHym2827.

Host plants

Unknown, but probably not *Salix repens* L. (the host of *E. propinquator*), because the type specimens were collected above the tree line.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Palearctic. Specimens studied are from Russia.

219 *Euura hartigi* (Saarinen, 1950)

Fig. 238

Amauronematus hartigi Saarinen, 1950a: 19–22.

Amauronematus glacialis Saarinen, 1950b: 45–47. Primary homonym of *Amauronematus glacialis* Jakowlew, 1891 [= *Euura abnormis* (Holmgren, 1883)]. **Syn. nov.**

Amauronematus arvii Vikberg, 1982: 63. Replacement name for *Amauronematus glacialis* Saarinen, 1950.

Diagnosis

Pale colouration and lancet (ventral margin apically distinctly convex) enable identification of the species. No males have been associated.

Type material examined

Holotype *Amauronematus hartigi*

GERMANY – **Niedersachsen** • ♀; Harz, Lautenthal; 51.867° N, 10.300° E; 29 May 1837; W. Saxesen leg.; ZSM, GBIF-GISHym3677.

Holotype *Amauronematus glacialis*

FINLAND – **Inari Lapland** • ♀; Utsjoki, Outakoski; 69.61° N, 25.98° E; 9 Jun. 1947; A. Saarinen leg.; MZH, <http://id.luomus.fi/GL.2495>.

Host plants

Salix aurita (Schmidt 1997) and possibly some other species of *Salix*, because *S. aurita* is not present in Utsjoki (type locality of *Amauronematus glacialis*).

Genetics

COI

Based on 2 specimens, maximum within-species distance is 0.46% and the nearest neighbours, diverging by a minimum of 0%, are *Euura histrio*, *E. rufa*, and *E. schlueteri*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.27% (0.42% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.27%, is *Euura betulae* (DEI-GISHym80673).

Distribution and material examined

Palearctic. Specimens studied are from Finland, France, and Germany.

220 *Euura histrio* (Serville, 1823)

Figs 239, 459

Nematus histrio Serville, 1823: 65. Syntypes ♀♀, not examined [A potential syntype is in MNHP: Lacourt 2000]. Type locality: France, Paris.

Nematus rufescens Hartig, 1837: 191–192. Lectotype designated by Schmidt (1997). Synonymy by Konow (1895).

Nematus fur Walsh, 1866: 263. Holotype ♂, destroyed (Sheppard 2004). Type locality not specified, but apparently USA, Illinois. Doubtful synonym (Zinovjev & Smith 2000).

Nematus glenelgensis Cameron, 1882: 535–536. Syntypes ♀♀ (BMNH?), not examined. Type locality: United Kingdom, Scotland, Lochalsh, Glenelg. Synonymy by Konow (1895).

Amauronematus histrio var. *nigrescens* Enslin, 1915: 375. Lectotype designated below.

Amauronematus histrio var. *rubens* Enslin, 1915: 375. Syntypes ♀♀, no specimens located. Type locality: not stated.

Amauronematus histrio var. *fallaciosus* Enslin, 1918: 735.

Diagnosis

Colouration and structure of valvula 3 enable identification of the species. Usually, the black first tergite (rarely extensively pale laterally), completely pale terga 3–5, and at least partly black terga 2 and 6–10 are enough to recognize the species. Black or dark brown pterostigma, usually completely or nearly completely black hind femur and tibia (sometimes anteriorly and posteriorly pale or brown), completely black or slightly pale (at base) cerci, black or laterobasally somewhat pale valvula 3, in lateral view more or less symmetrical (ventrally and dorsally curved to similar degree) valvula 3 help further to identify the females. *Euura tota* can sometimes also have abdomen with a red band (otherwise mostly black species), but pale tegula and usually at least slightly pale mesepisternum in *E. histrio* females can be used to distinguish them from *E. tota*. Males of *E. tota* with a red band might not be distinguishable from *E. histrio*.

Female

6.0–9.5 mm (rounded to nearest 0.5 mm from Schmidt 1997). Pterostigma black or dark brown; hind femur and tibia usually completely or nearly completely black, sometimes anteriorly and posteriorly pale or brown; first tergite black, rarely extensively pale laterally; middle terga (usually 3–5) completely pale, usually at least some of terga 2 and 6–10 partly black; sterna 2–6 pale; hypopygium pale or partly black; valvifer 2 black to pale; cerci completely black or slightly pale at base; valvula 3 black or basally somewhat pale in lateral view; valvula 3 more or less symmetrical in lateral view, ventrally and dorsally curved to similar degree.

Male

5.5–8.0 mm (this study; Schmidt 1997). Pterostigma black, dark brown or centrally paler than externally; hind femur and tibia usually completely or nearly completely black, sometimes hind femur anteriorly and posteriorly pale and hind tibia basally pale or brown; first tergite black; middle terga (3–5) completely pale, terga 2 and 6–8 usually mostly black; sternum 9 black, other sterna pale.

Type material examined

Lectotype *Nematus rufescens*

GERMANY • ♀; Berlin area; 52° N, 13° E; ZSM, GBIF-GISHym3049.

Lectotype *Amauronematus histrio* var. *nigrescens*, here designated

GERMANY – **Bayern** • ♀; Erlangen; 49.58° N, 10.98° E; 13 Apr. 1914; E. Enslin leg.; ZSM, GBIF-GISHym3689.

Holotype *Amauronematus histrio* var. *fallaciosus*

GERMANY – **Bayern** • ♀; Ebenhausen; 50.131° N, 10.138° E; 8 Apr. 1912; ZSM, GBIF-GISHym3688.

Host plants

Salix caprea, *S. aurita*, *S. cinerea* L. (Schmidt 1997).

Genetics

COI

Based on 12 specimens, maximum within-species distance is 1.06% and the nearest neighbours, diverging by a minimum of 0%, are *Euura stenogaster*, *E. tota*, *E. amicula*, *E. betulae*, *E. nuorbinjargi*, *E. rufa*, *E. septentrionalis*, *E. striata*, *E. tenuis*, *E. hartigi*, and *E. schlueteri*.

Nuclear

Based on 11 specimens, maximum within-species distance is 1.03% (0.82% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.07%, is *Euura betulae* (DEI-GISHym80673).

Distribution and material examined

Palearctic. Specimens studied are from Bulgaria, Estonia, Finland, France, Germany, and the United Kingdom.

221 *Euura nigrina* (Schmidt, 1997)

Fig. 240

Amauronematus nigrinus Schmidt, 1997: 286–287.

Diagnosis

Long valvula 3, structure of the lancet (straight and slightly convex ventral margin), and rather dark colouration distinguishes the species from the others in the *histrio* group. Males unknown.

Type material examined

Holotype *Amauronematus nigrinus*

NORWAY – **Finnmark** • ♀; Tana Bru; 70.20° N, 28.17° E; 6 Jun. 1991; S. Schmidt leg.; MZH, <http://id.luomus.fi/GL.2494>.

Host plants

Salix lanata (Schmidt 1997).

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Palearctic. Specimens studied are from Norway.

222 *Euura nuorbinjargi* (Saarinen, 1949)

Figs 241, 460

Amauronematus nuorbinjargi Saarinen, 1949: 55–62.

Diagnosis

Females can be identified based on the colour pattern. Median mesoscutal lobe and mesoscutellar appendage are at least partly black, the first tergite is usually completely black and subsequent tergites with sharply decreasing black area (if the first tergite is mostly pale, then subsequent tergites are completely pale). Males have similar colouration, but might not always be distinguishable from, for example, the males of *E. rufa*.

Female

6.8–8.8 mm (Schmidt 1997). Pterostigma usually pale, brown or centrally paler than externally; hind femur extensively pale, usually only dorsally black; hind tibia black or anteriorly and posteriorly pale or brown; usually first tergite completely black and subsequent terga with black flecks decreasing in size, sometimes abdomen nearly completely pale; sterna, hypopygium, and valvifer 2 pale; cerci extensively pale at least basally; valvula 3 extensively pale or brown; valvula 3 asymmetrical in lateral view, ventrally more distinctly curved than dorsally.

Male

5.5–7.0 mm (this study; Schmidt 1997). Pterostigma centrally paler than externally; hind femur and tibia usually extensively pale (only dorsally black), sometimes nearly completely black; first tergite completely black and subsequent terga with black transverse lines decreasing in size; all sterna pale.

Type material examined

Holotype *Amauronematus nuorbinjargi*

FINLAND – **Inari Lapland** • ♀; Utsjoki, Nuorbinjarg; 69.60° N, 25.97° E; 23 Jun. 1947; A. Saarinen leg.; MZH, <http://id.luomus.fi/GL.2588>.

Host plants

Salix hastata L.

Genetics

COI

Based on 8 specimens, maximum within-species distance is 0.61% and the nearest neighbours, diverging by a minimum of 0%, are *Euura amicula*, *E. betulae*, *E. histrio*, *E. rufa*, *E. septentrionalis*, *E. striata*, *E. tenuis*, and *E. tota*.

Nuclear

Based on 8 specimens, maximum within-species distance is 0.5% (0.43% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.5%, is *Euura histrio*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Sweden.

223 *Euura propinquator* Schmidt, 2014

Fig. 237

Amauronematus propinquus Saarinen, 1950b: 60–62. Secondary homonym of *Cryptocampus propinquus* Rohwer, 1909 [= *Euura propinqua* (Rohwer, 1909)].

Euura propinquator Schmidt, 2014 in Prous *et al.* 2014: 53. Replacement name for *Amauronematus propinquus*.

Diagnosis

Ventrally concave lancet and lamnium 1.3 times as long as radix ($n = 2$) distinguishes *E. propinquator* from the others in the *histrion* group.

Type material examined

Holotype *Amauronematus propinquus*

FINLAND – Häme • ♀; Loppi; 60.72° N, 24.44° E; 1 Jun. 1941; A. Saarinen leg.; MZH, <http://id.luomus.fi/GL.2514>.

Notes

Best morphological match: DEI-GISHym84201.

Host plants

Salix repens rosmarinifolia (L.) Hartman Fil. (Schmidt 1997).

Genetics

COI

Only one sequence available. The nearest neighbour, diverging by a minimum of 0.61%, is an unidentified *Euura* specimen from Oregon, USA (DEI-GISHym12539).

Nuclear

Only one sequence available, a female with haplotypes diverging by 0.85%. The nearest neighbour, diverging by a minimum of 0.05%, is *Euura striata*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland.

224 *Euura rufa* (Konow, 1896)

Figs 242, 461–462

Nematus exoletus Eversmann, 1847: 19. Lectotype designated below. **Syn. nov. Nomen oblitum.**

Amauronematus rufus Konow, 1896: 161. Lectotype designated by Mucbe (1975). **Nomen protectum.**

In accordance with Article 23.9.1 of the International Code of Zoological Nomenclature (ICZN 1999), we retain the junior name *rufa* as valid, because it has been used more than 25 times by at least ten authors as the valid name for this taxon during the last 50 years, whereas *exoletus* has not been used as valid since 1899. Examples of use of *rufus* or *rufa* as the valid name for this taxon during the last fifty years: Lindqvist 1974b; Mucbe 1975; Zhelohovcev 1976b; Verzhutskii 1981; Kangas 1985; Viitasaari & Vikberg 1985; Vikberg 1988; Zhelochovtsev 1988; Liston 1995, 1997; Zhelochovtsev & Zinovjev 1995; Schmidt 1997; Lacourt 1999, 2020; Haris 2002; Nuorteva & Nuorteva 2003; Taeger *et al.* 2006, 2010; Lelej & Taeger 2007; Sundukov & Lelej 2012; Macek & Kula 2014; Sundukov 2017b; Macek *et al.* 2020; Verheyde *et al.* 2021; Liston *et al.* 2023: fig. 1.

Diagnosis

Females are usually almost completely pale reddish-yellow. Some specimens of *E. amacula* and *E. striata* can be almost as pale, but differ in having the median mesoscutal lobe and mesoscutellar appendage

at least partly black (pale in *E. rufa*). An additional difference from *E. striata* is that the lamnium is 1.9–2.3 times as long as radix (usually 1.6–1.7 in *E. striata*). Males are extensively pale ventrally and most similar to *E. nuorbinjargi*, but the abdomen of *E. rufa* is usually distinctly darker (usually nearly completely black) dorsally.

Female

7.5–9.5 mm (this study; Schmidt 1997). Head, except flagellum, completely pale; pterostigma pale; hind femur completely pale or somewhat brown dorsally and ventrally; hind tibia pale with dorsal brown or black margin; thorax completely pale or with some black markings; abdomen nearly completely pale or terga with dorsal black flecks decreasing in size from base to apex; valvula 3 pale with brown or black external margin; cerci basally pale; valvula 3 asymmetrical in lateral view, ventrally distinctly more curved than dorsally. Lamnium 1.9–2.3 times as long as radix (DEI-GISHym80679, ZMUO.037286).

Male

6.5–7.5 mm.

Type material examined

Lectotype *Amauronematus rufus*

RUSSIA – Irkutskaja oblast • ♀; Irkutsk; 52.29° N, 104.24° E; B.E. Jakowleff leg.; SDEI, DEI-GISHym12529.

Lectotype *Nematus exoletus*, here designated

RUSSIA • ♀; in promontoriis Uralensibus [in the foothills of the Ural]; ZMHB, GBIF-GISHym2770.

Host plants

Salix pentandra.

Genetics

COI

Based on 6 specimens, maximum within-species distance is 1.37% and the nearest neighbours, diverging by a minimum of 0%, are *Euura hartigi*, *E. histrio*, *E. schlueteri*, *E. amacula*, *E. betulae*, *E. nuorbinjargi*, *E. septentrionalis*, *E. striata*, *E. tenuis*, and *E. stordalensis*.

Nuclear

Based on 6 specimens, maximum within-species distance is 1.22% (0.6% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.17%, is *Euura striata*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Russia.

225 *Euura schlueteri* (Enslin, 1915)

Figs 243, 463

Amauronematus schlueteri Enslin, 1915: 405–406. Lectotype designated by Schmidt (1997).

Amauronematus lundbohmi Malaise, 1921b: 119–120. Lectotype designated below. Synonymy by Lindqvist (1941b).

Amauronematus uliginosae Malaise, 1921b: 122–123. Lectotype designated below. Synonymy by Lindqvist (1941b).

Amauronematus squamosus Lindqvist, 1959d: 14. Holotype ♀ (<http://id.luomus.fi/GL.2775>, MZH), not examined. Type locality: Finland, Utsjoki Outakoski. Synonymy by Benson (1962).

Diagnosis

Its characteristically short valvula 3 is the best morphological character for recognizing *E. schlueteri*, but this distinction is not always clear with respect to the other species with similar colouration (particularly *E. striata*). The unusual host (*Vaccinium*) for the *Euura histrio* group and nuclear data additionally support the distinctness of the species. Males might not be clearly distinguishable from most of the other species.

Type material examined

Lectotype *Amauronematus schlueteri*

SWEDEN – Lule Lappmark • ♀; Njunjes; 66.96° N, 17.45° E; 30 Jun. 1914; Schlüter leg.; ZSM, GBIF-GISHym3056.

Lectotype *Amauronematus lundbohmi*, here designated

SWEDEN – Torne Lappmark • ♀; Torneträsk; 68.22° N, 19.74° E; 400 m a.s.l.; R. Malaise leg.; NHRS, NHRS-HEVA000003924.

Notes

Sawsheath about 0.9–1.0 times as long as hind femur with trochantellus in the lectotype.

Lectotype *Amauronematus uliginosae*, here designated

SWEDEN – Uppland • ♀; Resarö; 59.42° N, 18.35° E; R. Malaise leg.; NHRS, NHRS-HEVA000003929.

Notes

Sawsheath of lectotype about 0.8–0.9 times as long as hind femur with trochantellus.

Host plants

Vaccinium myrtillus, *V. uliginosum* (Schmidt 1997).

Genetics

COI

Based on 10 specimens, maximum within-species distance is 0.76% and the nearest neighbours, diverging by a minimum of 0%, are *Euura rufa*, *E. striata*, *E. stordalensis*, *E. hartigi*, and *E. histrio*.

Nuclear

Based on 8 specimens, maximum within-species distance is 0.28% (0.3% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.37%, is *Euura striata*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, and Sweden.

226 *Euura septentrionalis* (Saarinen, 1950)

Figs 249, 464

Amauronematus septentrionalis Saarinen, 1950b: 54–58.

Nematus taiganus Zhelochovtsev, 1988: 98. Synonymy by Schmidt (1997).

Diagnosis

Morphologically very similar to *E. striata* and *E. tenuis*. Lamnium 1.9–2.2 times as long as radix seems to distinguish the females from those of *E. striata* (usually 1.6–1.7 times as long). *Euura tenuis*

seems to be usually somewhat smaller (5.5–8.0(8.8) mm; this study; Schmidt 1997) and have a darker pterostigma (dark brown or grey) than *E. septentrionalis* ((7.1)8.0–9.7 mm, pterostigma centrally pale brown; this study; Schmidt 1997) but otherwise morphological differences between the species are unclear. Nuclear data and the different host plants support separation of *E. septentrionalis* (*Betula*) from *E. tenuis* (*Salix*). Since the species is morphologically poorly defined, it is uncertain whether the holotype of *septentrionalis* is conspecific. The lancet of the holotype of *Euura betulae* (not reared; lamnium 1.5–1.6 times as long as radix) does not seem to fit with that of *E. septentrionalis*.

Valvula 3 rather narrow in dorsal view, asymmetrical in lateral view. Dorsal setae of annuli 3–4 shorter than half length of corresponding annulus. Lamnium 1.8–1.9 times as long as radix (based on Schmidt 1997), 2 (*taiganus* holotype), 2.1–2.2 (ZMUO.037302).

Type material examined

Holotype *Amauronematus septentrionalis*

FINLAND – **Inari Lapland** • ♀; Utsjoki, Outakoski; 69.61° N, 25.98° E; 10 Jun. 1947; A. Saarinen leg.; MZH, <http://id.luomus.fi/GL.2776>.

Holotype *Nematus taiganus*

RUSSIA – **Magadan oblast** • ♀; Magadan; 59.56° N, 150.82° E; 16 Jun. 1963; A. Zhelochovtsev leg.; ZIN, DEI-GISHym89536.

Notes

The holotype of *taiganus* resembles the holotype of *septentrionalis* very closely.

Host plants

Betula nana.

Genetics

COI

Based on 10 specimens, maximum within-species distance is 1.98% and the nearest neighbours, diverging by a minimum of 0%, are *Euura tota*, *E. amacula*, *E. betulae*, *E. histrio*, *E. nuorbinjargi*, *E. rufa*, *E. striata*, and *E. tenuis*.

Nuclear

Based on 10 specimens, maximum within-species distance is 0.24% (0.49% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.36%, is *Euura histrio* group specimen ZMUO.045035 (perhaps *E. striata*).

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Norway, Russia, and Sweden.

227 *Euura stenogaster* (Förster, 1854)

Figs 244, 465

Nematus stenogaster Förster, 1854a: 339–341. Neotype designated by Schmidt (1997).

Nematus trifurcatus W.F. Kirby, 1882: 148–149. Syntypes ♀♀ (BMNH), not examined. Type locality: Canada, Hudson Bay.

Amauronematus analis Konow, 1897: 178. Lectotype designated by Schmidt (1997). Synonymy by Lindqvist (1972).

Amauronematus vescus MacGillivray, 1921b: 30. Holotype ♀ (INHS), not examined. Type locality: USA, Maine, Orono.

Amauronematus veneficus MacGillivray, 1923b: 169. Holotype ♀ (INHS), not examined. Type locality: USA, Alaska, Katmai.

Amauronematus festivus Saarinen, 1950b: 58–60. Synonymy by Schmidt (1997).

Diagnosis

Its usually mostly black body and structure of its lancet (middle part ventrally concave and slightly convex apically, lamnium 1.2–1.6 times as long as radix) enables identification of the species.

Female

7.0–8.9 mm (this study; Schmidt 1997). Pterostigma pale; tegula mostly pale; hind femur black; hind tibia black or partly pale; mesepisternum black or with weak pale markings; abdomen dorsally black, laterally and sometimes ventrally pale; valvula 3 black and narrow in dorsal view, usually asymmetrical in lateral view; lamnium 1.2–1.6 times as long as radix (neotype, DEI-GISHym4855, ZMUO.030855).

Type material examined

Neotype *Nematus stenogaster*

GERMANY • ♀; Berlin area; 52° N, 13° E; C. Schirmer leg.; ZSM, GBIF-GISHym3057.

Lectotype *Amauronematus analis*

RUSSIA – Irkutskaja oblast • ♂; Irkutsk; 52.29° N, 104.24° E; SDEI, GBIF-GISHym4091.

Holotype *Amauronematus festivus*

FINLAND – Häme • ♀; Loppi; 60.72° N, 24.44° E; 22 May 1943; A. Saarinen leg.; MZH, <http://id.luomus.fi/GL.3367>.

Host plants

Salix repens, *S. aurita*.

Genetics

COI

Based on 6 specimens, maximum within-species distance is 1.52% and the nearest neighbours, diverging by a minimum of 0%, are *Euura histrio* and *E. tota*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.66% (0.31% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.35%, is *Euura histrio*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Germany, and Russia. The records from North America require confirmation.

228 *Euura striata* (Hartig, 1837)

Figs 246–247, 466–468

Nematus striatus Hartig, 1837: 191. Lectotype designated by Saarinen (1950b).

Amauronematus subnitens Saarinen, 1950b: 49–54. **Syn. nov.**

Amauronematus mimus Schmidt, 1997: 285–286. Secondary homonym of *Pteronus mimus* Konow, 1903 [= *Euura mimus* (Konow, 1903)]. **Syn. nov.**

Amauronematus subfuscus Schmidt, 1997: 294. Holotype ♀ (<http://id.luomus.fi/GL.3732>, MZH). Type locality: Toivakka [688: 45], Finland. **Syn. nov.**

Euura mimator Schmidt, 2014 in Prous *et al.* 2014: 52. Replacement name for *Amauronematus mimus* Schmidt, 1997.

Diagnosis

This common species is very variable in colouration (from mostly black to extensively pale), and we have mainly delimited it using nuclear data. Although also genetically variable and not monophyletic, there is little doubt that most of the specimens we have identified as *E. striata* share the same gene pool, as indicated by the existence of highly heterozygous females. The genetic distances between the heterozygous females are small (0–0.88%, average 0.38%), while distances to the other species are larger (average distance 1.1%, minimum 0.15%), except to *E. propinquator* (minimum distance 0.05%) and *E. tenuis* (minimum distance 0%). The genetic distances between the haploid males (9, one of them a haploid larva) are large (average distance 1%), but these divergent gene variants co-exist in diploid females. The genetic variability is so large that a few conserved nuclear genes are enough to identify (nearly) every specimen. In colouration, *E. striata* can be similar to *E. amacula*, *E. betulae*, *E. hartigi*, *E. propinquator*, *E. septentrionalis*, *E. stenogaster*, *E. tenuis*, *E. tota*, and *E. histriato* sp. nov. Its lancet (ventrally concave, lamnium usually 1.6–1.7 times as long as radix) and valvula 3 (in dorsal view gradually narrowing and usually rather acute) can be used to separate *E. striata* from most of these species (see the relevant characters under *E. amacula*, *E. hartigi*, *E. propinquator*, *E. stenogaster*, *E. tota*, and *E. histriato*). Morphological differences from *E. betulae*, *E. septentrionalis*, and *E. tenuis* are less clear. The lamnium of *Euura septentrionalis* is 1.9–2.2 times as long as the radix, it feeds on *Betula*, and is also supported by differences in nuclear gene sequences. The lancet of *E. betulae* may be slightly different (ventrally slightly concave in middle part and slightly convex apically, lamnium 1.5–1.6 times as long as radix), but a clearer difference is evident in nuclear genes if the specimen DEI-GISHym80673 is correctly associated with the holotype of *betulae*. *Euura tenuis* may also have a slightly different lancet (lamnium 1.9 times as long as radix), usually darker pterostigma (dark brown or grey), and might have different host preferences (*Salix glauca*, *S. lapponum* and maybe *S. lanata*), but is genetically not clearly different. However, some specimens, partly reared from grey willows, are genetically somewhat more distant to *E. striata* and *E. tenuis* (lancets Figs 250–251, penis valve Fig. 471). They have lancets more similar to *E. tenuis* (lamnium 1.8 times as long as radix, e.g., in ZMUO.046519), but a pale brown pterostigma as in *E. striata*.

Lamnium 1.4 times as long as radix (straight or slightly ventrally convex; ZMUO.035392), ?1.4–1.5 (GBIF-GISHym3058), 1.5–1.6 (DEI-GISHym21340), 1.6 (DEI-GISHym12566, DEI-GISHym84235, GL.3827), 1.6–1.7 (DEI-GISHym84211, DEI-GISHym12022).

Type material examined

Lectotype *Nematus striatus*

GERMANY • ♀; Berlin area; 52° N, 13° E; ZSM, GBIF-GISHym3058.

Holotype *Amauronematus subnitens*

FINLAND – Inari Lapland • ♀; Utsjoki, Outakoski; 69.61° N, 25.98° E; 21 Jun. 1947; A. Saarinen leg.; MZH, <http://id.luomus.fi/GL.3369>.

Notes

Lancet most similar to *E. amacula* (lamnium 2 times as long as radix based on Schmidt 1997), otherwise most similar to *E. striata* (DEI-GISHym84235, ZMUO.035556).

Holotype *Amauronematus mimus*

FINLAND – Häme • ♀; Pälkäne; 61.335° N, 24.272° E; 22 May 1965; J. Kangas leg.; MZH, <http://id.luomus.fi/GL.2513>.

Notes

Lancet most similar to *E. subfusca*. Lamnium 1.7 (based on Schmidt 1997) or 1.8–1.9 (holotype) times as long as radix. Holotype most similar to ZMUO.046523, ZMUO.063032.

Holotype *Amauronematus subfuscus*

FINLAND – Central Finland • ♀; Toivakka [688: 45]; 62.098° N, 26.082° E; 6 Jun. 1973; E. Tiihonen leg.; MZH, <http://id.luomus.fi/GL.3732>.

Notes

Serrulae like in *E. elbrus*, *E. septentrionalis*, *E. striata*. Lamnium 1.7–1.8 times as long as radix (holotype). Most similar to ZMUO.045409.

Host plants

Salix aurita (Schmidt 1997), *S. caprea*, *S. myrsinifolia*, *S. phylicifolia*.

Genetics

COI

Based on 30 specimens, maximum within-species distance is 2.43% and the nearest neighbours, diverging by a minimum of 0%, are *Euura rufa*, *E. schlueteri*, *E. stordalensis*, *E. amicula*, *E. nuorbinjargi*, *E. tenuis*, *E. tota*, *E. betulae*, *E. histrio*, and *E. septentrionalis*.

Nuclear

Based on 30 specimens, maximum within-species distance is 1.37% (1.41% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0%, is *Euura tenuis*. 0% distance is based on a pair of heterozygous females ZMUO.046518 (*E. tenuis*) and DEI-GISHym31412 (*E. striata*) that have only NaK and POL2 available. The heterozygous positions are not identical though. There is one fixed and several almost fixed differences between the species in the HSP90 h1 gene.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Germany, Russia, and Sweden.

229 *Euura tenuis* (Schmidt, 1997)

Figs 248, 469

Amauronematus tenuis Schmidt, 1997: 295–296.

Diagnosis

Most similar to *E. striata* and *E. septentrionalis*. Its usually dark brown or dark grey pterostigma and usually small size (5.5–8.0(8.8) mm) helps to recognize the species. *Euura tenuis* is genetically very close to *E. striata* and considering the similarly weak morphological differences between them, conspecificity cannot be excluded. Lamnium 1.8–1.9 times as long as radix (ZMUO.046512, holotype).

Type material examined

Holotype *Amauronematus tenuis*

FINLAND – Inari Lapland • ♀; Kevo; 69.76° N, 27.01° E; 7 Jul. 1989; S. Schmidt leg.; MZH, <http://id.luomus.fi/GL.3370>.

Host plants

Salix glauca, *S. lapponum*, and possibly *S. lanata* (Schmidt 1997).

Genetics

COI

Based on 9 specimens, maximum within-species distance is 0.91% and the nearest neighbours, diverging by a minimum of 0%, are *Euura amacula*, *E. betulae*, *E. histrio*, *E. nuorbinjargi*, *E. rufa*, *E. septentrionalis*, *E. striata*, and *E. tota*.

Nuclear

Based on 9 specimens, maximum within-species distance is 0.48% (1.19% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0%, is *Euura striata* (DEI-GISHym31412). See notes under *Euura striata*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Norway.

230 *Euura tota* (Saarinen, 1950)
Figs 245, 470

Amauronematus histrio ab. *totus* Lindqvist, 1941a: 67. Infrasubspecific and therefore unavailable name. *Amauronematus totus* Saarinen, 1950b: 58. Holotype ♀ not found in MZAT or MZH, possibly lost. Type locality: Finland, Suomussalmi.

Diagnosis

Mostly black body (usually?) and lancet (ventrally concave in middle part and slightly convex apically, short setae, lamnium 1.6–1.8 times as long as radix [<http://id.luomus.fi/GP.110201>, DEI-GISHym84215, ZMUO.078382]) distinguishes the species from the others in the *histrio* group. Both males and females can have a reddish band on the abdomen like *E. histrio*, but females of *E. tota* have black tegula and mesepisternum unlike females of *E. histrio* (pale tegula and usually pale mesepisternum). Males with a red band might not be distinguishable from those of *E. histrio*.

The blunt valvula 3 in lateral view and pointed and smooth scutellum are shared with and typical for *histrio* (Lindqvist 1941a: 67). There is an empty place with a label “*totus*” and no pin holes in the MZAT collection (Anssi Teräs pers. com.).

Host plants

Salix lapponum.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 1.38% and the nearest neighbours, diverging by a minimum of 0%, are *Euura histrio*, *E. stenogaster*, *E. septentrionalis*, *E. amacula*, *E. nuorbinjargi*, *E. striata*, and *E. tenuis*.

Nuclear

Based on 4 specimens, maximum within-species distance is 0.76% (0.51% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.5%, is *Euura histrio*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Sweden.

231 *Euura histriato* Prous, Liston & Mutanen sp. nov.
urn:lsid:zoobank.org:act:DF55C684-1E05-4B81-9BBF-4C9B3893E1F1
Figs 85, 252

Diagnosis

Colour pattern (head extensively pale, mesepisternum dorsally pale, abdomen ventrally and apically pale), valvula 3 (broad in dorsal view) and lancet (ventrally concave, lamnium 2.2 times as long as radix [DEI-GISHym12305]) distinguishes the species from the others in the *histrio* group.

Etymology

The species name, a noun in apposition, is formed from a combination of the first letters of the names of *histrio* and *E. striata*, related species which can be found on the same host plant (*Salix caprea*). The final letter ‘o’ is chosen to provide a distinctive and euphonious name, although its correct use in Latin is normally restricted to second declension nouns in the dative.

Type material

Holotype

BULGARIA – **Rila Mts** • ♀; 2 km SW of Borovets; 42.257° N, 23.586° E; 1500 m a.s.l.; 15 May 2022; A. Liston and M. Prous leg.; SDEI, DEI-GISHym12305.

Paratypes

BULGARIA – **Rila Mts** • 1 ♀; same data as for holotype; SDEI, DEI-GISHym12309.

FINLAND – **Regio aboensis** • 2 ♀♀; Rymättylä, Aaslaluoto; 60.3114° N, 21.9766° E; 14 Jul. 2017 [larvae]; M. Mutanen leg.; ex larvae *Salix caprea*; ZMUO, ZMUO.033823, ZMUO.033826.

A female specimen from Norway (bf-sym-00517 in BOLD) that has an identical barcode sequence might also belong to this species.

Description

Female

Body 8.1–9.0 mm. Colour black with extensive pale markings. Whitish are base of mandibles, labrum, clypeus, malar space, supraclypeal area, tegula and most of pronotum; labial and maxillary palps brown; apex of mandibles dark reddish; reddish brown are inner and outer orbits, temples, postocellar area, frontal area in part, dorsal half of mesepisternum, median mesoscutal lobe laterally and posteriorly, lateral mesoscutal lobes medially and posterolaterally, and most or middle part of mesoscutellum; most of metapleuron yellowish; fore- and middle femora, tibiae, and tarsi mostly yellowish or dorsally black; hind tibia and tarsus completely black or hind tibia anteriorly and posteriorly slightly yellowish; hind femur anteriorly and posteriorly yellowish; trochanters and trochantelli extensively or mostly yellowish; coxae apically extensively or slightly yellowish; pterostigma centrally pale brown; abdomen ventrally, laterally, and apically (terga 8–10 completely or nearly completely) yellowish; in lateral view, valvula 3 centrally slightly or extensively yellowish; cerci basally slightly yellowish; other parts black. Clypeus distinctly emarginate; frontal area between antennae flat, not distinctly angulate (“*Amauronematus*-type”); postocellar area about 1.5–1.8 times as broad as long; antenna about as long as costa; mesepisternum matt; claws bifid; valvula 3 in dorsal view slightly tapering, slightly longer than broad at base, without posterior invagination. Lancet with 15–17 serrulae; lamnium 2.2 times as long as radix; serrulae triangular with indistinct microdenticles, not strongly protruding, and without cypsellae; spine-like setae about half as long as annulus length, absent on basal most and apical 3–4 annuli.

Male

Unknown.

Host plants

Salix caprea.



Fig. 85. *Euura histriato* Prous, Liston & Mutanen sp. nov. A–E. Holotype (DEI-GISHym12305). F–G. Paratype DEI-GISHym12309.

Genetics

COI

Based on 4 specimens, maximum within-species distance is 0% and the nearest neighbours, diverging by a minimum of 0.3%, are *Euura hartigi*, *E. striata*, *E. opacipleuris*, and *E. variator*. BOLD:AEA4613.

Nuclear

Based on 3 specimens, maximum within-species distance is 0.05% (0.11% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.59%, is *Euura amacula*.

Distribution and material examined

Palaeartic. Specimens studied are from Bulgaria and Finland.

232 *Euura humeralis* group

Two species are recognized in Europe. A third species, *E. telos* from the East Palaeartic (see under Notes about species outside the West Palaeartic), also belongs to the group.

233 *Euura aceroserra* Taeger & Blank, 2014

Figs 253, 492

Amauronematus acutiserra Lindqvist, 1974b: 19. Secondary homonym of *Pontania acutiserra* Lindqvist, 1949 [= *Euura acutiserra* (Lindqvist, 1949)].

Euura aceroserra Taeger & Blank, 2014 in Prous *et al.* 2014: 52. Replacement name for *Amauronematus acutiserra* Lindqvist, 1974.

Diagnosis

Females are very similar to *E. humeralis*. Valvula 3 seems to be longer than in *E. humeralis* and the ventral margin is angled in lateral view (rounded in *E. humeralis*). Males are also very similar externally, but the valviceps is dorsally more or less straight in *E. aceroserra* and strongly convex in *E. humeralis*. Also, the valvispina may be more elongate in *E. aceroserra* and stouter in *E. humeralis*.

Type material examined

Holotype *Amauronematus acutiserra*

NORWAY – Troms • ♀; Helligskogen; 69.20° N, 20.72° E; 19 Jun. 1967; O. Ranin leg.; MZH, <http://id.luomus.fi/GL.5117>.

Host plants

Salix sp. based on ex larva reared female ZMUO.043917.

Genetics

COI

Based on 3 specimens, maximum within-species distance is 0% and the nearest neighbours, diverging by a minimum of 0.61%, are *Euura humeralis* and *E. telos*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.2% (0.34% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.41%, is *Euura humeralis*.

Distribution and material examined

Palaeartic. Specimens studied are from Finland, Norway, and Sweden. May be restricted to arctic or subarctic habitats, while the closely related *E. humeralis* has a more southern distribution.

234 *Euura humeralis* (Serville, 1823)

Figs 254, 493

Nematus humeralis Serville, 1823: 68. No types found in MNHN (Lacourt 2000). Type locality: France, Soissonnais.

Nematus incanus Förster, 1854a: 302–304. Lectotype designated below. Synonymy by Konow (1895).

Diagnosis

Very similar to *E. aceroserra*, see differences discussed under that species.

Type material examined

Lectotype *Nematus incanus*, here designated

GERMANY – Nordrhein-Westfalen • ♀; Aachen area; 50.77° N, 6.09° E; ZSM, GBIF-GISHym3050.

Host plants

Salix spp. such as *S. aurita* (Kontuniemi 1960), *S. caprea* (Kangas 1985), *S. cinerea* (Benander 1966), *S. starkeana* Willd.

Genetics

COI

Based on 10 specimens, maximum within-species distance is 2.45% and the nearest neighbours, diverging by a minimum of 0.61%, are *Euura aceroserra* and *E. telos*.

Nuclear

Based on 6 specimens, maximum within-species distance is 0.54% (0.56% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.41%, is *Euura aceroserra*.

Distribution and material examined

Palaearctic. Specimens studied are from Austria, Bulgaria, Finland, France, Germany, and Sweden.

235 *Euura longiserra* group

Although the group is not monophyletic based on nuclear genes (*E. abnormis*, *E. longicauda*, and a North American species form a separate clade from the others), it is well supported by morphology (long valvula 3 and lancet usually with papilliform serrulae, malar space about 1.5–2.5 times as long as diameter of front ocellus) and in most part also based on mitochondrial COI. While nearly all sampled (Palaearctic) specimens of the *longiserra* group form a strongly supported clade based on COI, two females from California (2300–2600 m a.s.l.), USA, group with *Euura brunnea*. Morphologically, these females from California do not seem to be distinguishable from those of *E. neglecta*, but the nuclear genes of one specimen group it with *E. abnormis* and *E. longicauda*. Because the current nuclear data do not strongly contradict the monophyly of the *longiserra* group, it seems possible that sequencing of additional genes could reveal stronger support. The ambiguous lack of support based on genetic data may be due to incomplete lineage sorting and historical introgressions.

236 *Euura abnormis* (Holmgren, 1883)

Figs 255, 494

Nematus abnormis Holmgren, 1883: 148, pl. 3 fig. 16. Syntypes ♀♀ (NHRS), not examined. Type locality: Russia, Novaja Zemlya, Besimannija Bay.

Amauronematus glacialis Jakowlew, 1891: 26–27. **Syn. nov.**

Amauronematus tolli Konow, 1907: 20–21, 24, pl. Lectotype designated by Muche (1975). Synonymy by Benson (1960).

Amauronematus aulatus MacGillivray, 1919: 16–17. Synonymy by Benson (1962).

Diagnosis

Mostly black abdomen, black metafemur and often also black metatibia (sometimes the body is nearly completely black) distinguish the females from the others in the group. Females are sometimes short-winged. Males are nearly completely black, apex of pseudoceps of the penis valve has a long spine or filament that is strongly curved dorsally, and a valvispina is missing. The pseudoceps of three other species of *Euura* has a long spine or filament-like extension. In *E. longicauda* the extension is also curved dorsally, but it is thinner and a valvispina is present. In *E. cornuta* (*E. viduata* group) and *E. amentorum* (*E. amentorum* group) the extension of the pseudoceps is more or less straight.

Type material examined

Holotype *Amauronematus glacialis*

RUSSIA • ♀; Novaja Zemlya; Grinewetski leg.; ZIN, DEI-GISHym30222.

Lectotype *Amauronematus tolli*

RUSSIA • ♀; Siber. bor. or. [north-east Siberia: around mouth of the River Lena, and from the New Siberian Islands]; SDEI, GBIF-GISHym4085.

Holotype *Amauronematus aulatus*

USA – Alaska • ♀; Barter Island; 70.121° N, 143.663° W; 16 Jun. 1914; D. Jenness leg.; CNC, CNC957884.

Host plants

Salix herbacea, *S. polaris*. Oviposition is into the leaf blade, where a conspicuous procecidium develops on the upper side. The young larva at first feeds inside this, but later leaves and feeds from the leaf edge. Interestingly, sequencing of gut contents of one swept larva (DEI-GISHym80086) suggested that it had been feeding on *Bistorta* sp. (presumably *B. vivipara*). In addition, we noticed that numerous young larvae (together with *E. obscuripes*) originally collected from *Salix herbacea* fed readily on other willows (e.g., *S. phylicifolia*) and even *B. vivipara* after the *S. herbacea* had been consumed. Because of the small size of the dwarf willows, the externally-feeding larvae on these plants generally need to move around to find sufficient food, and acceptance of other plant species nearby may be an adaptation that helps them to cope with this.

Genetics

COI

Based on 10 specimens, maximum within-species distance is 0.76% and the nearest neighbour, diverging by a minimum of 0.76%, is *Euura longicauda*.

Nuclear

Based on 8 specimens, maximum within-species distance is 0.79% (0.71% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.89%, is *Euura neglecta*.

Distribution and material examined

Holarctic. Specimens studied are from Finland, Norway, Russia, Sweden, United Kingdom, and the USA.

237 *Euura eiteli* (Saarinen, 1948)

Figs 260, 496

Amauronematus eiteli Saarinen, 1948: 82–83.

Diagnosis

Females have more or less the same nearly completely or mostly pale orange colouration as *E. longiserra* and most *E. neglecta*, but the serrulae of *E. eiteli* are almost flat (distinctly more protruding in *E. longiserra* and somewhat more protruding in *E. neglecta*). Males are not known for certain: the only candidate (DEI-GISHym84213) seems to be closest to females of *E. eiteli* based on some analyses of nuclear data, but the large genetic distance might also indicate the presence of additional species in the *longiserra* group. While penis valves of *E. longiserra*, *E. munda*, and *E. neglecta* are very similar to each other, DEI-GISHym84213 does seem to be different (Fig. 496). The paravalva is basally about as broad as apically in DEI-GISHym84213, while basally narrower than apically in *E. longiserra*, *E. munda*, and *E. neglecta*.

Type material examined

Holotype *Amauronematus eiteli*

FINLAND – Central Finland • ♀; Pihtipudas; 63.36° N, 25.55° E; 7 Jun. 1945; A. Saarinen leg.; MZH, <http://id.luomus.fi/GL.3375>.

Host plants

Salix pentandra (Zinovjev & Vikberg 1998; Nyman *et al.* 2006).

Genetics

COI

Based on 3 specimens, maximum within-species distance is 1.98% and the nearest neighbours, diverging by a minimum of 0%, are *Euura longiserra*, *E. munda*, and *E. neglecta*. After excluding the male specimen (DEI-GISHym84213), which may be a different species, maximum within-species distance is 1.98% and the nearest neighbour, diverging by a minimum of 0.15%, is *E. neglecta*.

Nuclear

Based on 3 specimens, maximum within-species distance is 0.64% (0.04% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.29%, is *Euura neglecta*. After excluding the male specimen (DEI-GISHym84213), which may be a different species, maximum within-species distance is 0.02% (0.04% based on haplotypes of individual females) and the nearest neighbour, diverging by a minimum of 0.49%, is *E. neglecta*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Russia.

238 *Euura longicauda* (Hellén, 1948)

Figs 256, 495

Nematus (Amauronematus) longicauda Hellén, 1948: 113–114. Lectotype designated below.

Diagnosis

Females are most similar in colouration to *E. munda*, but with distinctly more pronounced serrulae. Serrulae are similar to *E. longiserra*, although apparently narrower, but *E. longicauda* is dorsally also

darker (mostly black, *E. longiserra* nearly completely or mostly pale). Males possess a valvispina and a long and thin apical extension of pseudoceps, while a valvispina is missing in the other three species of *Euura* that have a long apical extension of pseudoceps (*E. abnormis*, *E. cornuta*, and *E. amentorum*).

Type material examined

Lectotype *Nematus (Amauronematus) longicauda*, here designated
FINLAND – Lapin Lääni • ♀; Kilpisjärvi; 69.04° N, 20.81° E; W. Hellén leg; MZH, <http://id.luomus.fi/GL.3377>.

Host plants

Salix glauca, *S. lanata* (Zinovjev & Vikberg 1998).

Genetics

COI

Based on 7 specimens, maximum within-species distance is 1.67% and the nearest neighbour, diverging by a minimum of 0.76%, is *Euura abnormis*.

Nuclear

Based on 3 specimens, maximum within-species distance is 0.32% (0.22% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.94%, is *Euura abnormis*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Norway, and Sweden.

239 *Euura longiserra* (Thomson, 1863) Figs 257, 497

Nematus longiserra Thomson, 1863: 632. Lectotype designated by Saarinen (1948).

Nematus leucodous Zaddach, 1884 in Brischke 1884: 132. Holotype ♂, probably destroyed (Blank & Taeger 1998). Type locality: Russia, Kaliningradskaya oblast, Wohlfr.-Zinten [Kornevo]. Synonymy by Konow (1890).

Diagnosis

The usually almost completely orange body (but sometimes dorsally extensively black), and pronounced and broad papilliform serrulae distinguish the females from the others in the *longiserra* group. Based on penis valves, males might not be clearly distinguishable from *E. munda* and *E. neglecta*, but sternum 9 might usually (?) be black in *E. longiserra* (pale in *E. munda* and *E. neglecta*).

Type material examined

Lectotype *Nematus longiserra*
SWEDEN – Skåne • ♀; Kungsmarken, Södra Sandby; 55.72° N, 13.34° E; MZLU, MZLU2017292.

Host plants

Salix aurita, *S. caprea* (Zinovjev & Vikberg 1998), *S. cinerea* (Roller & Macek 2017; this study), and *S. starkeana*.

Genetics

COI

Based on 6 specimens, maximum within-species distance is 0.91% and the nearest neighbours, diverging by a minimum of 0%, are *Euura eiteli* (DEI-GISHym84213), *E. munda*, and *E. neglecta*.

Nuclear

Based on 6 specimens, maximum within-species distance is 0.3% (0.39% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.47%, is *Euura neglecta*.

Distribution and material examined

Palaearctic. Specimens studied are from Bulgaria, Finland, Germany, Sweden, and the United Kingdom.

240 *Euura munda* (Konow, 1895) Figs 259, 498

Amauronematus mundus Konow, 1895: 167, 172–173. Lectotype designated below.

Diagnosis

Females are most similar to darker specimens of *E. neglecta*. Terga 1–8 are dorsally fully black in *E. munda*, while extensively pale starting at least from tergum 7 in *E. neglecta*. The mesepisternum is usually ventrally black in *E. munda* and usually completely pale in *E. neglecta*. Black and brown or greyish legs in males might distinguish them from males of *E. neglecta* which usually have extensively reddish or orange legs. Sternum 9 might usually (?) be black in *E. longiserra* males, but pale in *E. munda*.

Type material examined

Lectotype *Amauronematus mundus*, here designated
GERMANY – Brandenburg • ♀; Finkenkrug; 52.56° N, 13.03° E; 30 m a.s.l.; SDEI, GBIF-GISHym4096.

Host plants

Salix repens, including *S. repens rosmarinifolia*.

Genetics

COI

Based on 13 specimens, maximum within-species distance is 2.28% and the nearest neighbours, diverging by a minimum of 0%, are *Euura eiteli* (DEI-GISHym84213), *E. longiserra*, and *E. neglecta*.

Nuclear

Based on 11 specimens, maximum within-species distance is 0.32% (0.2% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.32%, is *Euura neglecta*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, France, and Germany.

241 *Euura neglecta* (W.F. Kirby, 1882) Figs 258, 499–500

Nematus neglectus W.F. Kirby, 1882: 147. Syntypes ♀♂ (BMNH), not examined. Type locality: Canada, Hudson Bay, St Martin's Falls.

Amauronematus spiniserra Malaise, 1921b: 119. Synonymy by Lindqvist (1972).

Amauronematus intermedius Malaise, 1931b: 39–40. Lectotype designated by Saarinen (1948). Synonymy by Benson (1962).

Diagnosis

Externally, females are most similar to *E. longiserra* and *E. eiteli*. Serrulae are larger and distinctly more protruding in *E. longiserra*, but almost flat in *E. eiteli* (intermediate in *E. neglecta*). Darker females

of *E. neglecta* still seem to be paler (abdominal terga dorsally extensively pale starting at least from tergum 7 and mesepisternum usually completely pale) than *E. munda* females (terga 1–8 dorsally fully black, mesepisternum is usually ventrally black). Usually extensively reddish or orange legs and pale sternum 9 in males might distinguish them from *E. munda* and *E. longiserra*.

Type material examined

Holotype *Amauronematus spiniserra*

SWEDEN – **Torne Lappmark** • ♀; Torneträsk; 68.22° N, 19.74° E; 400 m a.s.l.; R. Malaise leg.; NHRS, NHRS-HEVA000003851.

Lectotype *Amauronematus intermedius*

RUSSIA – **Kamchatka oblast** • ♀; Nischne-Kamtchatsk, Lake Azhabachye; 56.166° N, 161.893° E; R. Malaise leg.; NHRS, NHRS-HEVA000006362.

Host plants

Salix phylicifolia. According to Kangas (1985) also *S. aurita* and *S. pentandra*.

Genetics

COI

Based on 22 specimens, maximum within-species distance is 2.89% and the nearest neighbours, diverging by a minimum of 0%, are *Euura munda*, *E. eiteli* (DEI-GISHym84213), and *E. longiserra*.

Nuclear

Based on 21 specimens, maximum within-species distance is 0.95% (0.46% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.29%, is *Euura eiteli* (DEI-GISHym84213).

Distribution and material examined

Holarctic. Specimens studied are from Finland, Russia, and Sweden.

242 *Euura opacipleuris* group

Closely related to the *histrion* and *variator* groups. Females have a narrow or triangular and pointed valvula 3 in dorsal view, long malar space (more than 2.0 times as long as diameter of front ocellus), and the lancet tends to be smaller (1.2–1.6 mm), less sclerotized and with thinner setae than in the *histrion* group (lancet length 1.4–2.6 mm), but is similar to the *variator* group. Valvula 3 in the *variator* group is in dorsal view less pointed at the apex and can appear rectangular. The malar space in the *histrion* group is usually less than 1.6 times as long as diameter of front ocellus. The lamnium is 2.5–3.2 times as long as the radix in the *variator* group, but 2.1–2.5 times as long in the *opacipleuris* group. Penis valves are not clearly distinguishable from the *histrion* group, but there seem to be slight differences to the *variator* group. The dorsal margin of the paravalva broadens more abruptly at the base of valvispina and the pseudoceps is narrower at its apex in the *variator* group than in the *opacipleuris* group. Two species are recognised.

243 *Euura opacipleuris* (Konow, 1895)

Figs 261–262, 472

Amauronematus opacipleuris Konow, 1895: 176. Lectotype designated by Oehlke & Wudowenz (1984).

Diagnosis

Closely related to *E. stordalensis*, but darker (nearly completely black) and valvula 3 is more triangular in dorsal view than in *E. stordalensis* (extensively brown around eyes, pale labrum, brownish tibia, and often extensively pale thorax). Lancets which we examined (DEI-GISHym12561, W17802) have clearly or somewhat longer setae (as in *E. stordalensis*) than the specimen mentioned by Vikberg (1970a), but otherwise they do not seem to be distinguishable. Differences in the penis valves are not clear. Based on current sampling, nuclear genes separate the Fennoscandian *stordalensis* from the Alpine *opacipleuris*, although this may not remain the case if specimens from a wider area are sequenced.

Type material examined

Lectotype *Amauronematus opacipleuris*

AUSTRIA • ♂; Tirol; SDEI, GBIF-GISHym4098.

Host plants

Salix reticulata L. (sequenced larva), and possibly other species of dwarf willow (Lacourt 1999).

Genetics

COI

Based on 3 specimens, maximum within-species distance is 4.1% and the nearest neighbour, diverging by a minimum of 0%, is *Euura variator*.

Nuclear

Based on 3 specimens, maximum within-species distance is 0.39% (0.5% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.36%, is *Euura stordalensis*.

Distribution and material examined

Palaearctic. Specimens studied are from Austria, Italy, and Switzerland.

244 *Euura stordalensis* (Strand, 1905)

Figs 263, 473

Nematus stordalensis Strand, 1905: 7–8. Lectotype designated by Vikberg (1970a).

Nematus marginifer Strand, 1905: 8. Synonymy by Benson (1962).

Amauronematus cogitatus MacGillivray, 1919: 15–16. Synonymy by Benson (1962).

Amauronematus speciosus Hellén, 1951b: 106–107. Lectotype designated by Vikberg (1970a). **Syn. nov.**

Diagnosis

Closely related to *E. opacipleuris*, see differences mentioned under that species.

Type material examined

Lectotype *Nematus stordalensis*

CANADA – Ellesmere Island • ♀; Havnefjorden, Havnen; 77.9° N, 81.7° W; 18 Jun. 1900; ZMUN, NHMO:1000200592/PR316VV.

Notes

Length 6.7 mm. Best morphological match is N13682 (about 6 mm and slightly darker).

Holotype *Nematus marginifer*

CANADA – Ellesmere Island • ♂; Beistadfjorden (Bunden av Kjölfjorden); 77.9° N, 81.7° W; 9 Jun. 1899; Simmons leg.; ZMUN, NHMO:1000199953/PR317VV.

Notes

Penis valve (Vikberg 1970a: fig. 7) not distinguishable from European specimens (e.g., DEI-GISHym12097).

Holotype *Amauronematus cogitatus*

USA – **Alaska** • ♀; Demarcation Point; 69.648° N, 141.233° W; 14 May 1914; F. Johansen leg.; emerged from cocoon 23 Jun. 1914; CNC, CNC1056982.

Lectotype *Amauronematus speciosus*

FINLAND – **Kittilä Lapland** • ♀; Muonio, Pallastunturi; 68.100° N, 23.999° E; 22 Jun. 1942; W. Hellén leg.; MZH, <http://id.luomus.fi/GL.2762>.

Host plants

Salix herbacea and possibly other dwarf willows.

Genetics

COI

Based on 9 specimens, maximum within-species distance is 1.67% and the nearest neighbours, diverging by a minimum of 0%, are *Euura rufa*, *E. schlueteri*, and *E. striata*.

Nuclear

Based on 8 specimens, maximum within-species distance is 0.76% (0.69% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.36%, is *Euura opacipleuris*.

Distribution and material examined

Holarctic. Specimens studied are from Canada, Finland, Norway, and the USA.

245 *Euura punicea* group s. str.

The group is defined based on genetic data, according to which the species are closely related. For the adults, there are no clear morphological characters that could define the group, but the larvae are darkly coloured, which is unusual in *Euura*.

246 *Euura berolinensis* (Muche, 1970)

Figs 273, 501

Pachynematus berolinensis Muche, 1970b: 105–107.

Amauronematus clypeatus Lindqvist, 1975: 16–17. Secondary homonym of *Pachynematus clypeatus* Marlatt, 1896 [= *Euura clypeata* (Marlatt, 1896)]. **Syn. nov.**

Amauronematus kevoensis Vikberg, 1980: 21–23. Synonymy by Taeger & Blank (1998).

Diagnosis

Its brown pterostigma, rather long and narrow valvula 3 in dorsal view and lancet distinguish the females from the others in the “*Amauronematus*” group. Lancet is most similar to *E. lindqvisti* (*aegra* group) and *E. ampla* (*toeniata* group). *Euura ampla* has darker pterostigma (black) and is generally darker (mostly black with whitish markings) than *E. berolinensis* (usually with extensive yellowish or reddish markings). Setae of the lancet in *E. ampla* are also shorter than in *E. berolinensis*. *Euura lindqvisti* is also usually darker than *E. berolinensis*, but also has a longer malar space (more than 1.4 times as long as diameter of front ocellus, less than 1.3 times in *E. berolinensis*). Penis valves (e.g., ventrally strongly curved valvura) can be reliably used to identify the males.

Type material examined

Holotype *Pachynematus berolinensis*

GERMANY – **Berlin** • ♂; Friedrichshagen; 52.45° N, 13.63° E; May 1964; H. Adam leg.; reared ex larva on *Betula*; SDEI, GBIF-GISHym3877.

Holotype *Amauronematus clypeatus*

RUSSIA – **Baikal** • ♀; Tjernorud; 22 May 1967; B.N. Verzhutskij leg.; MZH, <http://id.luomus.fi/GL.5125>.

Holotype *Amauronematus kevoensis*

FINLAND – **Inari Lapland** • ♀; Kevo; 69.76° N, 27.01° E; 2 Jul. 1971; T. Kontuniemi leg.; emerged 10 May 1972 ex larva on *Betula pubescens*; MZH, PR.552VV.

Host plants

Betula pubescens and probably also at least *B. pendula*. One generation per year.

Genetics

COI

Based on 4 specimens, maximum within-species distance is 2.43% and the nearest neighbours, diverging by a minimum of 0%, are *Euura punicea* and *E. ranini*.

Nuclear

Based on 5 specimens, maximum within-species distance is 1% (0.32% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.68%, is *Euura punicea*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Germany, and Russia.

247 *Euura punicea* (Christ, 1791)

Figs 274, 502

Tenthredo nigrata Retzius, 1783: 73. Described by indication on Degeer (1771: pl. 38 figs 2–4). Type material lost. Type locality: Sweden. Primary homonym of *Tenthredo nigrata* O.F. Müller, 1776 [= *Dolerus* (*Poodolerus*) *nigratus* (O.F. Müller, 1776)].

Tenthredo punicea Christ, 1791: 440–441. Described by indication on Degeer (1771: pl. 38 figs 2–4). Type material lost. Type locality: Sweden.

Tenthredo crocea Fabricius, 1804: 39. Syntypes, sex not stated. Type material probably lost. Type locality: France, Paris. Synonymy by Konow (1905b). Primary homonym of *Tenthredo crocea* Geoffroy in Fourcroy, 1785 [= *Hemichroa crocea* (Geoffroy, 1785)].

Nematus melanosternus Serville, 1823: 67. Replacement name for *Tenthredo nigrata* Retzius.

Nematus prototypus Förster, 1854a: 311–313. Lectotype designated below. Synonymy by Konow (1902b).

Amauronematus excellens Forsius, 1921: 30–32. Lectotype designated below. Synonymy by Taeger & Blank (1998).

Diagnosis

Mostly pale body (can be pink in life) and papilliform serrulae usually make identification of the females rather easy, but some specimens of *E. vittata* group with papilliform serrulae can be similarly pale. The darker cerci of the palest specimens of the *E. vittata* group (completely or nearly completely pale in

E. punicea) and the longer malar space (about as long as the front ocellus in *E. punicea*) distinguish them. Penis valves are most similar to the closely related *E. ranini*, but *E. punicea* seems to be paler (abdomen ventrally completely pale, only subgenital plate pale in *E. ranini*).

Type material examined

Lectotype *Nematus prototypus*, here designated

GERMANY – Nordrhein-Westfalen • ♂; Aachen area; 50.77° N, 6.09° E; ZSM, GBIF-GISHym3055.

Lectotype *Amauronematus excellens*, here designated

FINLAND – Uusimaa • ♀; Karislojo [Karjalohja]; 60.243° N, 23.723° E; 25–28 Jun. 1910; R. Forsius leg.; emerged 1911 ex larvae on *Salix caprea*; ZSM, GBIF-GISHym3048.

Host plants

A wide spectrum of *Salix* spp. One generation per year.

Genetics

COI

Based on 9 specimens, maximum within-species distance is 3.53% and the nearest neighbours, diverging by a minimum of 0%, are *Euura berolinensis*, *E. ranini*.

Nuclear

Based on 4 specimens, maximum within-species distance is 0.1% (0.28% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.68%, is *Euura berolinensis*.

Distribution and material examined

Palearctic. Specimens studied are from Bulgaria, Estonia, Finland, and Germany.

248 *Euura ranini* (Lindqvist, 1960)

Figs 275–276, 503

Amauronematus ranini Lindqvist, 1960b: 33–34.

Diagnosis

Females are most similar to *E. lethe* (*E. tunicata* group), that have a similar lancet. Mesepisternum and mesonotum may be paler (always with reddish markings?) and the basal annuli seem to be narrower than in *E. lethe* (mesepisternum and mesonotum always black?). Although serrulae of two Finnish specimens (including the holotype) of *ranini* and the sequenced specimen from the Russian Far East (DEI-GISHym80671) are somewhat different, externally no significant differences can be observed. The penis valve drawn by Lindqvist (1971a) matches well with the sequenced specimen from the Russian Far East and the nuclear sequences are nearly identical to a sequenced Finnish larva. The penis valves are most similar to *E. punicea*, but sterna 2–6 are (always?) black (pale in *E. punicea*).

Type material examined

Holotype *Amauronematus ranini*

FINLAND – Uusimaa • ♀; Helsing [Vantaa]; 60.30° N, 24.90° E; 17 May 1959; O. Ranin leg.; MZH, <http://id.luomus.fi/GL.2757>.

Host plants

Populus tremula. One generation per year.

Genetics

COI

Based on 3 specimens, maximum within-species distance is 0.76% and the nearest neighbours, diverging by a minimum of 0%, are *Euura berolinensis* and *E. punicea*.

Nuclear

Based on 3 specimens, maximum within-species distance is 0.18% (0.04% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.72%, is *Euura punicea*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Russia.

249 *Euura toeniata* group

The group is mostly defined based on genetics. Three species are recognized in the group, of which *E. ampla* can be identified quite reliably from the others in the group and from the other *Euura*. Because of black pterostigma (as in *E. ampla*) and other characters, *E. toeniata* can usually also be recognized from the other similar species, but sometimes the difference in pterostigma colouration is not clear compared to the very similar *E. obscuripes* (the third species in the group). Females of the *E. toeniata* group are similar also to *E. anthracina*, *E. hyperborea* (both with a pale pterostigma), and *E. distinguenda* (black pterostigma). The latter three species tend to have a shorter malar space (roughly 1.0–1.5 times as long as diameter of front ocellus) than the *E. toeniata* group (1.3–2.0 times as long) and narrower valvula 3 in dorsal view. In addition, females of *E. obscuripes* might sometimes be nearly indistinguishable from *E. variator* (*variator* group). Males can be very similar (including penis valves) to the *E. variator* and *E. vittata* groups.

250 *Euura ampla* (Konow, 1895) Figs 272, 478

Amauronematus amplus Konow, 1895: 184. Lectotype designated by Mucbe (1975).

Diagnosis

Black or rarely brown pterostigma, mostly black body with varying degree of whitish markings, valvula 3 (narrow and pointed in dorsal view), lancet (ventrally concave, 22–25 serrulae, short setae, apical serrulae practically without microdenticles, apical annuli perpendicular to serrulae), and penis valve (e.g., slightly curved valvispina at dorsal and ventral margins), and long malar space (1.3–2.0 times as long as diameter of front ocellus) enable identification of the species from the other *Euura*.

Type material examined

Lectotype *Amauronematus amplus*

GERMANY – Brandenburg • ♀; Fürstenberg in Mecklenburg; 53.183° N, 13.167° E; May 1887; F.W. Konow leg.; SDEI, GBIF-GISHym4089.

Host plants

Betula pendula *B. pubescens* (including ssp. *czerepanovii*).

Genetics

COI

Based on 11 specimens, maximum within-species distance is 1.52% and the nearest neighbours, diverging by a minimum of 0.3%, are *Euura obscuripes* and *E. toeniata*.

Nuclear

Based on 9 specimens, maximum within-species distance is 0.09% (0.11% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.37%, is *Euura toeniata*.

Distribution and material examined

Palearctic. Specimens studied are from Bulgaria, Finland, Germany, Russia, Slovakia, and Sweden.

251 *Euura obscuripes* (Holmgren, 1883)

Figs 268–270, 481–482

Nematus obscuripes Holmgren, 1883: 144–145, pl. 1 fig. 5. Lectotype designated below.

Amauronematus poppii Konow, 1904a: 260–261. Lectotype designated below. Secondary homonym of *Pontania poppii* Konow, 1904 [*Euura poppii* (Konow, 1904)]. **Syn. nov.**

Amauronematus humeralis var. *rufomacula* Malaise, 1931b: 44. Lectotype designated below. **Syn. nov.**

Amauronematus variabilis var. *sjoebloimi* Malaise, 1931b: 43–44. Lectotype designated below. **Syn. nov.**

Amauronematus tridentatus Malaise, 1931b: 48–49. **Syn. nov.**

Amauronematus carbonarius Hellén, 1951a: 71–72. **Syn. nov.**

Amauronematus enslini Lindqvist, 1959d: 8–9. Secondary homonym of *Pontania enslini* Zirngiebl, 1937 [*Euura crassipes* (Thomson, 1871)]. **Syn. nov.**

Amauronematus obesus Lindqvist, 1959d: 11–12. **Syn. nov.**

Amauronematus compactus Bogacheva, 1977: 87–88. Lectotype ♀ (ZMMU), designated by Zinovjev & Schmidt (1994), not examined. Type locality: Russia, Polar Urals, Kharp biological station. **Syn. nov.** 20 serrulae; lancet not distinguishable from, e.g., NHRS-HEVA000006389 and penis valve like, e.g., ZMUO.037203.

Euura bertilpoppii Heibo & Liston, 2014 in Prous *et al.* 2014: 52. Replacement name for *Amauronematus poppii* Konow, 1904.

Euura bavarica Blank & Liston, 2014 in Prous *et al.* 2014: 52. Replacement name for *Amauronematus enslini* Lindqvist, 1959.

Diagnosis

Most similar to *E. toeniata*, which usually has a darker (black) pterostigma. Nearly completely black specimens may not be reliably distinguishable from similarly coloured *E. toeniata*. Paler specimens of *E. obscuripes* have more brown or reddish markings rather than whitish or greyish as in *E. toeniata*. The species is also very similar to *E. variator* (*variator* group), but most females can usually be distinguished. *Euura variator* females are 5.0–7.5 mm (*E. obscuripes* 6.5–9.5 mm), have a nearly always ventrally completely pale abdomen (mostly black in *E. obscuripes*), and usually pale tegula and metafemur (tegula and metafemur black especially in smaller specimens of *E. obscuripes*). There are exceptions, for example the sequenced *E. obscuripes* specimen DEI-GISHym84010 is small (~6.5 mm) and extensively pale, making it nearly indistinguishable from typical *E. variator* (including the lancet). Practically the only difference to pale specimens of *E. variator* seems to be a black supraclypeal area in DEI-GISHym84010. The supraclypeal area seems to be always (?) pale in *E. variator* specimens that have some reddish colour on mesonotum and/or mesoscutellum. Males are similar to the *E. variator* and *E. vittata* groups and might not always be distinguishable.

The species as delimited here is genetically and morphologically variable, but because the variability is apparently nearly continuous, there is insufficient evidence for the recognition of more than one species. The strongest indication of the existence of an additional species is a lineage based on nuclear DNA that seems to feed on *Salix myrsinites*. The oldest available name for this lineage might be *Amauronematus humeralis* var. *rufomacula* (preoccupied *Amauronematus poppii* and *Euura bertilpoppii* would be synonyms in this case). However, reliable morphological separation of *rufomacula* from *obscuripes*

is unclear. Furthermore, additional genetic and host plant data should be obtained to check how well *rufomacula* really separates from *obscuripes*.

Type material examined

Lectotype *Nematus obscuripes*, here designated

RUSSIA – **Novaja Zemlya** • ♀; Matotschkin Scharr [Matochkin Strait]; 73.3° N, 55.6° E; 1875; NHRS, NHRS-HEVA000006456.

Lectotype *Amauronematus poppii*, here designated

RUSSIA • ♀; Kanin Peninsula; 68.0° N, 45.0° E; B. Poppius leg.; SDEI, GBIF-GISHym4099.

Lectotype *Amauronematus humeralis* var. *rufomacula*, here designated

RUSSIA – **Kamchatka oblast** • ♀; Nischne-Kamtchatsk, Lake Azhabachye; 56.166° N, 161.893° E; R. Malaise leg.; NHRS, NHRS-HEVA000006423.

Notes

20–21 serrulae; lancet not distinguishable from DEI-GISHym19923 or DEI-GISHym84010. Malar space about 1.5 times as long as diameter of front ocellus.

Lectotype *Amauronematus variabilis* var. *sjoebloimi*, here designated

RUSSIA – **Kamchatka oblast** • ♀; Nischne-Kamtchatsk, Lake Azhabachye; 56.166° N, 161.893° E; R. Malaise leg.; NHRS, NHRS-HEVA000006381.

Notes

22 serrulae; lancet most similar to DEI-GISHym19923; malar space (1.6) somewhat shorter from DEI-GISHym84010 (1.9–2.1).

Holotype *Amauronematus tridentatus*

RUSSIA – **Kamchatka oblast** • ♀; Klutchi [Klyuchi]; 56.32° N, 160.85° E; R. Malaise leg.; NHRS, NHRS-HEVA000006422.

Notes

Morphologically similar to DEI-GISHym84010.

Holotype *Amauronematus carbonarius*

SWEDEN – **Lule Lappmark** • ♀; Hildomvare; 67.28° N, 16.92° E; 900–1000 m a.s.l.; 9 Jul. 1944; P. Brinck and K. Wingstrand leg.; MZLU, MZLU-HYM00031488.

Notes

Best morphological match: DEI-GISHym19905 and DEI-GISHym12101. The synonymy with *groenlandicus* Malaise by Benson (1962) is here not supported.

Holotype *Amauronematus enslini*

GERMANY – **Bayern** • ♀; Oberstdorf; 47.42° N, 10.30° E; 22 Jun. 1940; E. Enslin leg.; MZH, <http://id.luomus.fi/GL.5119>.

Notes

Best morphological match: DEI-GISHym19904.

Holotype *Amauronematus obesus*

FINLAND – Uusimaa • ♀; Helsinki, Munksnäs [Munkkiniemi]; 60.22° N, 24.89° E; 9 May 1937; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.2758>.

Notes

Malar space about 1.6 times as long as diameter of front ocellus; serrulae most similar to DEI-GISHym19904, but setae longer.

Host plants

Salix glauca, *S. lanata*, *S. lapponum*, *S. myrsinites*.

Genetics

COI

Based on 30 specimens, maximum within-species distance is 1.52% and the nearest neighbour, diverging by a minimum of 0%, is *Euura toeniata*. When a specimen (DEI-GISHym31073) from California (USA) is included, maximum within-species distance is 6.23%.

Nuclear

Based on 24 specimens, maximum within-species distance is 1.28% (0.47% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.07%, is *Euura toeniata*. When excluding the *E. obscuripes* specimen DEI-GISHym19806 with only 1529 bp of NaK and POL2 available, *E. toeniata* is a minimum of 0.15% different. Inclusion of a specimen (DEI-GISHym31073) from California (USA) does not change the distance values. Although DEI-GISHym31073 is closest to *E. toeniata* DEI-GISHym83784 (highly heterozygous female) based on distance calculations (0.32%), morphologically it does not differ from *E. obscuripes* and also phylogenetically tends to group with *E. obscuripes*.

Distribution and material examined

Holarctic. Specimens studied are from Finland, Norway, Russia, Sweden, Switzerland, and the USA.

252 *Euura toeniata* (Serville, 1823)

Figs 271, 479, 480

Nematus toeniatus Serville, 1823: 67–68. Syntypes ♀♀, probably lost (Lacourt 2000). Type locality: France, Paris area.

Tenthredo humeralis Zetterstedt, 1838: 351. Lectotype designated below. Synonymy by Lindqvist (1941b). Secondary homonym of *Nematus humeralis* Serville, 1823 [*Euura humeralis* (Serville, 1823)].

Amauronematus aemulus Konow, 1895: 183. Lectotype designated below. Synonymy by Konow (1905b).

Amauronematus alpicola Konow, 1895: 183–184. Lectotype designated below. Synonymy by Lindqvist (1959c) is here re-instated.

Amauronematus zetterstedti Malaise, 1921a: 127. Replacement name for *Tenthredo humeralis* Zetterstedt, 1838.

Diagnosis

Most similar to *E. obscuripes*, which usually has a paler pterostigma (usually black in *E. toeniata*). Nearly complete black specimens may not be reliably distinguishable similarly coloured *E. obscuripes*. Paler specimens of *E. toeniata* have more whitish or greyish markings rather than brown or reddish as in *E. obscuripes*. *Euura toeniata* is genetically similarly diverse as *E. obscuripes* but morphologically less variable (e.g., never with reddish markings on mesepisternum).

Type material examined

Lectotype *Tenthredo humeralis*, here designated
SWEDEN • ♀; locality on label illegible; MZLU, MZLU2017263.

Notes

Type locality in the original description: Sweden; Pello, Kengis, Janosuando, Jukkasjärvi.

Paralectotype *Tenthredo humeralis*
UNKNOWN COUNTRY • ♀; MZLU, MZLU2017262.

Lectotype *Amauronematus aemulus*, here designated
GERMANY – **Bayern** • ♂; Herrieden; 49.23° N, 10.49° E; 23 Apr. 1890; Schultheiss leg.; SDEI, GBIF-GISHym4101.

Notes

Penis valve most similar to ZMUO.033962.

Lectotype *Amauronematus alpicola*, here designated
SWITZERLAND – **Uri** • ♀; Andermatt; 46.64° N, 8.61° E; SDEI, GBIF-GISHym4087.

Host plants

A wide variety of *Salix* spp. (Lacourt 1999; Macek *et al.* 2020), including *S. caprea*, *S. myrsinifolia*, *S. myrtilloides* L. and *S. repens rosmarinifolia*.

Genetics

COI

Based on 24 specimens, maximum within-species distance is 2.58% and the nearest neighbour, diverging by a minimum of 0%, is *Euura obscuripes*. When including also secondary intraindividual COI variants, maximum within-species distance is 8.21%. Two divergent secondary variants (0.76% different from each other but 7.45–7.60% different to the primary variant) were detected in ZMUO.064027 from Utsjoki, Finland, which are closest to *E. obscuripes* (DEI-GISHym31073) from California, USA (with distance of 2.74–2.89%).

Nuclear

Based on 19 specimens, maximum within-species distance is 0.99% (0.68% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.07%, is *Euura obscuripes*. When excluding the *E. obscuripes* specimen DEI-GISHym19806 with only 1529 bp of NaK and POL2 available, *E. obscuripes* is minimum of 0.15% different.

Distribution and material examined

Palaearctic. Specimens studied are from Austria, Bulgaria, Estonia, Finland, Germany, Norway, Russia, Sweden, and Switzerland.

253 *Euura tunicata* group

The group is defined based on nuclear DNA. The two recognized species can be reliably distinguished from each other and the other *Euura*, but we have not found clear morphological characters to recognise the group.

254 *Euura lethe* Prous & Liston, 2014
Figs 277, 504

Amauronematus atratus Lindqvist, 1961b: 6–8. Secondary homonym of *Pontania atrata* MacGillivray, 1919 [*Euura atrata* (MacGillivray, 1919)].

Euura lethe Prous & Liston, 2014 in Prous *et al.* 2014: 52. Replacement name for *Amauronematus atratus* Lindqvist, 1961. Åttböle.

Diagnosis

The females are most similar to *E. ranini* (*E. punicea* group), which have a similar lancet. Mesepisternum and mesonotum may be darker (perhaps never with reddish markings as in *E. ranini*) and the basal annuli of the lancet seem to be broader than in *E. ranini*. Lancet is very similar to *E. variabilis* (not known from the West Palearctic), but malar space is distinctly or slightly shorter (1.4–1.6 times as long as diameter of front ocellus) than in *E. variabilis* (1.7–1.8 times). We have tentatively associated a male (DEI-GISHym80762) from Primorsky Krai (Russia) with the Finnish females as the rather large genetic distance based on nuclear genes still falls within the variation observed in many other *Euura*. Male 6 mm.

Type material examined

Holotype *Amauronematus atratus*

FINLAND – **Ahvenanmaa** • ♀; Åttböle; 60.243° N, 19.908° E; 20 May 1945; A. Nordman leg.; MZH, <http://id.luomus.fi/GL.3411>.

Host plants

Salix fragilis, *S. pentandra*.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 2.3% and the nearest neighbour, diverging by a minimum of 3.53%, is *Euura tillbergi*.

Nuclear

Based on 3 specimens, maximum within-species distance is 1.05% (0.01% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.19%, is *Euura tunicata*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, and Russia.

255 *Euura tunicata* (Zaddach, 1883)
Fig. 279

Nematus tunicatus Zaddach, 1883 in Brischke 1883: 155–156, 166–167. Syntypes ♀♀ (ZSM? Ex Sturm Collection, not located); other specimens probably destroyed (Blank & Taeger 1998). Type localities: Germany, Nürnberg and Bautzen; Poland, Silesia; Russia, Kaliningrad [Königsberg].

Nematus laevis Brischke, 1883: 155–156, 174–175. Syntypes ♀♀, probably destroyed (Blank & Taeger 1998). Type locality: Poland, Jäschkenthal. Synonymy by Konow (1902c).

Amauronematus sollemnis Konow, 1895: 180–181. Lectotype ♀ (HNHM), designated by Muche (1975), not examined. Type locality: Hungary. Synonymy by Hellén (1970).

Amauronematus forsiusi Enslin, 1915: 384–385. Lectotype designated below. Synonymy by Hellén (1970).

Diagnosis

Black pterostigma, papilliform serrulae, and mostly or ventrally pale abdomen distinguish the species from the other *Euura*. Specimens from Iran have a completely black hind tibia: in most other specimens only the apical third is black. Male unknown. Males mentioned by Lindqvist (1961b: figs 4–5) belong to *Nematus umbratus* (as *A. tunicatus*, <http://id.luomus.fi/GL.2773>) and *histrion* group (as *A. sollemnis*, <http://id.luomus.fi/GL.2761>). The penis valve of GL.2761 is most similar to DEI-GISHym84228 (*E. striata*), externally like *E. rufa*.

Type material examined

Lectotype *Amauronematus forsiusi*, here designated
FINLAND – Uusimaa • ♀; Karislojo [Karjalohja]; 60.243° N, 23.723° E; 25–28 Jun. 1910; R. Forsius leg.; ZSM, GBIF-GISHym3678.

Host plants

Salix aurita (Forsius 1920), *S. caprea*, *S. myrsinifolia* and *S. starkeana*.

Genetics

COI

Based on 6 specimens, maximum within-species distance is 3.34% and the nearest neighbour, diverging by a minimum of 4.6%, is *Euura punicea*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.23% (0.22% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.19%, is *Euura lethe*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Iran, and Sweden.

256 *Euura variator* group

Closely related to the *histrion* and *opacipleuris* groups. Females have a rectangular or square-shaped valvula 3 in dorsal view, not clearly pointed and narrowing towards the tip as in the *histrion* and *opacipleuris* groups. Valvula 3 and lancets are very similar to the *toeniata* group, and some specimens of the *variator* group (particularly of *E. variator*) may not be clearly distinguishable from *E. obscuripes* (*toeniata* group) if the colouration is very similar. Penis valves are slightly different from the *histrion* and *opacipleuris* groups, but not always distinguishable from the *vittata* and *toeniata* groups. Three species are recognised.

257 *Euura fasciata* (Konow, 1897)

Figs 264, 474

Amauronematus fasciatus Konow, 1897: 177–178. Lectotype designated by Muche (1975).

Amauronematus perkinsi Benson, 1933: 256–257. Synonymy by Benson (1958a).

Diagnosis

Pale pterostigma, ventrally extensively pale body, and centrally black abdominal terga with pale anterior and posterior margins usually distinguishes the females from the others in the group. Females of *Euura variator* can be similarly coloured, but *E. variator* is found in (sub)arctic habitats, unlike *E. fasciata*. Males of *E. fasciata* are also the palest in the group and because of high similarity in penis valves are

most easily confused with *E. vittata* found in the same habitats. The males of the two species may be separated as follows, at least usually:

- distance between inner margins of lateral ocelli about as long as length of postocellar area, abdominal terga laterally extensively pale, dorsally some posterior margins pale, dorsal margin of hind tibia (almost) completely black *E. fasciata*
- distance between inner margins of lateral ocelli larger than length of postocellar area, abdominal terga completely black or slightly pale laterally, dorsal margin of hind tibia usually black only at apex *E. vittata*

Type material examined

Lectotype *Amauronematus fasciatus*

GERMANY – Mecklenburg-Vorpommern • ♀; Teschendorf in Mecklenburg; 53.45° N, 13.36° E; 6 May 1896; F.W. Konow leg.; SDEI, GBIF-GISHym4092.

Holotype *Amauronematus perkinsi*

UNITED KINGDOM – England • ♀; Buckinghamshire, Halton, Dancer's End; 51.770° N, 0.690° W; 29 May 1930; R.B. Benson leg.; BMNH, B.M.TYPEHYM.1.641.

Host plants

Only reliably recorded from *Salix caprea* (e.g., Benander 1966; Vikberg & Kontuniemi 1971).

Genetics

COI

Based on 9 specimens, maximum within-species distance is 4.71% and the nearest neighbours, diverging by a minimum of 0%, are *Euura semilactea* and *E. variator*.

Nuclear

Based on 7 specimens, maximum within-species distance is 0.85% (0.38% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.4%, is *Euura variator*.

Distribution and material examined

Palearctic. Specimens studied are from Bulgaria, Finland, France, Germany, Russia, Sweden, and the United Kingdom.

258 *Euura semilactea* (Zaddach, 1883)

Figs 265, 475

Nematus semilacteus Zaddach, 1883 in Brischke 1883: 185. Holotype ♀, probably destroyed (Blank & Taeger 1998). Type locality: Poland, Gdansk [Danzig].

Diagnosis

This is the only species in the group with a black pterostigma, but otherwise the colour pattern can be indistinguishable from *E. variator*. Males are also best distinguished from the others in the group by their black pterostigma. Penis valves are very similar to *E. toeniata* (*toeniata* group), which also have a black pterostigma, but have completely or mostly black underside of the abdomen and completely or nearly completely black metafemur (completely or nearly completely pale underside of abdomen and metafemur black only dorsally in *E. semilactea*).

Host plants

Salix caprea (Vikberg & Kontuniemi 1971), but also *S. aurita*, *S. repens*, *S. cinerea* (Enslin 1916b), and *S. myrsinifolia* (this study).

Genetics

COI

Based on 3 specimens, maximum within-species distance is 4.41% and the nearest neighbours, diverging by a minimum of 0%, are *Euura fasciata* and *E. variator*.

Nuclear

Based on 3 specimens, maximum within-species distance is 0.51% (0.15% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.37%, is *Euura variator*.

Distribution and material examined

Palaearctic. Specimens studied are from Bulgaria, Finland, Germany, Norway, Russia, and Sweden.

259 *Euura variator* (Ruthe, 1859)

Figs 266–267, 476–477

Nematus variator Ruthe, 1859: 308–310. Lectotype designated below.

Amauronematus godmani Benson, 1955: 104–105. **Syn. nov.**

Amauronematus galbiventris Lindqvist, 1960a: 130. **Syn. nov.**

Amauronematus longidens Lindqvist, 1962b: 13. Synonymy by Hellén (1970).

Diagnosis

Females are most similar to *E. fasciata* and *E. obscuripes* (*toeniata* group); see differences discussed under these species. Males might not always be distinguishable from those of the *E. obscuripes* (*toeniata* group) and *vittata* group specimens found in the same (sub)arctic habitats.

Female

5.0–7.5 mm. Tegula pale or sometimes mostly black, metafemur usually completely or mostly pale, sometimes mostly black, abdomen ventrally extensively pale.

Male

4.0–6.0(6.5) mm. Tegula and metafemur black or partly pale, subgenital plate pale or sometimes black.

Best matches to *godmani*: ZMUO.044556 (female), ZMUO.059873, ZMUO.058922 (males).

Type material examined

Lectotype *Nematus variator*, here designated

ICELAND • ♀; Staudinger leg.; ZMHB, <http://coll.mfn-berlin.de/u/dbcac6/> / GBIF-GISHym2822.

Paralectotype *Nematus variator*

ICELAND • 1 ♀; same data as for preceding; SDEI, GBIF-GISHym4103.

Notes

GBIF-GISHym2822 is 6.5 mm long; GBIF-GISHym4103 is 7.7 mm long.

Holotype *Amauronematus godmani*

SWITZERLAND – Valais • ♀; Ferpèche [Glacier]; 2100–2400 m a.s.l.; 22 Jun. 1935; J.E. and R.B. Benson leg.; BMNH, B.M.TYPEHYM.1.688.

Notes

ZMUO.044556 is nearly a perfect morphological match.

Holotype *Amauronematus galbiventris*

SWEDEN – **Torne Lappmark** • ♀; Abisko; 68.35° N, 18.83° E; 17–22 Jun. 1954; J.E. and R.B. Benson leg.; BMNH, B.M.TYPEHYM.1.785.

Notes

Length 6.5 mm.

Holotype *Amauronematus longidens*

FINLAND – **Inari Lapland** • 1 ♀; Utsjoki; 69.91° N, 27.03° E; 16 Jun. 1960; O. Ranin leg.; MZH, <http://id.luomus.fi/GL.3412>.

Notes

Length 5.5 mm.

Host plants

Salix glauca, *S. helvetica* Vill., *S. lapponum*, *S. reticulata*.

Genetics

COI

Based on 35 specimens, maximum within-species distance is 4.56% and the nearest neighbours, diverging by a minimum of 0%, are *Euura opacipleuris*, *E. fasciata*, and *E. semilactea*.

Nuclear

Based on 30 specimens, maximum within-species distance is 0.98% (0.62% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.37%, is *Euura semilactea*.

Distribution and material examined

Palearctic. Specimens studied are from Austria, Finland, Iceland, Norway, Sweden, and Switzerland.

260 *Euura vittata* group

Genetic data divides the group into two clades, based both on mitochondrial COI and nuclear genes. This is supported by the structure of the male penis valves. For females, no reliable characters have been found to separate the subgroups. The ventral part of the abdomen tends to be green in live *E. vittata* but yellowish to black in the *tillbergi* subgroup and brown or yellowish in *E. hedstroemi* (*E. vittata* subgroup). Colouration of the abdomen in living specimens requires confirmation for *E. hulteni* and *E. minivittata* Prous & Mutanen sp. nov. (both in the *E. vittata* subgroup). *Euura vittata* (some specimens from the Pyrenees, e.g., DEI-GISHym11811) can also be nearly completely pale (unknown whether green or yellow in life). Because of the lancet (and usually characteristic colouration of the abdomen), *E. krausi* (*E. tillbergi* subgroup) females can be separated reliably from the other species in the *vittata* group. The lancet of *E. krausi* has flat serrulae, while all the other species in the group have (near) papilliform serrulae. The size and shape of the serrulae of the non-*krausi* species varies, but there does not seem to be a clear correlation with other morphological characters or genetics, which prevents the use of the serrulae structure for species identification. Unfortunately, there are no other clear morphological characters to diagnose the species other than *E. krausi*, but the evidence from nuclear genes suggests the presence of five or more additional species (four in the *vittata* subgroup, one in the *tillbergi* subgroup). We have recognized five species in addition to *E. krausi* as the other 3–4 apparent nuclear lineages are currently better treated as part of *E. vittata* (see justification under the species). The clusters suggested by nuclear genes do show tendencies in colouration and size, which seems to enable identification

of most of the females. Differences between the males are less clear and currently we have not been able to separate them morphologically. Additional morphological (ideally including larvae) and genetic examination is needed to resolve species boundaries in the *vittata* group.

261 *Euura hedstroemi* (Malaise, 1931)

Figs 280, 483

Amauronematus variabilis var. *hedstroemi* Malaise, 1931b: 43. Lectotype designated below.

Diagnosis

Females (4.5–6.0 mm) are not always distinguishable from *E. tillbergi*, and possibly from *E. hulteni*, *E. vittata* and *E. minivittata* sp. nov. Males might not be distinguishable from *E. hulteni*, *E. vittata*, and *E. minivittata*. Typically, the metafemur of females is more or less pale, without distinct black lines dorsally and ventrally; metatibia with a weak dark spot at about one third from base (not always recognizable); dorsal half of mesepisternum reddish; mesonotum extensively but not completely reddish; costa and pterostigma mostly yellowish or pale brown with costa usually centrally darker and pterostigma posteriorly dark-lined; abdominal terga 2–7 laterally (downturned parts) not completely black and usually not completely pale. Females are not green in life similar to *E. tillbergi*, but *E. vittata* (at least usually) has abdomen ventrally green in life. It is unclear whether *E. hulteni* and *E. minivittata* are green in life. Typically, *E. vittata* females have metafemur dorsally and ventrally black-lined and abdominal terga laterally more extensively pale than in *E. hedstroemi*. In addition, the mesepisternum is often completely pale in *E. vittata* females. *Euura hulteni* females usually have a dorsally and ventrally black-lined metafemur, and the mesepisternum (as well as mesonotum) is often darker than in *E. hedstroemi*. *Euura minivittata* females have a darker pterostigma (uniformly brown or centrally somewhat paler) and femora. *Euura tillbergi* females usually have a black mesepisternum and mesonotum, and darker abdomen (nearly completely black or apically extensively pale). Paler specimens of *E. tillbergi* do not have a posteriorly distinctly dark-lined pterostigma and the metatibia lacks a distinct dark spot on the basal third of tibia (as typical in *E. hedstroemi*), but the latter character is not always reliable.

Type material examined

Lectotype *Amauronematus variabilis* var. *hedstroemi*, here designated
RUSSIA – Kamchatka oblast • ♀; Nischne-Kamtchatsk, Lake Azhabachye; 56.166° N, 161.893° E; R. Malaise leg.; NHRS, NHRS-HEVA000006400.

Host plants

Salix phylicifolia.

Genetics

COI

Based on 28 specimens, maximum within-species distance is 1.67% and the nearest neighbours, diverging by a minimum of 0%, are *Euura vittata* and *E. hulteni*. Specimens belong to BOLD:ABU6129.

Nuclear

Based on 28 specimens, maximum within-species distance is 0.47% (0.27% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.71%, is *Euura vittata*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Russia.

262 *Euura hulteni* (Malaise, 1931)

Figs 281, 484

Amauronematus variabilis var. *hulteni* Malaise, 1931b: 43. Mandatory correction of original spelling *hulténi*. Lectotype designated below.

Amauronematus nylundi Lindqvist, 1969: 232–233. **Syn. nov.**

Diagnosis

Females (5–6 mm) typically have mesepisternum black to dorsally reddish; black mesepimeron; extensively black mesonotum; costa and pterostigma mostly yellowish or pale brown with costa usually centrally darker and pterostigma posteriorly dark-lined; pale abdominal sterna (but mostly black downturned parts of terga 2–7); and femora with black lines dorsally and ventrally. *Euura hedstroemi* and *E. tillbergi* females have nearly completely pale metafemur or metafemur is black basally in *E. tillbergi* (instead of dark-lined dorsally and ventrally as in *E. hulteni*). The abdominal terga of *Euura vittata* females are typically completely pale laterally (typically extensively black in *E. hulteni*) and are often larger (5.5–7.5 mm). *Euura minivittata* sp. nov. females have a darker pterostigma (uniformly brown or centrally somewhat paler) and are smaller (less than 5 mm). However, occasionally females of *E. hulteni* might not be distinguishable from the above-mentioned species. For example, some specimens (e.g., DEI-GISHym84439) with a completely or nearly completely pale mesepisternum, at least partly pale mesepimeron, mostly pale mesonotum, completely pale femora and pterostigma can be found, making them indistinguishable from some specimens of *E. vittata*. Males might not be distinguishable from those of *E. hedstroemi*, *E. vittata*, and *E. minivittata*.

Type material examined

Lectotype *Amauronematus variabilis* var. *hulteni*, here designated

RUSSIA – **Kamchatka oblast** • ♀; Nischne-Kamtchatsk, Lake Azhabachye; 56.166° N, 161.893° E; R. Malaise leg.; NHRS, NHRS-HEVA000006409.

Notes

Length 5.3 mm. Thorax and abdomen largely black, mesepisternum and abdomen ventrally slightly pale; terga 9–10 extensively pale; head extensively pale around eyes; malar space about 1.2–1.5 times as long as diameter of front ocellus; hind femora dorsally and ventrally black. Best match: ZMUO.031351, ZMUO.033758.

Holotype *Amauronematus nylundi*

FINLAND – **Häme** • ♀; Forssa; 60.82° N, 23.63° E; 31 May 1966; E. Nylund leg.; MZH, <http://id.luomus.fi/GL.2747>.

Notes

Best morphological match: DEI-GISHym84197.

Host plants

Salix aurita and *S. repens*. There is also one rearing batch (rearing code 43/2017) of a few specimens from *S. purpurea* (e.g., sequenced specimen ZMUO.033807) planted in University of Oulu botanical garden, but this may require confirmation. For *Amauronematus nylundi*, Lindqvist (1969: 233) mentions larvae reared from *S. phylicifolia* (the holotype is not among them), which may refer to the very similar *E. hedstroemi*.

Genetics

COI

Based on 14 specimens, maximum within-species distance is 1.82% and the nearest neighbours, diverging by a minimum of 0%, are *Euura vittata* and *E. hedstroemi*. Specimens belong to BOLD:ABU6129.

Nuclear

Based on 14 specimens, maximum within-species distance is 0.66% (0.61% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.47%, is *Euura vittata*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Russia.

263 *Euura krausi* (Taeger & Blank, 1998) Figs 290, 488

Amauronematus krausi Taeger & Blank, 1998: 251–252.

Diagnosis

Flat serrulae and usually characteristic colouration of the abdomen (pale colouration dorsally distinctly expanding posteriorly) enable identification of the females from the others in the *vittata* group. Male penis valves are most similar to those of *E. tillbergi*, but externally males of *E. krausi* tend to be paler.

Type material examined

Holotype *Amauronematus krausi*

GERMANY – Hessen • ♀; Climbach; 50.67° N, 8.82° E; 27 May 1986; H. Weiffenbach leg.; reared ex larva on *Populus tremula*; SDEI, GBIF-GISHym4094.

Host plants

Populus tremula; also *P. alba* L., according to Macek *et al.* (2020).

Genetics

COI

Based on 12 specimens, maximum within-species distance is 3.23% and the nearest neighbour, diverging by a minimum of 0%, is *Euura tillbergi*.

Nuclear

Based on 8 specimens, maximum within-species distance is 0.67% (0.8% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.12%, is *Euura tillbergi*.

Distribution and material examined

Palaearctic. Specimens studied are from Bulgaria, Finland, Germany, Russia, and Sweden.

264 *Euura tillbergi* (Malaise, 1921) Figs 284–289, 489–491

Amauronematus tillbergi Malaise, 1921b: 125–126. Lectotype designated below.

Amauronematus tillbergi var. *foveifrons* Malaise, 1921b: 126–127. Lectotype designated below.
Synonymy by Lindqvist (1941b).

Amauronematus latusulcatus Malaise, 1931b: 45–46. **Syn. nov.**

Amauronematus pacificus Malaise, 1931b: 47–48. Lectotype designated below. Secondary homonym of *Pontania pacifica* Marlatt, 1896 [*Euura pacifica* (Marlatt, 1896)]. **Syn. nov.**

Amauronematus mcluckieae Benson, 1935: 31–32. Mandatory correction of original orthography *mcluckiei*. **Syn. nov.**

Amauronematus rex Benson, 1948b: 32. **Syn. nov.**

Amauronematus obscurus Lindqvist, 1962b: 11–12. Secondary homonym of *Nematus obscurus* Norton, 1861 [*Euura obscura* (Norton, 1861)]. **Syn. nov.**

Amauronematus pustulatus Lindqvist, 1962b: 12–13. **Syn. nov.**

Euura tranquilla Vårdal & Prous, 2014 in Prous *et al.* 2014: 52. Replacement name for *Amauronematus pacificus* Malaise, 1931.

Diagnosis

Females (4.5–6.5 mm) with mostly or completely black abdomen (and thorax) can be distinguished from the other species in the *vittata* group. Paler females are most similar to those of *E. hulteni*, *E. hedstroemi*, *E. minivittata* sp. nov., and might not always be distinguishable. *Euura hulteni* typically have dorsally and ventrally black-lined metafemur (similar in *E. minivittata*), while the metafemur is basally black in *E. tillbergi*. *Euura minivittata* has a darker pterostigma and metafemur than in pale specimens of *E. tillbergi*. The pterostigma of *Euura hedstroemi* is typically posteriorly dark-lined and the metatibia with a dark spot at basal third of tibia, but pterostigma and metatibia can be (almost) uniformly pale, making separation from paler specimens of *E. tillbergi* unreliable. Male penis valves are most similar to *E. krausi* and paler specimens might not be distinguishable from this species. In *E. tillbergi* valvula 3 is rarely triangular, without a posterior invagination (ZMUO.031718). Male 4.0–6.0 mm.

Type material examined

Lectotype *Amauronematus tillbergi*, here designated

SWEDEN – **Torne Lappmark** • ♀; Torneträsk; 68.22° N, 19.74° E; 400 m a.s.l.; R. Malaise leg.; NHRS, NHRS-HEVA000003942.

Lectotype *Amauronematus tillbergi* var. *foveifrons*, here designated

SWEDEN – **Torne Lappmark** • ♀; Torneträsk; 68.22° N, 19.74° E; 400 m a.s.l.; R. Malaise leg.; NHRS, NHRS-HEVA000003943.

Notes

Best matches: DEI-GISHym84434 (colouration), DEI-GISHym84433 (size), DEI-GISHym83702 (lancet).

Holotype *Amauronematus latisulcatus*

RUSSIA – **Kamchatka oblast** • ♀; Klutchi [Klyuchi]; 56.32° N, 160.85° E; R. Malaise leg.; NHRS, NHRS-HEVA000006415.

Lectotype *Amauronematus pacificus*, here designated

RUSSIA – **Kamchatka oblast** • ♀; Petropavlovsk; 55.06° N, 158.65° E; R. Malaise leg.; NHRS, NHRS-HEVA000006416.

Holotype *Amauronematus mcluckieae*

UNITED KINGDOM – **Scotland** • Cairngorm Mts, Cairngorm; 57.09° N, 3.69° W; above 910 m a.s.l.; 27 Jun. 1934; R.B. and J.E. Benson leg.; BMNH, B.M.TYPEHYM.1.642.

Holotype *Amauronematus rex*

UNITED KINGDOM – **England** • ♀; Buckinghamshire, Whaddon Chase; 51.83° N, 0.82° W; Mar. 1946; R.B. Benson leg.; reared ex larva on *Salix*; BMNH, B.M.TYPEHYM.1.685.

Notes

Best morphological match: DEI-GISHym83872. Was previously synonymized with *hedstroemi* Malaise, but colour characters of the *rex* holotype fit better with specimens of *E. tillbergi* from the Russian Far East (DEI-GISHym83872, sequenced). Mesoscutellum is not completely pale in any *E. hedstroemi* specimens studied. In addition, the type specimens of *rex* Benson were reared from *Salix aurita* and possibly from *S. atrocinerea* (mixed rearing), but *E. hedstroemi* seems to be restricted to *S. phylicifolia*.

Holotype *Amauronematus obscurus*

FINLAND – Uusimaa • ♀; Helsing [Vantaa]; 60.30° N, 24.90° E; 25 May 1961; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.2750>.

Holotype *Amauronematus pustulatus*

FINLAND – Kuusamo • ♀; Kitka; 66.24° N, 28.98° E; 5 Jul. 1958; M. Viitasaari leg.; MZH, <http://id.luomus.fi/GL.2536>.

Host plants

Salix phylicifolia, *S. myrsinites*, *S. herbacea*, and possibly *S. aurita* and *S. atrocinerea* Brot. if *Amauronematus rex* Benson really is a synonym of *E. tillbergi*.

Genetics

COI

Based on 35 specimens, maximum within-species distance is 3.28% and the nearest neighbour, diverging by a minimum of 0%, is *Euura krausi*.

Nuclear

Based on 31 specimens, maximum within-species distance is 1.7% (1.08% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.12%, is *Euura krausi*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Norway, Russia, and Sweden.

265 *Euura vittata* (Serville, 1823)

Figs 282, 485–486

Nematus vittatus Serville, 1823: 66. Syntypes ♀♀ (no type specimens located: Lacourt 2000). Type locality: not stated by Serville, but Lepeletier (1823) wrote “In agro Parisiensi. Mus. dom. Serville”.

Nematus melanoleucus Hartig, 1840: 27. Lectotype designated below. Synonymy by Konow (1895).

Nematus scabrivalvis Thomson, 1871: 132–133. Lectotype designated below. Synonymy by Konow (1890).

Amauronematus lateralis Konow, 1895: 181–182. Holotype ♀ (HNHM), not examined. Type locality: Croatia. Secondary homonym of *Nematus lateralis* Norton, 1867 [*Euura lateralis* (Norton, 1867)].

Syn. nov.

Amauronematus konowi Enslin, 1915: 397–398. Syntypes ♀♀, not located. Type locality: Central Europe. Synonymy by Lindqvist (1943).

Amauronematus vittatus var. *sternalis* Enslin, 1915: 379. Syntypes ♀♀, not located. Type locality: not stated. Synonymy by Lindqvist (1962a).

Amauronematus trautmanni Enslin, 1919a: 395–397. Lectotype designated below. **Syn. nov.**

Amauronematus cameroni Perkins, 1929b: 33. Published as a new name for *Nematus imperfectus* sensu Cameron nec Zaddach. Types not examined. Type locality: United Kingdom, Scotland, near Glasgow and Kingussie [from Cameron 1885: 106]. **Syn. nov.**

Amauronematus variabilis var. *bergmani* Malaise, 1931b: 43–44. Lectotype designated below. **Syn. nov.**
Amauronematus piliserra Lindqvist, 1943: 101–103. Holotype (“Type”) not found. Type localities:
Finland; Sund, Runsala, Pargas, Karislojo, Esbo, Munksnäs, H:gin Ymp., Tuusula, Loppi, Merikarvia,
Hattula, Pirkkala, Suojärvi, Lieksa, Nurmes, Suomussalmi and Russia, Solovetsk. **Syn. nov.**
Amauronematus crispus Benson, 1948b: 30–31. Synonymy by Lindqvist (1962a).
Amauronematus pseudofasciatus Lindqvist, 1969: 235. **Syn. nov.**
Pteronidea kamtchatica Lindqvist, 1971a: 127. Unnecessary replacement name for *Amauronematus*
variabilis var. *bergmani* Malaise, 1931.

Diagnosis

Females (5.5–7.5 mm) have typically pale (green in life) underside of abdomen (sterna and downturned parts of terga), mostly black to extensively pale thorax, and metafemur with black lines dorsally and ventrally. These characters should enable distinguishing *E. vittata* females from *E. minivittata* sp. nov. (smaller and downturned parts of terga extensively black) and *E. tillbergi* (often smaller, downturned parts of terga extensively black or abdomen nearly completely black, and metafemur black basally to completely pale). In paler specimens of *E. vittata*, black lines of metafemur are not visible, but completely pale mesepisternum in this case should still distinguish the females from *E. tillbergi* (perhaps never completely pale mesepisternum). Separation of *E. vittata* females from those of *E. hulteni* and *E. hedstroemi* may not always be possible morphologically (see notes under these species). Some specimens from the Pyrenees (e.g., DEI-GISHym11811) are nearly completely pale (unknown if green in life), strongly resembling *E. punicea*, which has pale cerci and malar space about 1.0 times as long as diameter of front ocellus (cerci in *E. vittata* tend to be dark at least at the tip and malar space is longer). Male penis valves are somewhat different (broader paravalva which is more expanding ventroapically) from the *tillbergi* subgroup (*E. tillbergi* and *E. krausi*), but not clearly different from the others in the *vittata* subgroup or even some other “*Amauronematus*”, like *E. toeniata*. The paratype male of *Amauronematus pseudofasciatus* Lindqvist (<http://id.luomus.fi/GL.2756>) belongs to the *E. histrio* group. ZMUO.058051 female (two nuclear genes almost identical to ZMUO.033960) was not green in life (grey).

Based on nuclear genes, there appear to be several lineages of *E. vittata*. *Euura vittata* females on *Salix caprea* (mainly?) tend to have black to half pale mesepisternum, mostly black mesonotum, and almost uniformly whitish (green in life?) pterostigma, while specimens on *S. fragilis* and *S. pentandra* (mainly?) tend to have a completely pale mesepisternum and pterostigma bicoloured (centrally paler than area around it). Both morphotypes fall genetically into at least three groups when all nuclear genes are combined. Although host is not known for most of the sequenced specimens, the specimens from *S. fragilis* and *S. pentandra* tend to form one group (not monophyletic in all analyses) while *S. caprea* morphotype specimens fall into two groups. One typical *S. caprea* specimen (although host unknown, ZMUO.062061) is genetically practically identical to an intermediate looking specimen (pterostigma like in *S. caprea* type, thorax colouration more like *S. fragilis* type, ZMUO.033960) and these two specimens are genetically closer to specimens that are morphologically intermediate or almost like *E. hedstroemi* (e.g., ZMUO.031989, ZMUO.034292, W17671; although mesepisternum is almost completely pale unlike in *E. hedstroemi*). Interestingly, when examining individual nuclear genes and haplotypes of some of these specimens (ZMUO.062061, ZMUO.031989, W17671), the same specimen can be closer to *S. caprea* or *S. fragilis* type, or even to *E. hulteni*. There are two other nuclear lineages represented only by males (DEI-GISHym31870 and DEI-GISHym31850 from the Austrian alps as one cluster, and ZMUO.064779 from Finland as the second), but it is not clear which species they represent. Nevertheless, we treat these two lineages as *E. vittata* as they are not more distant from other *E. vittata* specimens than individual haplotypes often found within the same female specimen.

Type material examined

Lectotype *Nematus melanoleucus*, here designated
GERMANY • ♀; northern Germany [according to Hartig 1840: 22]; NFVG, GBIF-GISHym4685.

Notes

Best morphological match: DEI-GISHym19414.

Lectotype *Nematus scabrivalvis*, here designated
SWEDEN – Skåne • ♀; Ringsjön; 55.88° N, 13.51° E; MZLU, MZLU2017296.

Lectotype *Amauronematus trautmanni*, here designated
GERMANY – Bayern • ♀; Oberstdorf; 47.42° N, 10.30° E; 24 May 1919; E. Enslin leg.; ZSM, GBIF-GISHym3052.

Notes

Best morphological match: DEI-GISHym84171.

Lectotype *Amauronematus variabilis* var. *bergmani*, here designated
RUSSIA – Kamchatka oblast • ♀; Nischne-Kamtchatsk, Lake Azhabachye; 56.166° N, 161.893° E; R. Malaise leg.; NHRS, NHRS-HEVA000006408.

Paralectotype *Amauronematus variabilis* var. *bergmani*
RUSSIA • 1 ♀; same data as for lectotype; NHRS, NHRS-HEVA000006407.

Notes

Nearly perfect morphological match: ZMUO.031989.

Holotype *Amauronematus crispus*
UNITED KINGDOM – England • ♀; Huntingdonshire, Woodwalton Fen; 52.443° N, 0.191° W; 10–11 Jun. 1947; R.B. Benson leg.; BMNH, B.M.TYPEHYM.1.687.

Holotype *Amauronematus pseudofasciatus*
FINLAND – Uusimaa • ♀; Helsingfors [Vantaa]; 60.30° N, 24.90° E; 15 May 1963; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.2755>.

Notes

Lancet most similar to DEI-GISHym84438 (*E. tillbergi*). COI sequence (458 bp) of the holotype is closest to *E. vittata* (two fragments closest to e.g., DEI-GISHym84428, middle fragment to e.g., ZMUO.046537 [*E. tillbergi*]).

Host plants

Numerous *Salix* spp. have been mentioned, but several of these records may really refer to other species in the *vittata* group. See also the Notes, above.

Genetics

COI

Based on 45 specimens, maximum within-species distance is 5.32% and the nearest neighbours, diverging by a minimum of 0%, are *Euura hedstroemi* and *E. hulteni*.

Nuclear

Based on 39 specimens, maximum within-species distance is 1.34% (0.91% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.47%, is *Euura hulteni*.

Distribution and material examined

Palearctic. Specimens studied are from Austria, Bulgaria, Estonia, Finland, France, Germany, Norway, Sweden, Switzerland, and the United Kingdom.

266 *Euura minivittata* Prous & Mutanen sp. nov.

urn:lsid:zoobank.org:act:3E5BFFF5-0BEB-4DA4-A032-AB2E53439C66

Figs 86–87, 283, 487

Diagnosis

The species is most similar to *E. hulteni*, *E. hedstroemi*, and pale specimens of *E. tillbergi*. The darker pterostigma (brown or dark brown) of *E. minivittata* sp. nov. can help to distinguish its females from these three species, but it might not always be reliable. The darker metafemur of *E. minivittata* should distinguish its females more reliably from *E. hedstroemi* and pale specimens of *E. tillbergi* (those having an extensively reddish thorax), which have a (nearly) completely pale metafemur. All the examined *E. hulteni* (at least 5 mm) and most *E. hedstroemi* females are larger than examined *E. minivittata* females (less than 5 mm). Males of *E. minivittata* might not be distinguishable from smaller specimens of *E. hulteni*, *E. hedstroemi*, and *E. vittata*.

Etymology

The species name, to be treated as a Latin adjective, refers to the smaller size (*mini-*) of the species compared to the others in the *E. vittata* subgroup.

Type material

Holotype

FINLAND – **Inari Lapland** • 1 ♀; Utsjoki, Allasuolu; 69.7679° N, 26.1842° E; 4 Jul. 2018; M. Mutanen, N. Mutanen, A. Mutanen leg.; ex larva *Salix* sp.; ZMUO, ZMUO.037271.

Paratypes

FINLAND – **Inari Lapland** • 1 ♂; same data as for holotype; ZMUO, ZMUO.038882. – **Kuusamo** • 1 ♀; Kuusamo; 66.2479° N, 29.2577° E; 17 Jun. 2017; M. Mutanen leg.; ZMUO, ZMUO.031642. – **Northern Ostrobothnia** • 1 ♂; Oulu; 65.1008° N, 25.585° E; 10 May 2018; M. Mutanen leg.; ZMUO, ZMUO.035848.

SWEDEN – **Norrbottnen** • 1 ♀; Pajala, Peräjävaara; 67.259° N, 23.003° E; 160 m a.s.l.; 10 Jun. 2017; E. Heibo leg.; CEH, W17609.

Description

Female

Body 4.2–5.0 mm. Colour extensively pale and black. Labrum pale; labial and maxillary palps brown; mandibles reddish-brown at apex, pale at base; clypeus, supraclypeal area, frontal area above frontal pit, temples, and orbits pale; frontal pit black or pale; postocellar area extensively or slightly pale; coxae apically extensively pale; trochanters and trochantelli pale; femora and tibiae more or less pale or brown, or dorsally and ventrally extensively black; fore and middle tarsi pale basally or ventrobasally (tarsomeres 1 or 1–2); pronotum mostly pale; tegula pale; dorsal half of mesepisternum, median mesoscutal lobe laterally and posteriorly, lateral mesoscutal lobes medially and posterolaterally pale; mesoscutellum black or slightly pale centrally; metepisternum pale; pterostigma and costa brown or dark brown, costa apically and basally somewhat paler; sterna, hypopygium, valvifer 2, and terga 9–10 pale; terga 6–8 laterally pale; valvula 3 in lateral view centrally pale; cerci mostly or basally pale. Clypeus shallowly emarginate; frontal area between antennae flat, not angulate (“*Amauronematus*-type”); postocellar area about 2.5 times as broad as long; antenna distinctly or slightly shorter than costa;

mesepisternum matt; claws bifid, subapical tooth shorter than apical; valvula 3 in dorsal view about as broad as long, not tapering, with blunt tip, with slight invagination and indistinct carina posteriorly. Lancet with 18–19 serrulae; serrulae papilliform, except basal 1–2 that are flat or almost flat; serrulae with numerous microdenticles, strongly protruding, and with indistinct cypsellae; hair-like setae about half as long as annulus length, except in basalmost annulus where setae are about one fifth as long as annulus and absent on apical 2–3 annuli.

Male

Body 4.4–4.6 mm. Colour mostly black, darker than female. Head nearly completely black or extensively pale: labrum pale; labial and maxillary palps brown; mandibles reddish-brown at apex, pale at base; clypeus, supraclypeal area, temples, orbits ventrally, dorsally, and posteriorly pale. Legs nearly completely black or extensively pale: coxae apically extensively pale; trochanters and trochantelli pale; femora anteriorly and posteriorly pale; fore and middle tibiae mostly (except somewhat brown dorsal margin) pale; fore and middle tarsi pale basally or ventrobasally (tarsomeres 1 or 1–2). Pronotum



Fig. 86. *Euura minivittata* Prous & Mutanen sp. nov., holotype (ZMUO.037271).

posteriorly extensively pale; tegula extensively pale or black; pterostigma and costa dark brown or pterostigma with paler central area; with pale spot between costa and pterostigma and costa basally somewhat paler; sternum 9 pale, other sterna pale or black. Clypeus shallowly emarginate; frontal area between antennae flat, not angulate (“*Amauronematus*-type”); postocellar area about 2.5 times as broad as long; antenna about as long as or slightly shorter than costa and pterostigma combined; mesepisternum matt; claws bifid, subapical tooth shorter than apical; projection of tergum 8 distinct, about as long as broad or slightly broader than long and with truncate apex. Penis valve 1.1 mm, more or less right-angled between dorsal margin of paravalva and valvispina, ventroapical lobe of paravalva distinctly expanded and invagination between ventroapical lobe and valvispina indistinct.



Fig. 87. *Euura minivittata* Prous & Mutanen sp. nov., paratype (ZMUO.035848).

Host plants

Salix sp., most likely *S. phylicifolia*, *S. hastata*, or both.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 1.09% and the nearest neighbour, diverging by a minimum of 1.06%, is *Euura tillbergi*. Specimens belong to BOLD:ACJ5443. The BIN includes also *E. tillbergi*, *E. krausi*, and *E. vittata* in part, but all specimens of *E. minivittata* sp. nov. form a clade within the BIN.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.56% (0.24% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.77%, is *Euura hulteni*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Sweden.

Euura punicea group s. lat. species not assigned to groups

267 *Euura brunnea* (Norton, 1864)

Figs 291, 505

Nematus brunneus Norton, 1864: 8. Holotype ♀ (ANSP Type no. 10323, ANSP), not examined. Type locality: USA, Colorado.

Amauronematus knabi Rohwer, 1912: 244–245. Syntypes 2 ♀♀ (USNMMENT00779111, USNM, <http://n2t.net/ark:/65665/3c1f0cc3e-72e3-43af-86be-b664539d43ae>), not examined. Type locality: Canada, Saskatchewan, Oxbow.

Amauronematus helleni Lindqvist, 1941a: 65–67. **Syn. nov.**

Diagnosis

Females (sterna green in live European specimens) are most similar to *E. tillbergi* and some other members of the *E. vittata* group, but serrulae of the lancet are triangular rather than papilliform as in the *E. vittata* group. At least some (if not most, or even all) North American specimens are almost completely pale (resembling *E. punicea*), but one such examined specimen (4m) from the USA has the same lancet as the European specimens and based on two nuclear genes (NaK and EF1a F2) is genetically well within the variability of the European specimens (see under Genetics). Males can be separated from the “*Amauronematus*” group species based on the penis valve.

Type material examined

Holotype *Amauronematus helleni*

RUSSIA – **Karelia** • 1 ♀; Suojärvi [Suojärwi]; 62.090° N, 32.368° E; 23 May 1937; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.2528>.

Host plants

Betula nana.

Genetics

COI

Based on 15 specimens, maximum within-species distance is 0.91% and the nearest neighbour, diverging by a minimum of 4.21%, is *Euura longiserra* group specimen DEI-GISHym31072 from California, USA.

Nuclear

Based on 12 specimens, maximum within-species distance is 0.5% (0.29% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.4%, is *Euura krausi*. Based on 1774 bp of NaK and EF1a F2 and 7 specimens (including a specimen 4m from Massachusetts, USA), maximum within-species distance is 0.17% (0.51% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.43%, is *Euura abnormis*.

Distribution and material examined

Holarctic. Specimens studied are from Finland, Norway, Sweden, and the USA.

268 *Euura ribesii* group

Black or dark brown pterostigma, short valvula 3, and structure of lancet and penis valve enables recognition of the group among the other *Euura*. Of the species of *Euura* with a black pterostigma, only *E. spiraeae* has a similar type of lancet as in the *E. ribesii* group. In *E. spiraeae*, the setae of the lancet are hair-like and the basalmost annulus is narrower (compared to height) than in the *E. ribesii* group (setae spine-like). Only *E. vastatrix*, a rare species in Eastern Europe, seems to have a pale pterostigma, in which case the spine-like setae of the lancet can be used to distinguish the females from the species with a similar type of lancet (*papillosa* group, and *E. hypoxantha* and *E. jugicola* of the *myosotidis* group). *Euura ribesii* group females lay eggs on the undersides of leaves (Viitasaari 1980), in contrast to most other *Euura* that lay eggs inside the leaf or petiole tissue. This habit of egg-laying is shared with *E. spiraeae* (Robbins 1927; Hara *et al.* 2022) and the *papillosa* group (Urban 2001) with a similar type of lancet. *Euura hypoxantha* and *E. jugicola* (*myosotidis* group) also have a similar type of lancet, but egg laying habits of these species are not known. Seven species are recognized. Most common are *E. ribesii* and *E. leucotrocha*, in Central and Western Europe also *E. similator*. The other species are rarely encountered.

269 *Euura gracilidentata* (Viitasaari, 1980)

Figs 214, 506

Pteronidea gracilidentata Viitasaari, 1980: 34–36.

Diagnosis

The mostly black head (including antenna) and thorax, yellow abdomen (except black first tergite), and small subapical tooth (can be almost absent in male) should usually enable identification of the species. May be a specialist on *Ribes alpinum* L.

Type material examined

Holotype *Pteronidea gracilidentata*

FINLAND – Uusimaa • ♀; Helsing [Vantaa]; 60.30° N, 24.90° E; 1 Jun. 1964; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.2454>.

Host plants

Ribes alpinum.

Genetics

COI

Based on 2 specimens, maximum within-species distance is 0.3% and the nearest neighbour, diverging by a minimum of 0.46%, is *Euura leucotrocha*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.03% (0.62% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.5%, is *Euura leucotrocha*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Germany, and Sweden.

270 *Euura leucotrocha* (Hartig, 1837)

Figs 215, 507

Nematus leucotrochus Hartig, 1837: 193–194. Lectotype designated below.

Nematus maculiventris Hartig, 1840: 25. Type locality: northern Germany. No specimens located. Synonymy by Konow (1903b).

Nematus haemorrhoidalis Hartig, 1840: 26. Lectotype designated by Haris (1997). Primary homonym of *Nematus haemorrhoidalis* Spinola, 1808 (= *Nematus haemorrhoidalis* Spinola, 1808). **Syn. nov.**

Nematus caudalis Eversmann, 1847: 16. Lectotype designated below. **Syn. nov.**

Nematus approximatus Förster, 1854a: 320–321. Lectotype designated by Viitasaari (1980). Synonymy by Konow (1903b).

Nematus consobrinus Snellen van Vollenhoven, 1871: 237–242, pl. 10. Syntypes ♀♂, not located by Thomas (1987). Type locality: Netherlands, Haarlem. Synonymy by Konow (1899).

Nematus umbrinus Zaddach, 1876: 84–85. Syntypes ♀♂, probably destroyed (Blank & Taeger 1998). Type localities: Poland, Silesia and Gdansk [Danzig]; Russia, Kaliningrad [Königsberg]. Synonymy by Konow (1903b).

Nematus incertus W.F. Kirby, 1882: 107. Replacement name for *Nematus haemorrhoidalis* Hartig, 1840.

Nematus sauterianus Zaddach, 1883 in Brischke 1883: 147, 153. Holotype ♀, probably destroyed (Blank & Taeger 1998). Type locality: East Prussia. Synonymy by Konow (1903b).

Nematus multiplex Zaddach, 1883 in Brischke 1883: 188. Syntypes ♀♀ (MNHW), not examined. Type locality: Silesia. Synonymy by Konow (1903b).

Pteronidea cognata Lindqvist, 1958: 108–111. Synonymy with *approximatus* by Lindqvist (1962a).

Diagnosis

Typically, the extensively pale head (including antenna), thorax, abdomen, and costa generally paler than pterostigma distinguish males and females from the others in the group. Smaller subapical tooth of claws compared to *E. ribesii* (subapical tooth broad and as long as apical tooth) and larger compared to *E. gracilidentata* additionally distinguishes *E. leucotrocha* females from these two species. Males of *E. gracilidentata* also tend to have a smaller subapical tooth (can be almost absent) than in *E. leucotrocha*, but also have a different colour pattern, with the black head and thorax contrasting with the yellow abdomen (in *E. leucotrocha* the colouration of head and thorax varies together with the abdomen, in a similar way, from mostly black to extensively pale). Males of most other species can be distinguished from *E. leucotrocha* by the shape of the projection of tergite 8 (see under *E. ribesii*) and penis valves (see under *E. ribesicola*, *E. similator*, and *E. vastatrix*). Darker specimens of *E. leucotrocha* might not be clearly distinguishable from *E. quieta*, but usually the clypeus seems to be more deeply excised in *E. quieta* than in *E. leucotrocha*.

The male type specimen of *caudalis* seems to fit better with *leucotrocha* (projection of tergite 8 broader, less emarginate clypeus) than ZMUO.029729 (*quieta*). Males can also be rather dark (ZMUO.036046): antenna black, head slightly pale around eyes (clypeus, labrum, lower orbits and slightly supraclypeal area pale), mesepisternum black, abdomen dorsally mostly black.

Type material examined

Lectotype *Nematus leucotrochus*, here designated
GERMANY – **Niedersachsen** • ♀; Harz; 51.8° N, 10.3° E; W. Saxesen leg.; ZSM, GBIF-GISHym3338.

Paralectotype *Nematus leucotrochus*
GERMANY • 1 ♀; same data as for lectotype; NFVG, GBIF-GISHym4684.

Lectotype *Nematus haemorrhoidalis*
GERMANY • ♂; northern Germany [according to Hartig 1840: 22]; ZSM, DEI-GISHym12490.

Lectotype *Nematus caudalis*, here designated
RUSSIA – **Tatarstan** • ♂; Kasan Province; 55.8° N, 49.1° E; E. Eversmann leg.; ZIN, DEI-GISHym30028.

Lectotype *Nematus approximatus*
GERMANY – **Nordrhein-Westfalen** • ♀; Aachen area; 50.77° N, 6.09° E; ZSM, GBIF-GISHym3203.

Holotype *Pteronidea cognata*
FINLAND – **Uusimaa** • ♀; Helsinki, Munksnäs [Munkkiniemi]; 60.22° N, 24.89° E; 2 Apr. 1955; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.2455>.

Host plants

Ribes spp. Possibly there are regional differences in preferences for host species: in Finland *R. rubrum* L. is preferred, whereas in Germany and the British Isles *R. uva-crispa* L. is the usual host (Benson 1958a; Pschorn-Walcher & Altenhofer 2000). According to Viitasaari (1980) frequently also *R. nigrum* L., although this could refer to *E. quieta* even though Viitasaari (1980) separated this species from *E. leucotrocha*.

Genetics

COI

Based on 9 specimens, maximum within-species distance is 5.17% and the nearest neighbours, diverging by a minimum of 0.46%, are *Euura quieta* and *E. gracilidentata*.

Nuclear

Based on 10 specimens, maximum within-species distance is 0.86% (0.64% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.5%, is *Euura gracilidentata*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Germany, Russia, Sweden, and the United Kingdom.

271 *Euura quieta* (Eversmann, 1847)
Figs 216, 508

Nematus quietus Eversmann, 1847: 17. Lectotype designated below.

Nematus olfaciens Benson, 1953: 60–63. **Syn. nov.**

Diagnosis

Most similar to *E. gracilidentata*, *E. leucotrocha*, and *E. similator*. Generally, head and thorax are darker (usually mostly black) than in *E. leucotrocha*. In the palest females, mainly black are mesoscutum dorsally and mesepisternum ventrally, while antenna (black or slightly pale ventrally) and head (usually only somewhat brown around the eyes) are still darker than in similarly pale *E. leucotrocha*. Typically,

head, antenna, and mesoscutum are extensively pale in *E. leucotrocha*, but occasionally the species can be even darker than *E. quieta* with mostly black abdomen (at least ventrally extensively pale in *E. quieta*). There might be a tendency of *E. quieta* to have a somewhat more deeply excised clypeus than in *E. leucotrocha*. Differences between females of *E. similator* and *E. quieta* might be even less clear. *Euura similator* females might usually have antennae as long as costa and pterostigma, while in *E. quieta* the antenna seems to usually reach middle of pterostigma. *Euura similator* might usually also have a less deeply emarginate clypeus and the abdomen is typically completely pale or the black area on tergites tends to be narrow, while in *E. quieta* the first tergite is perhaps always black (completely or mostly) and the other tergites are completely yellow or the black area on tergites is broad. Males of *E. similator* have a typically (nearly) completely yellow abdomen and the valvispina is more strongly bent than in *E. quieta* (abdomen dorsally mostly black). Males of *E. leucotrocha* are typically about as pale as females, but darker specimens (mostly black head, thorax, and abdomen dorsally) might not be distinguishable from *E. quieta*. *Euura gracilidentata* males and females can usually be distinguished from *E. quieta* by having smaller subapical tooth, although there might be overlap. Viitasaari (1980) did not study Eversmann's type specimens of *Nematus quietus* (DEI-GISHym30033, DEI-GISHym30034), which have black antennae (not ventrally pale).

A sequenced specimen from Slovakia (DEI-GISHym17629) is clearly different based on COI and nuclear genes (1529 bp of NaK and POL2) from the Finnish specimens (and from the other sequenced *ribesii* group specimens). Morphologically, the specimen DEI-GISHym17629 (and DEI-GISHym19035 also from Slovakia) fits better with *quieta* than the other species.

Type material examined

Lectotype *Nematus quietus*, here designated

RUSSIA—Tatarstan • ♀; Kasan Province; 55.8° N, 49.1° E; E. Eversmann leg.; ZIN, DEI-GISHym30034.

Notes

207 bp of COI of the lectotype is identical to specimens from Finland (e.g., ZMUO.030861) and with at least one nucleotide difference (*E. leucotrocha* DEI-GISHym21329) to the other specimens of *ribesii* group.

Holotype *Nematus olfaciens*

UNITED KINGDOM – Scotland • ♀; Dundee; 56.48° N, 2.96° E; Aug. 1952; A. Sanderson leg.; reared ex larvae *Ribes nigrum*; BMNH, B.M.TYPEHYM.1.696.

Notes

Best morphological match: ZMUO.029695 and ZMUO.029449.

Host plants

According to Benson (1953) preferably *Ribes nigrum*, but also *R. rubrum* and *R. uva-crispa*.

Genetics

COI

Based on 7 specimens, maximum within-species distance is 5.62% and the nearest neighbour, diverging by a minimum of 0.46%, is *Euura leucotrocha*. The Finnish specimens (6) are identical.

Nuclear

Based on 7 specimens, maximum within-species distance is 1.28% (0.07% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.5%, is *Euura leucotrocha*. The Finnish specimens (6) are nearly identical.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Russia, Slovakia, and the United Kingdom.

272 *Euura ribesicola* (Lindqvist, 1949)

Figs 219, 511

Pteronidea ribesicola Lindqvist, 1949: 72–73. Lectotype ♀ (<http://id.luomus.fi/GL.2460>, MZH), designated by Viitasaari (1980).

Nematus bey-bienkoi Skorikova, 1952: 107–108. Synonymy by Viitasaari (1980).

Euura suguri Hara & Iwasaki, 2021: 53–57. Holotype ♀ (NSMT), not examined. Type locality: Japan, Hokkaido, Eniwa. **Syn. nov.**

Diagnosis

The black head and thorax, at least dorsally black abdomen, and extensively black metafemur (at least a quarter) and tibia (at least a third) distinguish the species from the others in the group. The darkest specimens of the other species (*E. leucotrocha*) still have a completely or nearly completely pale metafemur (rarely slightly black at apex), paler metatibia and ventrally at least slightly pale abdomen.

Recently, Hara & Iwasaki (2021) described *E. suguri* from Japan. When comparing *suguri* with *ribesicola*, Hara & Iwasaki (2021) were misled by photos of a specimen of *Nematus lonicerae* misidentified as *E. ribesicola* in ECatSym (Taeger *et al.* 2018). The lectotype of *ribesicola* fits well with *suguri*. Main differences are that the mesoscutellar appendage of the lectotype of *ribesicola* is about as long as the minor axis of cenchrus (distinctly shorter in *suguri*) and that the head is moderately projecting posterodorsally in lateral view (head markedly projecting posterodorsally in *suguri*). We do not consider these differences significant, as these characters vary not only within the *ribesii* group, but also in other *Euura*. The mesoscutellar appendage in the *ribesii* group is in most cases about as long as the minor axis of a cenchrus, but can be shorter or longer. The head is markedly projecting posterodorsally in perhaps about 10% of the specimens. The difference in dark markings on the head mentioned for the larvae by Hara & Iwasaki (2021) might not be reliable either, as this can vary within species as well as between the larval instars (the photos in Hara & Iwasaki 2021 do not seem to be of last instar larvae). The head of the larva of *E. ribesicola* is the palest in the group: uniformly greenish or yellowish without numerous dark specks (Viitasaari 1980; this study), only with a dark line (Hara & Iwasaki 2021), or dark specks (Hellqvist & Svensson 1991) above the eye, while the head is black (*E. ribesii* and *E. vastatrix*) or its whole upper part is covered with numerous dark specks (*E. gracilidentata*, *E. leucotrocha*, *E. quieta*, *E. similator*) in the other species.

Males are not known for certain, but the colouration of DEI-GISHym86112 fits with *E. ribesicola* (black pterostigma, thorax and abdomen, extensively black metafemur and metatibia apically) and not the other species treated here. Bogacheva (1994) mentions several males of *E. ribesicola*, but no morphological characterisation was given.

Type material examined

Lectotype *Pteronidea ribesicola*

FINLAND – **Regio aboensis** • ♀; Turku; 60.46° N, 22.28° E; 8 Jun. 1933; A.K. Merisuo leg.; reared ex larvae *Ribes uva-crispa*; MZH, <http://id.luomus.fi/GL.2460>.

Holotype *Nematus bey-bienkoi*

RUSSIA – **Perm oblast** • ♀; Molotov [Perm]; 57.996° N, 65.312° E; 20 May 1943; G. Bey-Bienko leg.; ZIN, DEI-GISHym30236.

Host plants

Preferably *Ribes nigrum* (Viitasaari 1980), but also *R. uva-crispa* and *R. rubrum* (Viitasaari 1980; Hara & Iwasaki 2021).

Genetics

COI

Based on 2 specimens (a female from Finland and a putative male from Primorsky Krai, Russia), maximum within-species distance is 5.32% and the nearest neighbour, diverging by a minimum of 1.22%, is *Euura leucotrocha*. Three additional secondary variants were detected in the Finnish specimen (ZMUO.037213) with the maximum distance of 1.06% to the primary variant.

Nuclear

Based on 2 specimens, maximum within-species distance is 1.02% (0.06% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.72%, is *Euura quieta*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Russia.

273 *Euura ribesii* (Scopoli, 1763)

Figs 217, 509

Tenthredo ribesii Scopoli, 1763: 280. Syntypes ♂♂ and larvae (lost or destroyed). Type locality: Slovenia, Carniola [Kranjska].

Nematus trimaculatus Serville, 1823: 71. Syntypes ♀♀ (no type material located: Lacourt 2000). Type locality: North of France. Synonymy by Dalla Torre (1894).

Nematus dimidiatus Serville, 1823: 70–71. Lectotype ♀ (MNHN), designated by Lacourt (2000), not examined. Type locality: France, Ile-de-France, Paris. Synonymy by Enslin (1916a).

Nematus ribesii Stephens, 1829: 329. Syntypes ♀♂, larvae (no type material located). Type locality: United Kingdom, England. Synonymy by Dalla Torre (1894). Secondary homonym of *Tenthredo ribesii* Scopoli, 1763 [*Euura ribesii* (Scopoli, 1763)].

Tenthredo ventricosa Bouché, 1834: 140. Syntype larvae (no type material located). Type locality: not stated. Synonymy by Dalla Torre (1894).

Nematus grossulariae Dahlbom, 1835a: 22–23. Syntype larvae (adults reared, but not described). No syntypes found in MZLU: a specimen from Dahlbom's collection cannot be a syntype, because according to the label the female emerged in May 25 in 1835, while according to the original description the reared adults emerged in April. Type locality: Sweden. Synonymy by Dalla Torre (1894).

Nematus grossulariatus Dahlbom, 1835a: 25. Type locality: Sweden, Skåne. Holotype not found in MZLU. Synonymy by Dalla Torre (1894).

Nematus ventricosus Hartig, 1837: 196–197. Syntypes ♀♂ (according to Hartig in ZMHB: not located). Type locality: not stated. Synonymy by Dalla Torre (1894).

Nematus flavipes Hartig, 1840: 24. Lectotype designated below. Synonymy by Konow (1905b). Primary homonym of *Nematus flavipes* Dahlbom, 1835 [*Pristiphora appendiculata* (Hartig, 1837)].

Nematus xanthophorus Hartig, 1840: 25. Syntypes, sex not stated, not located. Type locality: northern Germany. Synonymy by Konow (1903b).

Nematus ribis Leduc, 1842: 46, 48, pls 1–2. Syntypes ♀♂, larva, pupa. No type material is known to exist. Type locality: France, Seine-et-Oise. Synonymy by Taeger *et al.* (2010).

Tenthredo grossulariae Fischer von Waldheim, 1843: 2. Syntypes, sex not stated. No type material is known to exist. Type locality: Russia. Synonymy by Dalla Torre (1894). Primary homonym of

Tenthredo (*Emphytus*) *grossulariae* Klug, 1818 [*Ametastegia* (*Protemphytus*) *pallipes* (Spinola, 1808)].

Pteronus longicornis Marlatt, 1896a: 44–46 (key), 72. Secondary homonym of *Nematus longicornis* Eschscholtz, 1822 (incertae sedis).

Pteronus arapahonum Cockerell, 1906: 220. Syntypes (3 ♂♂) (USNMENT00778028, USNM, <http://n2t.net/ark:/65665/3c9dcf78c-4891-4bb4-8fe8-b65d3cc54874>), not examined. Type locality: USA, Colorado, Boulder.

Pteronidea aceris Rohwer, 1915: 211. Holotype ♀ (USNMENT00778631, USNM, <http://n2t.net/ark:/65665/3df27021b-df45-4a52-b962-faf9ad8c1013>), not examined. Type locality: USA, Pennsylvania, Charter Oak. Synonymy by Ross (1951).

Pteronidea ribesii var. *konowi* Enslin, 1916a: 420. Lectotype designated below. Synonymy by Smith (1979). Secondary homonym of *Pteronus konowi* Jakowlew, 1891 [= *Euura konowi* (Jakowlew, 1891), incertae sedis].

Pteronidea ribesii var. *feminina* Enslin, 1916a: 419. Lectotype designated below. Synonymy by Smith (1979).

Pteronidea equatia MacGillivray, 1923a: 30. Holotype ♂ (INHS), not examined. Type locality: USA, Oregon, Corvallis. Synonymy by Ross (1951).

Diagnosis

Large subapical tooth (broad and as long as apical tooth), costa as black as pterostigma along most of its length (only approximately basal quarter paler), typically mostly pale flagellum, and typically completely pale abdomen distinguish the females from the others in the group. Subapical tooth is somewhat or distinctly smaller and costa is in most cases paler in the other species of the group. Viitasaari (1980) suggested that the tip of valvula 3 in lateral view is blunt in *E. ribesii* compared to other species, but we did not observe any consistent differences between the species. Males are best recognised by the prominent and broad projection of tergite 8 that is slightly constricted at its base, dorsally mostly black abdomen and, as in females, the mostly black costa.

Type material examined

Lectotype *Nematus flavipes*, here designated

GERMANY • ♂; northern Germany [according to Hartig 1840: 22]; ZSM, GBIF-GISHym3686.

Syntype *Pteronus longicornis*

USA – **Michigan** • ♂; Ingham, Agricultural College; 42.746° N, 84.483° W; USNM, USNMENT00778536, <http://n2t.net/ark:/65665/320572933-77a7-4e85-bbc7-8e6e65c4e5e0>.

Lectotype *Pteronidea ribesii* var. *konowi*, here designated

GERMANY – **Bayern** • ♀; Fränkischer Jura; E. Enslin leg.; ZSM, GBIF-GISHym3322.

Lectotype *Pteronidea ribesii* var. *feminina*, here designated

COUNTRY UNKNOWN • ♂; [label illegible]; ZSM, GBIF-GISHym3274.

Host plants

Ribes spp.: most frequently *R. rubrum* and *R. uva-crispa*, only rarely on *R. nigrum* (Viitasaari 1980). Larvae gregarious.

Genetics

COI

Based on 8 specimens, maximum within-species distance is 0.46% and the nearest neighbour, diverging by a minimum of 3.8%, is *Euura leucotrocha*.

Nuclear

Based on 4 specimens, maximum within-species distance is 0% (0.12% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.53%, is *Euura leucotrocha*.

Distribution and material examined

Holarctic. Specimens studied are from Austria, Canada (only genetics), Finland, Germany, Norway, and the United Kingdom.

274 *Euura similator* (Förster, 1854)

Figs 218, 510

Nematus similator Förster, 1854a: 321–322. Lectotype designated by Viitasaari (1980).

Nematus eurysternus Zaddach, 1883 in Brischke 1883: 162. Syntypes ♀♂ (some may be in the ZSM, but if so, they are not clearly recognisable as types), not examined. Type localities: Germany, Czech Republic, Scotland, and possibly Russia. Synonymy by Viitasaari (1980).

Pteronidea leucotrocha var. *loisellei* Enslin, 1916a: 421. Lectotype designated below. Synonymy by Viitasaari (1980).

Pteronidea eurysterna var. *lutescens* Enslin, 1916a: 422–423. Lectotype designated below. Synonymy by Taeger *et al.* (2010).

Pteronus eurysterna var. *struvei* Zirngiebl, 1939: 109–111. Syntypes ♀♀. Type deposition unclear (Blank 1996). Type locality: Germany, Borkum. Synonymy by Blank (1996).

Diagnosis

Most similar to *E. quieta*, see differences discussed under that species.

Type material examined

Lectotype *Nematus similator*

GERMANY – Nordrhein-Westfalen • ♀; Aachen area; 50.77° N, 6.09° E; ZSM, GBIF-GISHym3425.

Lectotype *Pteronidea leucotrocha* var. *loisellei*, here designated

FRANCE – Basse-Normandie • ♀; Lisieux; 3 Aug. 1909; A. Loisele leg.; ZSM, GBIF-GISHym3337.

Lectotype *Pteronidea eurysterna* var. *lutescens*, here designated

CROATIA • ♂; Krapina; 46.161° N, 15.871° E; Hensch leg.; ZSM, GBIF-GISHym3342.

Host plants

Only *Ribes uva-crispa* has been unequivocally recorded (Taeger *et al.* 1998).

Genetics

COI

Based on 4 specimens, maximum within-species distance is 0.76% and the nearest neighbour, diverging by a minimum of 3.5%, is *Euura leucotrocha*.

Nuclear

Based on 3 specimens, maximum within-species distance is 0% (0% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.67%, is *Euura ribesii*.

Distribution and material examined

Palaearctic. Specimens studied are from Croatia, France, and Germany.

275 *Euura vastatrix* (Zhelochovtsev, 1935)

Pteronidea vastatrix Zhelochovtsev, 1935: 153. Syntypes ♀♂ (BMNH, NHRS, ZMMU?).

Diagnosis

The only species in the group that has a pale pterostigma instead of black or dark brown. In addition, males and females have an entirely black thorax (except tegula and pronotum) and abdomen dorsally black, head somewhat or extensively pale around eyes, and metafemur completely pale.

Type material examined

Syntype *Pteronidea vastatrix*

RUSSIA – **Amur oblast** • ♀; Blagoveshchensk; 50.281° N, 127.523° E; 29 Jul.–1 Aug. 1930; W. Wereschtschagin leg.; NHRS, NHRS-HEVA000006437.

Host plants

Ribes nigrum (Viitasaari 1980).

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Palearctic. Specimens studied are from Russia.

276 *Euura scutellata* group

Large size, small subapical tooth of claw, in dorsal view long and narrow valvula 3, and broad lamnium (lamnium 2.3–3.0 times as long as height of basalmost annulus) separates the females from the other *Euura*. Males are also large and have a small subapical tooth, and in combination with colouration can be distinguished from each other and the other *Euura*. Two species in the West Palearctic.

277 *Euura insignis* (Hartig, 1840)

Figs 292, 512

Nematus insignis Hartig, 1840: 22. Lectotype designated below.

Nematus superbis Gradl, 1881: 299–300. Holotype ♂ (NMPC?), not examined. Type locality: Czech Republic, Egerland. Synonymy by Konow (1898).

Diagnosis

Its large size and colouration distinguishes the species from the other *Euura*. In females, the antennae are pale in the middle and the middle abdominal terga are usually reddish. In males, flagellomeres 2(3)–7 are pale and the middle or most terga (except first tergum) are usually reddish. Both males and females have a black pterostigma and pale costa.

Type material examined

Lectotype *Nematus insignis*, here designated

GERMANY – **Niedersachsen** • ♀; Klausthal [Clausthal-Zellerfeld]; 51.80° N, 10.34° E; W. Saxesen leg.; NFVG, GBIF-GISHym4690.

Host plants

Picea abies is the main host in Europe, but *P. pungens* Engelm. is also used (Kula *et al.* 2016).

Genetics

COI

Based on 3 specimens, maximum within-species distance is 0.15% and the nearest neighbour, diverging by a minimum of 6.23%, is *Euura scutellata*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.02% (0.2% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.26%, is *Euura scutellata*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Germany, and Russia.

278 *Euura scutellata* (Hartig, 1837)

Figs 293, 513

Nematus scutellatus Hartig, 1837: 214–216. Lectotype designated below.

Nematus immundus Thomson, 1863: 625. Lectotype designated below. Synonymy by Konow (1890).

Diagnosis

Its large size, extensively pale body (females can be almost completely pale, and while alive tend to be green), small subapical tooth, in dorsal view long and narrow valvula 3, and penis valve distinguish the species from the other *Euura*. Female (6.0)7.0–8.5 mm. Male 5.5–7.0(7.5) mm.

Type material examined

Lectotype *Nematus scutellatus*, here designated

GERMANY – **Niedersachsen** • ♀; Harz; 51.8° N, 10.3° E; W. Saxesen leg.; ZSM, GBIF-GISHym3412.

Lectotype *Nematus immundus*, here designated

SWEDEN • ♀; Västergötland; MZLU, MZLU2017306.

Host plants

The usual host is *Picea abies*, but *P. pungens* is also accepted (Kula *et al.* 2016).

Genetics

COI

Based on 14 specimens, maximum within-species distance is 3.19% and the nearest neighbour, diverging by a minimum of 6.23%, is *Euura insignis*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.69%. The nearest neighbour, diverging by a minimum of 1.26%, is *Euura insignis*.

Distribution and material examined

Palaearctic. Specimens studied are from Austria, Finland, France, Germany, Russia, Slovakia, Sweden, and Switzerland.

279 *Euura vicina* group

Mostly defined based on genetic data. The species are also morphologically similar, but we have not found consistent morphological characters that define the group to the exclusion of other *Euura*. Host plants are known for *E. vicina* (*Rumex*) and *E. notabilis* (*Bistorta*, this study). In addition, based on the sequencing of larval gut contents, a specimen (DEI-GISHym80076) from Primorsky Krai (Russia) had apparently fed on *Bistorta* sp. At this point it is not possible to say which species DEI-GISHym80076 could be, genetically it is closest to *E. putoni* and *E. notabilis*, but currently there is no genetic data for *E. nigerrima*. Based on these host plant observations and the habitats where other species have been collected, it can be suggested that all species of the *vicina* group are on Polygonaceae.

280 *Euura nigerrima* (Konow, 1903)

Figs 294, 514–515

Pachynematus nigerrimus Konow, 1903a: 381 (key). Lectotype designated by Oehlke & Wudowenz (1984).

Nematus fumosus Lacourt, 1991: 69–70. **Syn. nov.**

Diagnosis

Its mostly or nearly completely black body, dark brown or black pterostigma and costa, size (female 7–8 mm, male 6–7 mm), small or large subapical tooth (not clearly bifid), head not of “*Amauronematus*-type”, more or less triangular valvula 3 in dorsal view, lancet, and penis valve should enable identification of the species. Species with similar lancet (16–18 serrulae, apical ones hook-shaped) are distinctly paler (at least legs; *E. declinata*, *E. scotonota*, and the other species of the group), smaller (less than 6 mm, e.g., *E. uda*, *E. excisa*), or have a distinctly matt mesepisternum (*E. excisa*). Species with similar penis valves (1.6 mm, elongate, paravalva without distinct spines and ventroapically not distinctly protruding, valvispina long, straight and not distinctly expanded at base, ventroapical margin of paravalva narrow and more or less perpendicular to valvispina, invagination between valvispina and ventroapical margin of paravalva small or absent, connection between dorsal margins of valvura and valviceps without distinct bend) are distinctly paler (e.g., *E. notabilis* and *E. putoni*), smaller (less than 5.5 mm, e.g., *E. uda*), or have an “*Amauronematus*-type” head (e.g., some specimens in *E. vittata* group). Also, external morphology and penis valves of *E. hyperborea* are similar, but this species is found in (sub) arctic habitats unlike *E. nigerrima*.

Pronotum black or posterior margin slightly pale. Costa and pterostigma black or dark brown. Metafemur apically (up to half) pale.

No genetic data available, but based on morphology probably closely related to paler *E. notabilis* and *E. putoni* (lancet and penis valve are not distinguishable from these species).

Type material examined

Lectotype *Pachynematus nigerrimus*

AUSTRIA – **Tirol** • ♂; Innsbruck; 47.277° N, 11.378° E; 10 May 1896; Friesse leg.; SDEI, GBIF-GISHym3883.

Notes

Length 6.3 mm.

Holotype *Nematus fumosus*

FRANCE – **Provence-Alpes-Cote-d’Azur** • ♂; Ailefroide; 44.89° N, 6.45° E; 1500 m a.s.l.; 30 May 1982; V. Lacourt leg.; CTN, DEI-GISHym12672.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Palaearctic. Specimens studied are from Austria and France.

281 *Euura notabilis* (Konow, 1903)

Figs 295, 516–517

Pteronus notabilis Konow, 1903b: 307 (key). Lectotype designated below.

Nematus pulcher Vikberg, 1982: 63. Unnecessary replacement name for *Pteronus notabilis* Konow, 1903.

Diagnosis

Colouration (extensively yellow abdomen, brown pterostigma, black head and thorax), more or less triangular valvula 3 in dorsal view, lancet, and penis valve distinguishes the species from the other *Euura*. Species with a similar lancet (16–18 serrulae, apical ones hook-shaped) are darker (e.g., *E. declinata* and the other species of the group). *Euura scotonota* has a somewhat similar lancet and pale underside of abdomen, but serrulae are less protruding, setae of the lancet are perhaps longer, and the pale colour is more whitish than yellowish compared to *E. notabilis*. Species with similar penis valve (1.5 mm, elongate, paravalva without distinct spines and ventroapically not distinctly protruding, valvispina long, straight and not distinctly expanded at base, ventroapical margin of paravalva narrow and more or less perpendicular to valvispina, invagination between valvispina and ventroapical margin of paravalva small or absent, connection between dorsal margins of valvura and valviceps without distinct bend) are distinctly darker (e.g., *E. nigerrima*, *E. hyperborea*, *E. uda*) or have an “*Amauronematus*-type” head. *Euura putoni* males seem to have a darker abdomen (dorsally nearly completely black), but otherwise might not be distinguishable from the males of *E. notabilis* (abdomen dorsally partly pale).

Female

Head black; labrum pale; clypeus black to partly pale; supraclypeal area black; thorax black; pronotum and tegula pale; pterostigma pale (yellow or brown); metafemur pale; metatibia pale with black apex; hind tarsus black; abdomen dorsally nearly completely pale to (completely?) black, ventrally pale; valvula 3 mostly black or basally extensively pale; mesepisternum smooth or slightly matt; valvula 3 in dorsal view gradually narrowing to an acute or slightly blunt tip.

Type material examined

Lectotype *Pteronus notabilis*, here designated

POLAND • ♂; Breslau [Wrocław]; 51.11° N, 17.03° E; SDEI, GBIF-GISHym3862.

Host plants

Bistorta officinalis.

Genetics

COI

Based on 2 specimens, maximum within-species distance is 1.37% and the nearest neighbour, diverging by a minimum of 2.58%, is *Euura putoni*. When including also secondary intraindividual COI variants, maximum within-species distance is 4.86% and the nearest neighbour, diverging by a minimum of 1.83%, is an unidentified *Euura vicina* group larva (DEI-GISHym80076) from Primorsky Krai, Russia.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.17% (0.1% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.4%, is *Euura vicina* group larva (DEI-GISHym80076) from Primorsky Krai, Russia.

Distribution and material examined

Palearctic. Specimens studied are from Bulgaria, Estonia, Germany, Poland, and Russia.

282 *Euura putoni* (Konow, 1903)

Figs 296, 518

Pteronus putoni Konow, 1903b: 307 (key). Lectotype designated by Oehlke & Wudowenz (1984).
Amauronematus erythropus Lindqvist, 1975: 17. **Syn. nov.**

Diagnosis

Females are most similar to those of *E. declinata*, which has costa mostly black or dark brown with pale apical and basal edge (uniformly pale in *E. putoni*). *Euura putoni* usually has a pale pterostigma, but sometimes it is almost as black as in *E. vicina*, which has a completely or nearly completely black pronotum and tegula (pale in *E. putoni*). Colouration (black thorax, except for pale tegula and pronotum, pale pterostigma and costa, pale legs, abdomen mostly or dorsally black) and penis valve usually distinguishes the species from the others. See under *E. nigerrima* and *E. notabilis* for additional details.

Female

7.5–8.5 mm.

Type material examined

Lectotype *Pteronus putoni*

FRANCE • ♀; France; SDEI, GBIF-GISHym3868.

Holotype *Amauronematus erythropus*

RUSSIA – Irkutskaya oblast • ♀; Irkutsk, Uladovo; 1966; MZH, <http://id.luomus.fi/GL.5126>.

Host plants

Adults have been found on and near *Bistorta officinalis*, which may be the larval host plant.

Genetics

COI

Based on 4 specimens, maximum within-species distance is 0.3% and the nearest neighbour, diverging by a minimum of 2.58%, is *Euura notabilis*.

Nuclear

Only one sequence available. The nearest neighbours, diverging by a minimum of 0.8%, are *Euura notabilis* and *E. vicina* group larva DEI-GISHym80076.

Distribution and material examined

Palaearctic. Specimens studied are from France, and Germany.

283 *Euura vicina* (Serville, 1823)

Figs 297, 519

Nematus vicinus Serville, 1823: 68. Holotype ♂ (MNHN), not examined. Type locality: northern France.

Nematus longispinis Kriechbaumer, 1885: 13. Syntypes, sex not stated, not located. A name for specimens determined by A. Förster as *N. coeruleocarpus*. Type locality: not specified. Synonymy with *Nematus crassus* auct. nec Fallén by Dalla Torre (1894).

Holconeme flavipes Matsumura, 1912: 218–219. Syntypes ♀♀, not examined. Type locality: Japan, Hokkaido, Sapporo. Synonymy by Takeuchi (1952).

Diagnosis

Its large size (female typically 8–9 mm, male 7–8 mm), colouration (black pterostigma, pale costa, nearly completely black body, including pronotum and tegula, extensively yellow or orange legs), and long inner hind tibial spur (longer than apical breadth of hind tibia) distinguishes this species from the other *Euura*.

Host plants

Rumex spp. (Miles 1936; Kangas 1985). Reports from *Betula* and *Salix* (see, e.g., Miles 1936) require confirmation.

Genetics

COI

Based on 7 specimens, maximum within-species distance is 2.28% and the nearest neighbour, diverging by a minimum of 5.02%, is *Euura putoni*.

Nuclear

Based on 2 specimens, maximum within-species distance is 0.7%. The nearest neighbour, diverging by a minimum of 3.19%, is *Euura notabilis*.

Distribution and material examined

Palaearctic. Specimens studied are from Bulgaria, Finland, France, Germany, Norway, Russia, Sweden, Switzerland, and the United Kingdom.

284 *Euura viduata* group

The group is well defined genetically and based on female lancets. The lancets have short and stout setae, are often strongly curved, and 3–11 basal annuli are without distinct serrulae and cypsellae. Most of the specimens are mostly or nearly completely black, only *E. viduata* females are sometimes extensively pale. Young larvae of probably all the species of the group live hidden between leaves which do not expand and separate from each other after oviposition. Older larvae feed “normally”, exposed on the leaf edges. Eight species are recognised. *Euura leucolena* (short valvula 3, more curved lancet) and *E. erecta* (long valvula 3, less curved lancet) are genetically highly variable and not clearly defined based on nuclear genes. The boundaries between them and the exact number of species (especially in the case of *E. leucolena*) remains currently uncertain. Because of these uncertainties, we have not identified all the larvae sequenced during this study.

285 *Euura cornuta* (Lindqvist, 1962)

Figs 298, 520

Amauronematus cornutus Lindqvist, 1962a: 118–120.

Diagnosis

The males are easy to identify based on the penis valve, pseudoceps of which forms a long filament or spine at the apex. From the other species with a similar penis valve (with spine-like apex of pseudoceps), *E. cornuta* differs by straight spine of pseudoceps, apically distinctly broadening paravalva, more or less perpendicular apical margin of paravalva in relation to the spine of pseudoceps, and not having a valvispina. The females are more difficult to distinguish from the other species of the group. Nevertheless, the pale clypeus and malar space, black or slightly pale pronotum and tegula, at least apically distinctly black cerci, short valvula 3, straight lancet with 18–19 annuli, and relatively large size (6.5–7.5 mm) should enable identification of the females.

Female

6.5–7.5 mm. Head black to extensively brown around eyes; labrum, clypeus, and malar space pale; supraclypeal area black; thorax black; pronotum black or posteriorly slightly pale; tegula black or slightly pale; pterostigma brown or centrally paler than externally; metafemur black to extensively pale; metatibia pale or brown; hind tarsus black or brown; abdomen mostly black, hypopygium posteriorly and valvifer 2 pale or brown, terga 9–10 black to extensively pale, sometimes also terga 7–8 pale; valvula 3 black or basally slightly pale; cerci distinctly black at least apically; mesepisternum smooth or slightly matt; valvula 3 short, in dorsal view gradually narrowing to an acute tip.

Male

5–7 mm. Head black to extensively brown around eyes; labrum and clypeus pale, malar space pale or black; supraclypeal area black; thorax black; pronotum black; tegula black or slightly pale; pterostigma brown; metafemur black or pale; metatibia pale or brown; hind tarsus black or brown; abdomen black, sternum 9 pale; mesepisternum smooth or slightly matt; projection of tergum 8 indistinct.

Type material examined

Holotype *Amauronematus cornutus*

FINLAND – Uusimaa • ♂; Kirkkonummi; 60.126° N, 24.439° E; 3 May 1959; V. Karvonen leg.; MZH, <http://id.luomus.fi/GL.2466>.

Host plants

Salix caprea, *S. glauca*.

Genetics

COI

Based on 3 specimens, maximum within-species distance is 0.46% and the nearest neighbour, diverging by a minimum of 6.84%, is *Euura erecta*.

Nuclear

Based on 3 specimens, maximum within-species distance is 0.19% (0.31% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.97%, is *Euura erecta* (ZMUO.063230).

Distribution and material examined

Palearctic. Specimens studied are from Bulgaria, Finland, Norway, Russia, and Sweden.

286 *Euura erecta* (Lindqvist, 1945)

Figs 300, 526–527

Amauronematus erectus Lindqvist, 1945: 107–108. Syntypes ♀♂ (MZH?), not located. Type localities: Finland, Lapland; Sweden, Virihaure; Russia, Dudinka.

Diagnosis

Females are most similar to *E. malaisei*, which also has a rather long valvula 3 (tends to be shorter in other species of *viduata* group). The lancet is less curved in *E. erecta* than in *E. malaisei*. Penis valves are most similar to *E. malaisei*, *E. leucolena* and *E. rectiserra*, but in some specimens (DEI-GISHym12074, 210009_LGB) of *E. erecta* the apex of pseudoceps forms a small filament. The other males we have checked (DEI-GISHym12062, DEI-GISHym84015) lack the filament at the apex of pseudoceps and are genetically somewhat different. Nevertheless, the genetic variability is large as indicated by heterozygous females. The females, which we have identified based on morphology, seem to cover the genetic variability between the males. The specimens 210008_SSR and 210009_LGB were caught in copula on *Salix lanata*.

Host plants

Salix lanata. Macek *et al.* (2020) reported *Salix aurita*, but this is probably based on a misidentification of the sawfly. For example, the penis valve shown for *E. erecta* by Macek *et al.* (2020) belongs to the *E. bipartita* group (perhaps *E. connecta*).

Genetics

COI

Based on 21 specimens, maximum within-species distance is 3.5% and the nearest neighbour, diverging by a minimum of 0.15%, is *Euura leucolena*.

Nuclear

Based on 21 specimens, maximum within-species distance is 1.08% (1.01% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.09%, is *Euura leucolena* (ZMUO.041208).

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Norway, and Sweden.

287 *Euura leucolena* (Brischke, 1883)

Figs 302–303, 528–529

Nematus leucolenus Brischke, 1883: 196–197. Syntypes ♀♂, probably destroyed (Blank & Taeger 1998). Type locality: Poland, Gdansk [Danzig].

Pontania unga Kincaid, 1900: 354. Holotype ♀ (USNMMENT00778215, USNM, <http://n2t.net/ark:/65665/310804fa0-29f1-4aa8-bc3c-6e083e890c90>), not examined. Type locality: USA, Alaska, Popof Island.

Pteronidea egeria MacGillivray, 1923c: 161–162. Holotype ♀ (INHS), not examined. Type locality: Canada, Alberta, Edmonton.

Amauronematus saarineni Lindqvist, 1945: 106. Lectotype designated below. **Syn. nov.**

Diagnosis

Delimitation of the species is uncertain. Based on similarities in female, male and larval morphology (green with black dots), we have not split *E. leucolena* up, despite its large genetic diversity and wide range of host willow species. Large within-species genetic diversity is supported by some specimens

having high levels of heterozygosity. The females are nearly completely black to slightly pale (clypeus, pronotum, tegula, metafemur, and tip of abdomen can be extensively pale, which does not clearly correlate with different species of host willow). The mesepisternum is slightly matt, valvula 3 is short, lancet is curved and has 13–17 annuli. Penis valves do not seem to be distinguishable from *E. rectiserra*, but the valviceps might be less expanded dorso-apically compared to *E. malaisei*.

Type material examined

Lectotype *Amauronematus saarineni*, here designated
FINLAND – Häme • ♀; Aitolahti; 61.544° N, 23.888° E; 17 May 1936; A. Saarinen leg.; MZH, <http://id.luomus.fi/GL.2458>.

Notes

Brischke (1883: 197) described two types of green larvae collected from *Salix purpurea* (under the name *Salix helix*), with and without black dots on annuli. The larvae without distinct black dots may belong to *E. viduata*, while *E. leucolena* and related species all seem to have distinct rows of black dots on some of the annulets. Best fit to the description of adult *leucolenus* Brischke is DEI-GISHym12009 (except that the tip of the abdomen is paler).

Host plants

Several species of *Salix* have been named as host plants, but these all need checking, because of the unclear taxonomy of *E. leucolena*: *S. aurita*, *S. caprea*, *S. cinerea* (Macek *et al.* 2020), *S. purpurea* (Brischke 1883), *S. repens* (Benson 1948b), *S. phylicifolia* (Kangas 1985).

Genetics

COI

Based on 30 specimens, maximum within-species distance is 4.56% and the nearest neighbour, diverging by a minimum of 0%, is *Euura malaisei*.

Nuclear

Based on 30 specimens, maximum within-species distance is 1.2% (1.19% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.03%, is *Euura viduata* group larva ZMUO.063332.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Germany, and Norway.

288 *Euura malaisei* (Hellén, 1970)
Figs 301, 530

Decanematus longiserra Malaise, 1931b: 31–32. Secondary homonym of *Nematus longiserra* Thomson, 1863 [= *Euura longiserra* (Thomson, 1863)].

Amauronematus malaisei Hellén, 1970: 7. Replacement name for *Decanematus longiserra* Malaise, 1931.

Diagnosis

Females are most similar to *E. erecta*: see differences mentioned under that species. Penis valves are very similar to *E. leucolena* and *E. rectiserra*. Dorso-apically, the valviceps might be more expanded in *E. malaisei* than in *E. leucolena* and *E. rectiserra*.

Female

5.0 (6.5) mm. Head black; labrum black or brown; clypeus black; supraclypeal area black; thorax black; pronotum black; tegula black; pterostigma centrally paler than externally; metafemur black or apically pale; metatibia brown or pale; hind tarsus black; abdomen black; hypopygium black or posteriorly slightly pale; valvifer 2 at least partly pale or brown; tergum 9 black to extensively pale; tergum 10 black or slightly pale; valvula 3 basally slightly pale; cerci pale with darkened tip; mesepisternum slightly matt; valvula 3 long, in dorsal view gradually narrowing, with acute tip.

Male

4.0–4.5 mm. Head black; labrum black or brown; clypeus black; supraclypeal area black; thorax black; pronotum black; tegula black; pterostigma centrally paler than externally; metafemur black or apically pale; metatibia brown or pale; hind tarsus black; sternum 9 pale; mesepisternum slightly matt; projection of tergum 8 small.

Type material examined

Holotype *Decanematus longiserra*

RUSSIA – Kamchatka oblast • ♀; Klutchi [Klyuchi]; 56.32° N, 160.85° E; R. Malaise leg.; NHRS, NHRS-HEVA000006442.

Notes

Holotype length 6.5 mm, or 6.9 mm including valvula 3.

Host plants

Salix glauca, *S. lanata*.

Genetics

COI

Based on 6 specimens, maximum within-species distance is 3.75% and the nearest neighbour, diverging by a minimum of 0%, is *Euura leucolena*.

Nuclear

Based on 6 specimens, maximum within-species distance is 0.59% (0.51% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.17%, is *Euura erecta* (ZMUO.063230).

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Russia.

289 *Euura nitidipleuris* (Malaise, 1931)

Figs 299, 521

Amauronematus nitidipleuris Malaise, 1931b: 45. Lectotype designated below.

Amauronematus temporalis Hellén, 1970: 34. **Syn. nov.**

Diagnosis

Apically extensively pale abdomen but black tegula and pronotum, short valvula 3, strongly curved lancet with 16–18 annuli, and size (6.0–8.0 mm) should enable identification of the female. Male has pale sternum 9, black tegula and pronotum, and unique penis valve (1.5 mm, small valvispina, paravalva basally and apically similarly broad, broad apex of pseudoceps, small invagination between valvispina

and broad and round lobe of paravalva). Penis valves of *E. acuminata* and *E. annulata* are similar, but in addition to some differences in the shape of the paravalva (more elongate or basally narrower than apically), males of these species are extensively pale. When he compared *Amauronematus temporalis* with *nitidipleuris*, Hellén (1970) relied on Lindqvist (1945), who apparently misinterpreted *nitidipleuris*. According to Lindqvist's drawing (1945: fig. 4), *nitidipleuris* has a straight lancet, but at least the lectotype has a curved lancet, as in the type of *temporalis*.

The COI sequence (458 bp) of the studied male (<http://id.luomus.fi/GP.110187>) is identical to a 130 bp fragment from the holotype of *temporalis*, and matches the sequenced larva rather well (1.09% different) and differs clearly from the other species by a minimum of 6.55%.

Type material examined

Lectotype *Amauronematus nitidipleuris*, here designated

RUSSIA – **Kamchatka oblast** • ♀; Klutchi [Klyuchi]; 56.32° N, 160.85° E; R. Malaise leg.; NHRS, NHRS-HEVA000006358.

Holotype *Amauronematus temporalis*

FINLAND – **South Ostrobothnia** • ♀; Alavus; 19 May 1937; A. Saarinen leg.; MZH, <http://id.luomus.fi/GL.2476>.

Host plants

Unknown, but probably *Salix* like the other species in the group. Lindqvist (1953) reported two reared specimens from *Salix* (mentioned also by Kontuniemi 1960), but because he had apparently misinterpreted *nitidipleuris* earlier (Lindqvist 1945), the specimens might represent a different species in the group. The larva sequenced here was swept from a mixture of *Salix* and *Betula nana*.

Genetics

COI

Only one sequence (1087 bp) available, from a larva. The nearest neighbour, diverging by a minimum of 5.78%, is *Euura viduata*.

Nuclear

Only one sequence available, from a larva with haplotypes diverging by 0.21%. The nearest neighbour, diverging by a minimum of 1.15%, is *Euura erecta* (ZMUO.063230).

Distribution and material examined

Palaearctic. Specimens studied are from Finland, and Russia.

290 *Euura rectiserra* (Lindqvist, 1971)
Figs 304, 531

Decanematus rectiserra Lindqvist, 1971b: 8.

Diagnosis

Females can be recognized mainly by the short valvula 3 and straight lancet with about 14 annuli and flat serrulae. The smooth mesepisternum can also help to distinguish the females from the similar *E. leucolena*. Males might not be distinguishable from *E. leucolena*. Macek *et al* (2020) reported this species under the name *Amauronematus leucolenus*.

Female

4.5–5.5 mm (n = 2). Head black or weakly brown around eyes; labrum brown or pale; clypeus partly pale; supraclypeal area black; thorax black; pronotum posteriorly slightly or extensively pale; tegula slightly or extensively pale; pterostigma brown or centrally paler than externally; metafemur mostly black or pale; metatibia brown or pale; hind tarsus black; abdomen black; tergum 9 and valvifer 2 black or slightly pale, hypopygium partly brown; mesepisternum (usually?) smooth.

Male

4.0 mm (n = 2). Head black; labrum brown or pale; clypeus black; supraclypeal area black; thorax black; pronotum black or slightly pale posteriorly; tegula black; pterostigma centrally paler than externally; metafemur mostly black to mostly pale; metatibia brown or pale; hind tarsus black; sternum 9 pale; mesepisternum (usually?) smooth; projection of tergum 8 small.

Type material examined

Holotype *Decanematus rectiserra*

FINLAND – Central Ostrobothnia • ♀; Kaarlela; 63.819° N, 23.567° E; 3 Jun. 1968; J. Kangas; MZH, <http://id.luomus.fi/GL.9211>.

Host plants

Salix aurita.

Genetics

COI

Based on 4 specimens, maximum within-species distance is 4.41% and the nearest neighbour, diverging by a minimum of 0%, is *Euura viduatoides*.

Nuclear

Based on 4 specimens, maximum within-species distance is 0.42% (0.44% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.31%, is *Euura leucolena* (ZMUO.038899).

Distribution and material examined

Palaearctic. Specimens studied are from Finland.

291 *Euura viduata* (Zetterstedt, 1838)

Figs 306, 522–523

Tenthredo viduata Zetterstedt, 1838: 351. Lectotype designated below.

Nematus striatipes Hartig, 1840: 26. Lectotype designated below. **Syn. nov.**

Nematus lepidotus Hartig, 1840: 26. Lectotype designated below. Synonymy by Konow (1905b).

Nematus palliceps Hartig, 1840: 25. Lectotype designated below. **Syn. nov.**

Nematus brachyotus Förster, 1854a: 295–297. Syntypes ♀♀ (ZSM), not located. Type locality: Germany, Aachen area. Synonymy by Konow (1905b).

Nematus luctuosus Förster, 1854a: 342–344. Syntypes ♀♀ (ZSM), not located. Type locality: Germany, Aachen area. Synonymy by Konow (1895).

Nematus notatus Förster, 1854a: 298–299. Lectotype designated below. Synonymy by Lindqvist (1941b).

Nematus vagus Zaddach, 1883 in Brischke 1883: 186–187. Syntypes ♀♂, probably destroyed (Blank & Taeger 1998). Type localities: Russia, Kaliningrad [Königsberg]; Poland, Gdansk [Danzig]; Finland; Silesia. Synonymy by Konow (1895). Secondary homonym of *Tenthredo vaga* Fabricius, 1781 [*Euura vaga*].

Amauronematus viduatus var. *lugens* Enslin, 1915: 379. Syntypes ♀♀, not located. Type locality: not stated. Synonymy by Mucbe (1975).

Amauronematus viduatus var. *laetus* Enslin, 1915: 379. Lectotype designated below. Synonymy by Mucbe (1975).

Amauronematus (*Brachycoluma*) *spaethi* Liston, 2005: 272–273. **Syn. nov.**

Diagnosis

Smooth mesepisternum, at least slightly pale pronotum, hypopygium, valvifer 2, and tergum 9, pale cerci, distinctly curved lancet with 20–24 annuli and basal two annuli with rudiments of serrulae enable identification of the females. The distinctive penis valve (somewhat rectangular paravalva, large broad valvispina, distinct invagination between valvispina and ventroapical lobe of paravalva) enables reliable identification of males. The penis valve of one male (DEI-GISHym31865, Fig. 524) differs only in lacking an invagination between the valvispina and the ventroapical lobe of the paravalva. Although this specimen might represent an additional species occurring in the Alps, associated females do not seem to be morphologically distinguishable from *E. viduata*, nor is there a clear genetic difference.

Female

4.5–6.5 mm. Head black to extensively pale around eyes; labrum pale; clypeus black to pale; supraclypeal area black to pale; antenna black; thorax black to extensively pale laterally and slightly pale dorsally; pronotum slightly to extensively pale posteriorly; tegula black to pale; pterostigma centrally paler than externally; metafemur black to pale; metatibia pale or brown; hind tarsus black or brown; abdomen mostly black to extensively pale apically, but at least hypopygium, valvifer 2 and tergum 9 slightly pale; valvula 3 black to slightly pale basally; cerci pale; mesepisternum smooth; valvula 3 of medium length, in dorsal view gradually narrowing to an acute tip.

Male

4–5 mm. Head black or slightly brown around eyes; labrum black to pale; clypeus black to pale; supraclypeal area black; antenna black; thorax black; pronotum black to extensively pale; tegula black to extensively pale; pterostigma brown, sometimes centrally paler than externally; metafemur black to extensively pale; metatibia pale or brown; hind tarsus black or brown; abdomen black; sternum 9 brown or pale; mesepisternum smooth; projection of tergum 8 medium-sized.

Nematus palliceps has until now mostly been placed as a synonym of *Euura clitellata* (Serville, 1823), e.g., by Lacourt (1999), and Taeger *et al.* (2010). The lectotype of *N. palliceps* does not disagree with the extremely brief characterisation by Hartig (1840), and bears an original cabinet label by Hartig “*palliceps*”. Confusingly, this specimen also bears determination labels by O. Conde and A. Saarinen as respectively *Nematus pallicercus* Hartig, 1837 and *Amauronematus pallicercus* (Hartig, 1837). *Nematus pallicercus* was treated by Konow (1905b) as a synonym of *Amauronematus fallax* auct. nec Lepeletier, 1823 [i.e., as a species of the *Euura histrio* species group], and more recently sometimes as the name of a valid species of *Amauronematus*, e.g., by Taeger *et al.* (2010). Hartig (1837) stated that the two female syntypes of *N. pallicercus* have a body length equivalent to that of “the preceding species” [*Nematus miniatus*], which is given as 3.5 lines [approximately 7.9 mm]. This is significantly larger than the 6.2 mm body length of the lectotype of *N. palliceps*. Neither does the colour of the abdomen of *pallicercus* described by Hartig fit the *palliceps* lectotype [translated from German]: “the dorsum of the abdomen, which is reddish-edged on the sides, is blackish rusty-brown, only the first segment is deep black” [*palliceps* lectotype: terga 1–8 uniformly deep black, except for their pale ventral margins]. We conclude that no type specimen of *N. pallicercus* exists, and because it is not possible to identify it from the description as belonging to a currently recognised taxon, that it should be treated as a species *incertae sedis*.

Type material examined

Lectotype *Tenthredo viduata*, here designated
SWEDEN – Norrbotten • ♀; Kengis Bruk; 67.192° N, 23.506° E; MZLU, MZLU2017260.

Notes

The slide preparation PR.721VV was not located.

Lectotype *Nematus striatipes*, here designated
GERMANY • ♂; northern Germany [according to Hartig 1840: 22]; ZSM, DEI-GISHym12545.

Lectotype *Nematus lepidotus*, here designated
GERMANY • ♂; northern Germany [according to Hartig 1840: 22]; ZSM, DEI-GISHym12544.

Lectotype *Nematus palliceps*, here designated
GERMANY • ♀; northern Germany [according to Hartig 1840: 22]; ZSM, GBIF-GISHym3054.

Lectotype *Nematus notatus*, here designated
GERMANY – Nordrhein-Westfalen • ♀; Aachen area; 50.77° N, 6.09° E; ZSM, GBIF-GISHym3059.

Lectotype *Amauronematus viduatus* var. *laetus*, here designated
GERMANY – Nordrhein-Westfalen • ♀; Crefeld [Krefeld]; Ulbricht leg.; 51.34° N, 6.58° E; SDEI, GBIF-GISHym4105.

Holotype *Amauronematus (Brachycoluma) spaethi*
FRANCE – Corsica • ♀; SW Porto Vecchio, Tamaricciu Valley; 41.57° N, 9.24° E; 20 m a.s.l.; 7 Apr. 2004; J. Späth leg.; reared ex larva on *Salix atrocinerea*; SDEI, GBIF-GISHym4104.

Host plants

A wide spectrum of *Salix* spp. (Taeger *et al.* 1998; Macek *et al.* 2020).

Genetics

COI

Based on 29 specimens, maximum within-species distance is 6.09% and the nearest neighbour, diverging by a minimum of 1.82%, is *Euura erecta*.

Nuclear

Based on 24 specimens, maximum within-species distance is 1% (0.93% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.32%, is *Euura viduata* group specimen DEI-GISHym31865.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, France, Germany, Italy, Morocco, Norway, Sweden, Switzerland, and the United Kingdom.

292 *Euura viduatoides* (Lindqvist, 1960)
Figs 305, 525

Amauronematus viduatoides Lindqvist, 1960a: 127–129.

Amauronematus branderi Lindqvist, 1969: 231–232. **Syn. nov.**

Diagnosis

The distinctly pale clypeus, pronotum and tegula, smooth mesepisternum, and slightly curved lancet with 14–16 annuli usually enable identification of the females, but separation from *E. leucolena* (mesepisternum usually slightly matt) might not always be reliable. Two putative males without sequence data (a paratype of *viduatoides* [<http://id.luomus.fi/GL.9214>] and ZMUO.032626) have distinctly pale tegula and pronotum (black in most other species, except *E. viduata* in part) and a similar penis valve to *E. leucolena*, except that the valvaceps is broader.

Female

5.0–6.0 mm. Head black to slightly pale around eyes; labrum pale; clypeus pale; supraclypeal area black; antenna black; thorax black; pronotum extensively pale; tegula extensively pale; pterostigma pale or centrally paler than externally; metafemur mostly black to pale; metatibia pale or brown; hind tarsus black; abdomen mostly black to extensively pale apically; at least hypopygium, valvifer 2 and tergum 9 slightly pale; valvula 3 slightly pale basally; cerci pale; mesepisternum smooth; valvula 3 of medium length, in dorsal view gradually narrowing, with an acute tip.

Male

4.5–5.0 mm (n = 2). Association with female not confirmed. Head black or slightly brown around eyes; labrum pale; clypeus pale; malar space black or slightly pale; supraclypeal area black or slightly pale; antenna black; thorax black; pronotum slightly to extensively pale; tegula slightly to extensively pale; pterostigma brown or centrally paler than externally; metafemur extensively pale; metatibia pale; hind tarsus black; abdomen black; sternum 9 pale; mesepisternum smooth; projection of tergum 8 small.

Type material examined

Holotype *Amauronematus viduatoides*

FINLAND – Uusimaa • ♀; Helsinki, Lövö; 60.18° N, 24.85° E; 9 Apr. 1952; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.9213>.

Holotype *Amauronematus branderi*

FINLAND – Häme • ♀; Urjala; 61.08° N, 23.56° E; 7 Jun. 1965; T. Brander leg.; MZH, <http://id.luomus.fi/GL.9208>.

Notes

The COI sequence (281 bp) of the holotype female of *branderi* is identical to ZMUO.040884, ZMUO.038738, ZMUO.043842, ZMUO.038736, ZMUO.038737, and ZMUO.038735.

Host plants

Salix pentandra. Kangas (1985) recorded *Salix phylicifolia* and Macek *et al.* (2020) *S. aurita*, but it is not certain that the sawfly species was correctly identified.

Genetics

COI

Only one sequence available. The nearest neighbour, diverging by a minimum of 0%, is *Euura rectiserra*.

Nuclear

Only one sequence available, a female with haplotypes diverging by 0.09%. The nearest neighbour, diverging by a minimum of 0.45%, is *Euura leucolena* (ZMUO.037242).

Distribution and material examined

Palaearctic. Specimens studied are from Finland.

Species not assigned to groups

293 *Euura anthracina* (Lindqvist, 1959) Figs 307, 532

Amauronematus anthracinus Lindqvist, 1959d: 11.

Amauronematus macrophthalmus Lindqvist, 1959d: 13–14. **Syn. nov.**

Amauronematus varians Lindqvist, 1962a: 120–121. **Syn. nov.**

Diagnosis

Females (6.5–8.0 mm) are most similar to *E. hyperborea*, but pronotum and tegula are distinctly pale (black in *E. hyperborea*) and the hairs on head and thorax are somewhat shorter. Males are not clearly distinguishable from *melanocephalus* group species with a pale pterostigma (*E. cadderensis*, *E. ferruginea*, *E. kangasi*).

Type material examined

Holotype *Amauronematus anthracinus*

FINLAND – **Lapin Lääni** • ♀; Kilpisjärvi; 69.04° N, 20.81° E; 9 May 1951; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3409>.

Notes

Best morphological match: DEI-GISHym21425.

Holotype *Amauronematus macrophthalmus*

FINLAND – **Uusimaa** • ♀; Helsinki, Munksnäs [Munkkiniemi]; 60.22° N, 24.89° E; 26 May 1935; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.2534>.

Notes

Best morphological match: DEI-GISHym20974.

Holotype *Amauronematus varians*

FINLAND – **Uusimaa** • ♀; Helsingi [Vantaa]; 60.30° N, 24.90° E; 20 May 1960; E. Lindqvist leg.; MZH, <http://id.luomus.fi/GL.3554>.

Notes

Best morphological match: DEI-GISHym20974. COI sequence (658 bp) of the holotype is identical to ZMUO.037292.

Host plants

Salix spp.

Genetics

COI

Based on 9 specimens, maximum within-species distance is 4.1% and the nearest neighbour, diverging by a minimum of 0.46%, is *Euura hyperborea*.

Nuclear

Based on 7 specimens, maximum within-species distance is 0.4% (0.23% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.41%, is *Euura distinguenda*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Norway, and Sweden.

294 *Euura distinguenda* (Enslin, 1915)

Figs 308, 533

Amauronematus distinguendus Enslin, 1915: 381. Lectotype designated below.

Diagnosis

Females are most similar in colouration (mostly black body and black pterostigma) and lancet structure to *E. toeniata*, but the malar space is about 1.0–1.2 times as long as diameter of front ocellus (more than 1.2 times in *E. toeniata*). Males are coloured similarly to the females and in combination with examination of the penis valves can be reliably separated from the other species of *Euura*.

Type material examined

Lectotype *Amauronematus distinguendus*, here designated
GERMANY – **Sachsen** • ♀; Tharandt; 50.97° N, 13.53° E; W. Baer leg.; reared ex larva on *Salix* sp.; ZSM, GBIF-GISHym3047.

Host plants

Salix fragilis, *S. phylicifolia* (Kangas 1985), *S. pentandra*, *S. acutifolia* Willd., *S. triandra*.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 1.98% and the nearest neighbour, diverging by a minimum of 3.05%, is *Euura anthracina*.

Nuclear

Based on 4 specimens, maximum within-species distance is 0.81% (0.07% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 1.41%, is *Euura anthracina*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, Germany, and Russia.

295 *Euura hyperborea* (Thomson, 1871)

Figs 309, 534

Nematus hyperboreus Thomson, 1871: 127–128.

Amauronematus coracinus Lindqvist, 1959d: 14–15. Holotype ♀ (BMNH), not examined. Type locality: Switzerland, Valais, Arolla. Synonymy by Benson (1961b).

Diagnosis

Most similar to *E. anthracina*, but in *E. hyperborea* the pronotum and tegula are black and the hairs on the head and thorax are somewhat longer.

Type material examined

Holotype *Nematus hyperboreus*

SWEDEN • ♀; Dalarna; C.H. Boheman leg.; NHRS, NHRS-HEVA000003844.

Host plants

Salix spp.

Genetics

COI

Based on 7 specimens, maximum within-species distance is 0.31% and the nearest neighbour, diverging by a minimum of 0.46%, is *Euura anthracina*.

Nuclear

Based on 5 specimens, maximum within-species distance is 0.17% (0.23% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 2.03%, is *Euura anthracina*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Norway, and Sweden.

296 *Euura imperfecta* (Zaddach, 1876)

Figs 311, 535

Nematus imperfectus Zaddach, 1876: 73, 80–81. Syntypes ♀♀, probably destroyed (Blank & Taeger 1998). Type localities: Germany, Finland, Scotland and Poland.

Pachynematus imperfectus var. *claristernis* Enslin, 1916a: 484. Lectotype designated below. Synonymy by Taeger *et al.* (2010).

Pachynematus (Larinematus) tatricus Roller & Haris, 2008: 47–49. **Syn. nov.**

Diagnosis

Small subapical tooth of claws, colouration (male largely black; in female, pterostigma basally paler than apically, abdomen dorsally black, metafemur at least partly pale), structure of valvula 3 (in dorsal view rather broad, not tapering, and posteriorly with invagination) and penis valve enable separation of the species from the other *Euura*. The shape of valvula 3 varies somewhat, but there is no clear gap in variability and apparently no correlation with variability in mesepisternum colouration (from completely black to completely pale).

Type material examined

Lectotype *Pachynematus imperfectus* var. *claristernis*, here designated

GERMANY – Mecklenburg-Vorpommern • ♀; Teschendorf in Mecklenburg; 53.45° N, 13.36° E; 11 Apr. 1896; F.W. Konow leg.; ZSM, GBIF-GISHym3221.

Holotype *Pachynematus (Larinematus) tatricus*

SLOVAKIA – High Tatra • ♀; Tatranská Lomnica, Štart; 49.179° N, 20.255° E; 1150 m a.s.l.; 15 May 2007; O. Majzlan leg.; SNMC.

Notes

Photos examined.

Host plants

Larix spp.

Genetics

COI

Based on 5 specimens, maximum within-species distance is 2.28% and the nearest neighbour, diverging by a minimum of 5.78%, is *Euura hulteni*.

Nuclear

Based on 3 specimens, maximum within-species distance is 1.2% (0.31% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 2.87%, is *Euura villosa*.

Distribution and material examined

Palearctic. Specimens studied are from Austria, Finland, Germany, and Russia.

297 *Euura itoi* (Okutani, 1955)

Fig. 536

Pachynematus itoi Okutani, 1955: 98–100. Holotype ♀ (NSMT), not examined. Type locality: Japan, Nagano Prefecture, Soehi-mura. Types studied by Hara *et al.* (2021).

Diagnosis

Long postocellar area (more than 3 times as long as diameter of lateral ocellus), extensively pale head and abdomen, black hind femur and tarsus, and small subapical tooth of claws distinguish the females from other *Euura*. Partly infusate wings, extensively pale head and abdomen, small subapical tooth of claws, and penis valve should distinguish the males from other *Euura*. Rare in Europe, known only in Central Europe.

Host plants

Larix spp. (Xiao *et al.* 1992; Pschorn-Walcher & Altenhofer 2000). There may be up to two generations per year (Pschorn-Walcher & Altenhofer 2000).

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Palearctic. Specimens studied are from Czech Republic and Japan.

298 *Euura nigriventris* (Holmgren, 1883)

Fig. 312

Nematus nigriventris Holmgren, 1883: 146, pl. 2 fig. 10. Lectotype designated below.

Amauronematus varianus MacGillivray, 1919: 16. Lectotype designated below. Synonymy by Smith (1979).

Pteronidea melanostoma Rohwer, 1920: 212–213. Holotype ♀ (USNMENT00779223, USNM, <http://n2t.net/ark:/65665/3cc28254b-6cc4-4fd9-bb98-5784f9f4262b>), not examined. Type locality: USA, West Aleutians, Saint George Island. Synonymy by Smith (1979). Looks more like *E. stordalensis* or *E. opacipleuris* (5 mm).

Diagnosis

We have studied only two specimens (lectotype females of *N. nigriventris* and *A. varianus*). Colouration (nearly completely black), size (6.5 mm), and lancet (short setae, ?16–17 serrulae, serrulae with distinct cypsellae, long, weakly protruding, and with long basal extension) distinguish the species from the other *Euura*. Externally perhaps most easily confused with members of the *E. viduata* group.

Female

6.5 mm (Lindqvist 1959a; MacGillivray 1919). Head black; antenna, labrum and clypeus black; thorax black, pronotum and tegula black; pterostigma brown; abdomen nearly completely black, valvifer 2 brown, valvula 3 black; metafemur black; tibiae and tarsi brown; antenna not reaching pterostigma; claws bifid; valvula 3 elongate, gradually tapering in dorsal view, and acute at apex; lancet with ?16–17 serrulae.

Type material examined

Lectotype *Nematus nigriventris*, here designated

RUSSIA – **Novaja Zemlya** • ♀; Matotschkin Scharr [Matochkin Strait]; 73.3° N, 55.6° E; 1875; NHRS, NHRS-HEVA000006477.

Lectotype *Amauronematus varianus*, here designated

USA – **Alaska** • ♀; Camden Bay, West of Konganevik; 70.02° N, 145.36° W; 27 Jun. 1914; F. Johansen leg.; CNC, CNC1057058.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Holarctic. Specimens studied are from Russia and the USA.

299 *Euura poecilonota* (Zaddach, 1876)

Figs 313, 537

Nematus continuus Eversmann, 1847: 19. **Nomen oblitum**. Lectotype designated below. **Syn. nov.**

Nematus poecilonotus Zaddach, 1876: pl. II fig. 2. **Nomen protectum**. Syntypes ♀♀ (from Copenhagen, ZMHB?), not located; others probably destroyed (Blank & Taeger 1998). Type localities: Poland, Stogi [Heubude] and Gdansk [Danzig]; Denmark, Copenhagen; Russia, Kaliningrad [Königsberg].

Nematus viridescens Cameron, 1885: 122–123. Syntypes ♀♀ (BMNH?), not examined. Type localities: United Kingdom, Scotland, Mugdock near Glasgow and England, Norwich. Synonymy by Muche (1974).

Amauronematus nigridorsis Jakowlew, 1891: 25–26. **Syn. nov.**

Pteronus hyalinus Marlatt, 1896a: 44–46 (key), 67–68. Holotype ♀ (USNMMENT00778515, USNM, <http://n2t.net/ark:/65665/3b5d73de5-14af-47bd-b545-0fbf261e4b2f>), not examined. Type locality: USA, New York.

Pteronidea subnitens Lindqvist, 1958: 98–99. Synonymy by Lindqvist (1967b).

Notes

In accordance with Article 23.9.1 of the International Code of Zoological Nomenclature (ICZN 1999), we retain the junior name *poecilonota* as valid, because it has been used more than 25 times by at least ten authors as the valid name for this taxon during the last 50 years, whereas *continuus* has not been used as valid since 1899. Examples of use of *poecilonotus* or *poecilonota* as the valid name for this taxon during the last fifty years: Verzhutskii 1981; Kangas 1985; Viitasaari & Vikberg 1985; Liston 1995, 1997; Zhelochovtsev & Zinovjev 1995; O'Connor *et al.* 1997; Blank & Taeger 1998; Taeger *et al.* 1998, 2006, 2010; Viitasaari *et al.* 1998; Lacourt 1999, 2020; Blank *et al.* 2001; Haris 2002; Roller & Haris 2008; Schedl 2009; Liston *et al.* 2014; Jansen 2015; Chevin & Savina 2016; Sundukov 2017b; Macek *et al.* 2020; Prous *et al.* 2021; Humala 2024.

Diagnosis

Live adult females are green, and most similar to species in the *bergmanni* and *oligospila* groups, from which *E. poecilonota* is best distinguished by its distinctive lancet and penis valve. Antenna black. Males are extremely rare. The larval stage of the *hyalinus* type was described by Dyar (1895) under the name *Nematus lateralis*.

Only one male is known (DEI-GISHym12527), confirmed to be this species based on a 207 bp sequence of COI that is identical to some of the females.

Type material examined

Lectotype *Nematus continuus*, here designated

RUSSIA – **Tatarstan** • ♀; Kasan Province; 55.8° N, 49.1° E; 10 Jul.; E. Eversmann leg.; ZIN, DEI-GISHym30049.

Holotype *Amauronematus nigradorsis*

RUSSIA – **Irkutskaja oblast** • ♀; Irkutsk; 52.29° N, 104.24° E; ZIN, DEI-GISHym30177.

Holotype *Pteronidea subnitens*

SWEDEN – **Skåne** • ♀; Åhus; 55.93° N, 14.29° E; 15 Jul. 1937; I. Agrell leg.; MZLU, MZLU2017316.

Host plants

Betula spp., but not recorded from *B. nana* (Wong 1954; Tenow 1963; Kangas 1985). One generation per year (Wong 1954). The female cuts characteristic slits in birch leaves and one egg is inserted into the edge of each slit.

Genetics

COI

Based on 8 specimens, maximum within-species distance is 1.37% and the nearest neighbours, diverging by a minimum of 6.23%, are *Euura monticola*, *E. perkioemaekii*, and *E. sordidiapex*.

Nuclear

Based on 6 specimens, maximum within-species distance is 1.64% (0.22% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 2.71%, is *Euura frenalalis*.

Distribution and material examined

Holarctic. Specimens studied are from Canada (only genetics), Estonia, Finland, Germany, Russia, and Sweden.

300 *Euura pumilio* (Konow, 1903)

Figs 314, 538

Pachynematus pumilio Konow, 1903a: 383 (key). Lectotype designated below.

Diagnosis

Its small size (3.5–4.5 mm), largely pale body, simple claws, and distinctive lancet and penis valve distinguish this species from the others.

Type material examined

Lectotype *Pachynematus pumilio*, here designated

GERMANY – **Mecklenburg-Vorpommern** • ♀; Teschendorf in Mecklenburg; 53.45° N, 13.36° E; Apr. 1896; F.W. Konow leg.; SDEI, GBIF-GISHym4122.

Paralectotypes *Pachynematus pumilio*

GERMANY – **Mecklenburg-Vorpommern** • 1 ♀; same locality as for lectotype • 5 May 1893; SDEI, GBIF-GISHym4124 • 2 ♂♂; same locality as for lectotype; 29 Apr. 1903; SDEI, GBIF-GISHym4123, GBIF-GISHym4125.

Host plants

Ribes nigrum (Hukkinen 1922). Larvae feed singly inside the berries. One generation per year.

Genetics

COI

Based on 12 specimens, maximum within-species distance is 1.08% and the nearest neighbour, diverging by a minimum of 6.74%, is *Euura fallax*.

Nuclear

Only one sequence available. The nearest neighbour, diverging by a minimum of 2.5%, is *Euura oligospila*.

Distribution and material examined

Palaearctic. Specimens studied are from Finland, Germany, Russia, and Sweden.

301 *Euura salicis* (Linnaeus, 1758)

Figs 310, 539

Tenthredo salicis Linnaeus, 1758: 557. Syntypes, sex not stated. No extant type material is known. Type locality: Sweden.

Tenthredo capreae Linnaeus, 1758: 559. Syntype larvae. Adults were not described. No extant type material is known. Type locality: Sweden. Synonymy by Schmidt *et al.* (1998).

Tenthredo notata O.F. Müller, 1776: 149. Syntypes, sex not stated. No extant type material is known. Type locality: Denmark. Synonymy by Brischke (1883).

Nematus klugi Dahlbom, 1835a: pl. 40 fig. 6. Syntypes ♂♂ (MZLU), not examined. Type locality: Scandinavia. Synonymy by Brischke (1883) [confirmed by Schmidt *et al.* (1998)].

Nematus immaculatus Snellen van Vollenhoven, 1869: 95, 119. Lectotype ♂ (ZMAN), designated by Thomas (1987), not examined. Type locality: Belgium, Schoten. Synonymy by Brischke (1883).

Nematus inflatus Thomson, 1871: 139–140. Lectotype designated below. Synonymy by Brischke (1883).

Pteronidea salicis var. *obscurior* Enslin, 1916a: 415. Lectotype designated below. Synonymy by Muche (1974).

Diagnosis

Its large size (8.0–12.0 mm), extensively yellow body, and black costa and pterostigma enable its separation from other species of *Euura*.

Type material examined

Lectotype *Nematus inflatus*, here designated
SWEDEN – Skåne • ♀; Lund; 55.71° N, 13.19° E; MZLU, MZLU2017309.

Lectotype *Pteronidea salicis* var. *obscurior*, here designated
GERMANY – Nordrhein-Westfalen • ♀; Solingen; 51.17° N, 7.07° E; ZSM, GBIF-GISHym3369.

Paralectotype *Pteronidea salicis* var. *obscurior*
GERMANY – Nordrhein-Westfalen • ♂; Solingen; 51.17° N, 7.07° E; ZSM, GBIF-GISHym3370.

Host plants

Salix spp., preferably *S. fragilis* (Roininen & Tahvanainen 1989), occasionally *Populus* (Çalmasur & Özbek 2006). More than one generation per year in suitable conditions (Pschorn-Walcher & Altenhofer 2000).

Genetics

COI

Based on 5 specimens, maximum within-species distance is 0.78% and the nearest neighbour, diverging by a minimum of 5.32%, is *Euura ferruginea*.

Nuclear

Only one sequence available. The nearest neighbour, diverging by a minimum of 2.28%, is *Euura anthracina*.

Distribution and material examined

Palearctic. Specimens studied are from Finland, France, Germany, and Sweden.

302 *Euura spiraeae* (Zaddach, 1883) Figs 88, 315–316, 540–541

Nematus spiraeae Zaddach, 1883 in Brischke 1883: 189. Syntypes ♀♂, should be in ZSM, but have not been located. Type locality: Germany, Munich area.

Pteronidea subflava Lindqvist, 1958: 100–102. Suspected synonymy by Zhelohovcev & Zinovjev (1988) is here confirmed. **Syn. nov.**

Nematus dengi Wei, 2003 in Wei & Nie 2003: 54–55, 197. Holotype ♀ (CSFU), not examined. Type locality: China, Hubei, Xianfeng, Maheba. **Syn. nov.**

Euura spiraeae okutaniana Hara & Shinohara, 2022 in Hara *et al.* 2022: 10–16. Holotype ♀ (NSMT), not examined. Type locality: Japan, Honshu, Gifu Pref., Takayama, Okuhida Onsen. **Syn. nov.**

Euura spiraeae hokkaido Hara & Shinohara, 2022 in Hara *et al.* 2022: 16. Holotype ♀ (NSMT), not examined. Type locality: Japan, Hokkaido, Utashinai, Nishiyama. **Syn. nov.**

Diagnosis

Females could be confused with darker specimens of the *Euura ribesii* group. Details of the lancet can distinguish them: basal-most annulus narrower (less than 0.5 times as long as broad) and setae longer and more hair-like in *spiraeae* than in the *ribesii* group (basal-most annulus more than 0.5 times as long

as broad and setae shorter and more spine-like). Males (extremely rare in Europe) could perhaps be best recognized by the combination of ventrally pale abdomen and penis valve structure. The pterostigma varies from pale to black in females, possibly also in males.

A female identified as *N. dengi* in SDEI (DEI-GISHym83965) does not differ in any significant way from *E. spiraeae*. The lancet of DEI-GISHym83965 does seem to have longer setae than two other saws we examined from Europe (*E. spiraeae* does not lack setae as implied in the original description of *dengi*), but this does not seem to be sufficient evidence for the existence of an additional species. A male from China (DEI-GISHym1916) is possibly conspecific.

A male from Switzerland (DEI-GISHym14075) has a brown, rather round pterostigma, pale clypeus, supraclypeal area, pronotum and tegula; clypeus with distinct emargination; abdomen ventrally pale; projection of tergite 8 rather large (which seems to be similar in *dengi* DEI-GISHym1916).

The studied specimens from China (DEI-GISHym83965, DEI-GISHym1916) are darker than European specimens, with black pronotum, clypeus, and supraclypeal area (pale in most if not all European specimens). The specimens from China (*dengi*) fit best with *Euura spiraeae hokkaido* from Japan. *Euura spiraeae okutaniana* is even darker than *dengi* and European *spiraeae*, with a completely black hind tibia and apically black metafemur (at least basal two-thirds of tibia pale and metafemur nearly completely pale in *dengi* and European *spiraeae*). The penis valve of *spiraeae okutaniana*, with a slight invagination between valvispina and ventroapical lobe of paravalva, does not seem to be distinguishable from the European male (DEI-GISHym14075; Fig. 540), but is slightly different from *dengi* (DEI-GISHym1916; Fig. 541), which lacks the invagination between valvispina and ventroapical lobe of the paravalva. However, this type of difference in penis valves does not seem likely to be reliable, because similar or greater differences are frequently found within other species of *Euura*. The apparent differences in the length of a cercus relative to valvula 3 (reaching at most to the middle of valvula 3 in European *spiraeae* according to Hara *et al.* 2022, but beyond the middle of valvula 3 in Japanese specimens) could be affected by preservation of the specimens (cerci tend to get retracted towards the head, away from the tip of valvula 3, as the abdomen dries). For example, in the Chinese female (DEI-GISHym83965), which otherwise fits *spiraeae hokkaido*, the proportional relations of cerci and valvula 3 look similar to those in European specimens (Fig. 88A) while European specimens can look similar to *spiraeae okutaniana* (Fig. 88B). The clearest observed differences between Japanese and European *spiraeae* are in the larvae.

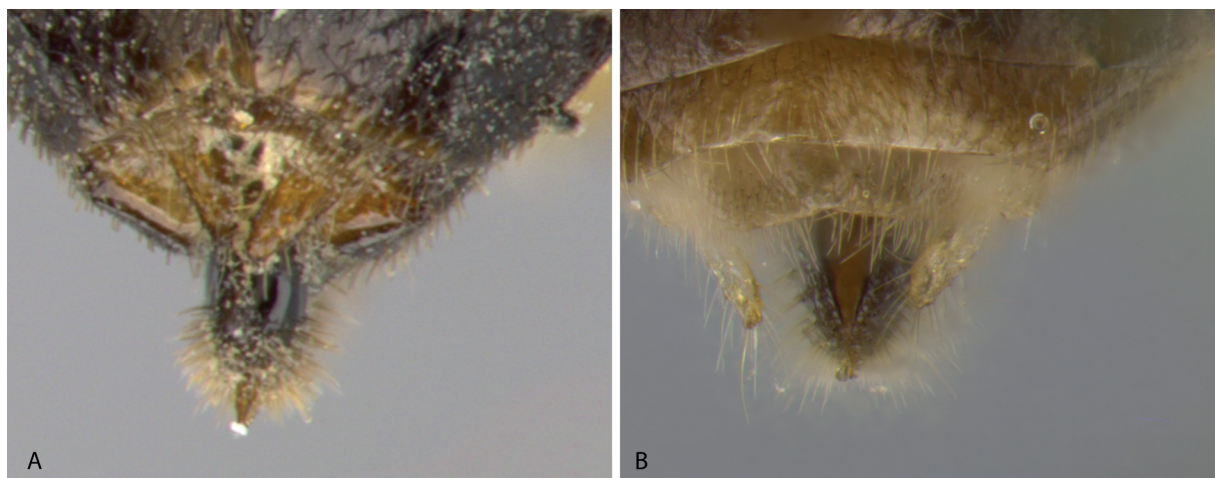


Fig. 88. *Euura spiraeae* (Zaddach, 1883) valvula 3 in dorsal view. **A.** DEI-GISHym83965 (China). **B.** DEI-GISHym81498 (Germany).

The Japanese larvae (Hara *et al.* al 2022) have a row of distinct lateral black spots on the abdomen or thorax and abdomen, which seem to be lacking in the European larvae. However, the parthenogenetic European *spiraeeae* may only represent a subset of variation of a more widespread (perhaps primarily East Asian) species. Wider sampling and sequencing could help to reveal the extent of variation of *E. spiraeeae* and whether more than one species is involved.

Type material examined

Holotype *Pteronidea subflava*

SWEDEN – Upland • ♀; Stockholm, Frescati; 59.36° N, 18.06° E; R. Malaise leg.; NHRS, NHRS-HEVA000003961.

Host plants

Aruncus dioicus (Walter) Fernald in Europe, but also *Spiraea* spp. in Japan (together with *Aruncus dioicus*). More than one generation per year in suitable conditions (Pschorn-Walcher & Altenhofer 2000).

Genetics

COI

Based on 10 specimens, maximum within-species distance is 0.61% and the nearest neighbour, diverging by a minimum of 7.29%, is *Euura salicis*.

Nuclear

Only one sequence available, a female with haplotypes diverging by 0%. The nearest neighbour, diverging by a minimum of 4.14%, is *Euura myosotidis*.

Distribution and material examined

Palearctic. Specimens studied are from China, Finland, France, Germany, and Switzerland.

303 *Euura vaga* (Fabricius, 1781) Figs 146, 542

Tenthredo vaga Fabricius, 1781: 415. Syntypes (3 specimens in NHMD according to Zimsen 1964), sex not stated, not examined. Type locality: England.

Tenthredo flaviventris Gmelin, 1790: 2667. Syntypes, sex not stated, not located. Type locality: Europe. Synonymy by Konow (1904c). Primary homonym of *Tenthredo flaviventris* Retzius, 1783 [*Neurotoma saltuum* (Linnaeus, 1758)].

Nematus leucogaster Hartig, 1840: 23. Lectotype designated below. Synonymy by Konow (1904c).

Nematus hypoleucus Förster, 1854a: 304–305. Lectotype designated below. Synonymy by Konow (1904c).

Nematus micraulius Förster, 1854b: 428–429. Lectotype designated below. Synonymy by Konow (1904c).

Nematus punctipleuris Thomson, 1863: 628. Lectotype designated below. Synonymy by Konow (1904c).

Nematus punctulatus Thomson, 1863: 626–627. Lectotype designated below. Synonymy by Konow (1904c).

Nematus inconspicuus W.F. Kirby, 1882: 141. Holotype ♀ (BMNH?), not examined. Type locality: New York. Synonymy by Benson (1962).

Pachynematus corticosus MacGillivray, 1901: 584–585. Holotype ♀ (INHS), not examined. Type locality: USA, New York, Saranac Inn.

Holcocneme ulbrichti Enslin, 1910: 316–317. Holotype ♀, not found in ZSM. Type locality: Germany, Nordrhein-Westfalen, Krefeld. Synonymy by Enslin (1915).

Pachynematus roscidus MacGillivray, 1921b: 31. Holotype ♀ (INHS), not examined. Type locality: USA, Maine, Orono.

Pachynematus rugosulus Lindqvist, 1959b: 71. **Syn. nov.**

Diagnosis

The female is most similar to *E. obducta* from which it differs in usually having a completely pale metafemur (extensively black in *E. obducta*), more triangular valvula 3 in dorsal view, and apically curved basal part of lamnium (more or less straight in *E. obducta*). Males, which are extremely rare in Europe, are best recognised by their penis valves. Abdomen sometimes also dorsally nearly completely pale (terga 3–10) (ZMUO.062019). Pterostigma varies in European specimens from yellowish to dark brown, in North America often (usually?) black.

Type material examined

Lectotype *Nematus leucogaster*, here designated

GERMANY • ♀; northern Germany [according to Hartig 1840: 22]; ZSM, GBIF-GISHym3334.

Lectotype *Nematus hypoleucus*, here designated

GERMANY – Nordrhein-Westfalen • ♀; Aachen area; 50.77° N, 6.09° E; ZSM, GBIF-GISHym3297.

Lectotype *Nematus micraulius*, here designated

GERMANY – Nordrhein-Westfalen • ♂; Aachen area; 50.77° N, 6.09° E; ZSM, GBIF-GISHym3352.

Notes

Penis valves lost, but identified by Conde as *Pristiphora vaga*.

Lectotype *Nematus punctipleuris*, here designated

SWEDEN • ♀; Norlandia [Lapland, probably Sweden]; MZLU, MZLU2017272.

Paralectotype *Nematus punctipleuris*

SWEDEN • ♀; Norlandia [Lapland, probably Sweden]; MZLU, MZLU2017273.

Lectotype *Nematus punctulatus*, here designated

SWEDEN • ♀; Torne Lappmark; MZLU, MZLU2017265

Paralectotypes *Nematus punctulatus*

SWEDEN • 2 ♀♀; Torne Lappmark; MZLU, MZLU 2017266, MZLU 2017269 • 2 ♀♀; [labels illegible]; MZLU, MZLU 2017267, MZLU 2017268.

Holotype *Pachynematus rugosulus*

NORWAY – Finnmark • ♀; Jotkajavrek; 69.77° N, 23.85° E; Jul. 1924; Expedition A. Strand leg.; ZMUN, NHMO:1000201217.

Notes

Basal quarter to third of metafemur brown, mesepisternum matt. Best morphological match: ZMUO.041887.

Host plants

Carex spp. More than one generation per year in suitable conditions (Lorenz & Kraus 1957; Kangas 1985).

Genetics

COI

Based on 29 specimens, maximum within-species distance is 3.5% and the nearest neighbour, diverging by a minimum of 6.26%, is *Euura miliaris*. Including 8 specimens from North America does not change the results.

Nuclear

Based on 8 specimens, maximum within-species distance is 0.61% (1.02% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 2.93%, is *Euura fuscomaculata*. When a specimen from North America (DEI-GISHym15293) is included, maximum within-species distance is 0.8% (1.02% based on haplotypes of individual females).

Distribution and material examined

Holarctic. Specimens studied are from Canada, Estonia, Finland, France, Germany, Iceland, Norway, Russia, Slovakia, Sweden, United Kingdom, and the USA.

Incertae sedis

304 *Euura alni* Newman, 1869

Euura alni Newman, 1869: 319–320. Syntypes: galls on *Alnus* leaves. Type locality: not stated.

Notes

Probably not a sawfly.

305 *Euura baltica* (Enderlein, 1908)

Pteronus balticus Enderlein, 1908: 197, 217, 225. Holotype ♀, not located. Type locality: Poland, Gdansk, Putziger Wiek.

306 *Euura degeeri* (Dufour, 1847)

Nematus degeeri Dufour, 1847: 587. Syntypes: galls and larvae. No type material is known to exist. Host given as *Salix triandra*. Type locality: France, Département Landes, Saint-Sever, banks of river l'Adour. It is not possible to identify *N. degeeri*, because the description of the gall clearly indicates a species of the *Euura viminalis* group, but no member of that group is known from *S. triandra*.

307 *Euura duplex* (Serville, 1823)

Pristiphora duplex Serville, 1823: 76. Lectotype ♀ (MRSN), not examined. Type locality: France, vicinity of Paris.

Notes

Belongs to the *E. clitellata* group, and is perhaps conspecific with *E. obducta* (Blank & Taeger 1998: 165–166).

308 *Euura flavominutissima* (Haris, 2001)

Nematus flavominutissimus Haris, 2001: 110. Holotype ♀ (HNHM), not examined. Type locality: Hungary, Mecsek-hgs., Sikonda.

309 *Euura gracilis* (Jakowlew, 1891)

Pachynematus gracilis Jakowlew, 1891: 27–28. Holotype ♀, not found in ZIN. Type locality: Kyrgyzstan, vallis Alaji Magni. Possibly a secondary homonym of *Nematus gracilis* Gimmerthal, 1834.

310 *Euura gracilis* (Gimmerthal, 1834)

Nematus gracilis Gimmerthal, 1834: 122–123. Syntypes ♀♀, probably lost or destroyed. Type locality: Livonia [Latvia and/or Estonia].

Notes

Length given as 4 lines [= 8.5 mm]. Possibly *Euura histrio*.

311 *Euura hololeucopus* (Costa, 1890)

Nematus hololeucopus Costa, 1890: 4. Holotype ♀ (MZFN), not examined. Type locality: Greece.

Notes

Possibly a gall-maker, or some other *Euura* (Ghigi 1905a, 1905b).

312 *Euura konowi* (Jakowlew, 1891)

Pteronus konowi Jakowlew, 1891: 23. Holotype ♀, not located. Type locality: Russia Stavropol Krai, Pyatigorsk.

313 *Euura pallicercus* (Hartig, 1837)

Nematus pallicercus Hartig, 1837: 190–191. Type locality: Harz, Germany. A female specimen (DEI-GISHym12513) in NFVG under this name does not fit the original description. See comments under *N. palliceps* [*Euura viduata*].

314 *Euura pannonica* Haris, 2015

Pachynematus hungaricus Haris, 2001: 110–111. Holotype ♂ (HNHM), not examined. Type locality: Hungary, Noszvaj Síkfökút. Secondary homonym of *Pontania hungarica* Enslin, 1918 [*Euura viminalis* (Linnaeus, 1758)].

Euura pannonica Haris, 2015: 55. Replacement name for *Pachynematus hungaricus* Haris, 2001.

315 *Euura pyri* Newman, 1869

Euura pyri Newman, 1869: 320. Syntypes: galls on *Pyrus* leaves. Type locality: not stated.

Notes

Probably not a sawfly.

316 *Euura quercus* Newman, 1869

Euura quercus Newman, 1869: 320. Syntypes: galls on *Quercus* leaves. Type locality: not stated.

Notes

Probably not a sawfly.

317 *Euura quinquemontana* (Jakowlew, 1891)

Pachynematus quinquemontanus Jakowlew, 1891: 27. Holotype ♀, not located. Type locality: Russia, Stavropol Krai, Pyatigorsk.

318 *Euura togata* (Zaddach, 1876)

Nematus togatus Zaddach, 1876: pl. III fig. 3. Syntype larvae. Adult ♀♂ subsequently described in Brischke (1883: 170). Specimens probably destroyed (Blank & Taeger 1998). Type locality: Poland, vicinity of Gdansk [Danzig]. Recorded host plant: *Corylus avellana*.

Notes

Among the European Nematinae, adults of *Nematus umbratus* and *Euura melanocephalus* have some resemblance to the description of adult *N. togatus* by Brischke (1883), at least in the thorax being predominantly black and the abdomen mainly yellow. Furthermore, their larvae also sometimes feed on *Corylus avellana*. However, the forewing stigma and costa of female *togatus* were described as pale yellow in Brischke (1883), whereas these are almost black in *umbratus*, and at least the stigma is dark in *melanocephalus*. Furthermore, the description of the larvae of *togatus* cannot refer to *melanocephalus*, because the sides of the body of the latter carry a row of conspicuous yellow spots. As remarked on in the description of *E. vesicator* which follows the description of *togatus* in Brischke (1883): [translated from German] “the females of both species are very similar to each other, while the males are very different. The similarity of the females even approaches complete equality”. Unless a third *Corylus*-feeding European *Nematus* or species of *Euura* does exist, it is tempting to think that Brischke’s rearing data are wrong. Perhaps larvae of *vesicator* found their way into the wrong pot after they had finished feeding. Exactly this sort of error most likely led to the comments in Brischke (1883) about *E. viminalis* having apparently been reared from galls of *E. vesicator*. The statement that Brischke reared very large numbers of *vesicator*, on several different occasions, also seems relevant. Following this line of reasoning, perhaps only the male described under *togatus* (only a single male was reared) really emerged from the *Corylus*-larvae. The description of the male adult would fit much better with *umbratus* than does the description of the female, and according to Stritt (1939: as *Pteronidea collina*) green larvae with black spots (perhaps similar to sequenced larva DEI-GISHym84094 from unknown host) of *umbratus* can be found on *Corylus avellana* in central Europe (*umbratus* larvae at least on birch are typically largely black). More recently, a few European records under the name *togata* or *togatus* have been published (e.g., Pesarini 2012), none of which was reared, but we have not examined such specimens.

319 *Euura zaitzevi* (Enslin, 1919)

Amauronematus zaitzevi Enslin, 1919b: 4–5. Holotype ♀ (ZIN?), not examined. Type locality: Russia, Polar Ural, at the source of the river Longot-johan.

Diagnosis

Mostly black, sawsheath in dorsal view strongly narrowed apically. Possibly *Euura lindqvisti*?

320 *Nematus haemmorhoidalis* Spinola, 1808

Nematus haemmorhoidalis Spinola, 1808: 20–21. Syntypes ♀♂ (MRSN?), not examined. Type locality: Italy, Liguria.

Notes

Perhaps a species of *Euura*.

321 *Nematus longicornis* Eschscholtz, 1822

Nematus longicornis Eschscholtz, 1822: 93–94. Syntypes, sex not stated, not located. Type locality: USA, Alaska, Aleutians, Unalaska Island.

Notes

Perhaps a species of *Euura*.

Notes on species outside the West Palaearctic

322 *Euura brunneipicta* (Lindqvist, 1975)

Fig. 317

Amauronematus brunneipictus Lindqvist, 1975: 16.

Diagnosis

Superficially similar to *E. leionota*, but with a different lancet. Probably belongs to *Euura*, but its group affinity is unclear.

Type material examined

Holotype *Amauronematus brunneipictus*

RUSSIA – **Yakutia** • ♀; Oleminsk [Olekminsk], on the River Lena; 60.37° N, 120.43° E; 8 Jun. 1970; E. Kaimuk leg.; MZH, <http://id.luomus.fi/GL.5124>.

Notes

18 serrulae.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

East Palaearctic. Only one specimen studied from Russia.

323 *Euura chromata* (Rohwer, 1925) comb. nov.

Figs 318–319

Pristiphora chromata Rohwer, 1925: 11–12.

Diagnosis

Belongs to the *E. bergmanni* group. So far only three specimens are known, from Primorsky Krai, Russia. As in *E. bergmanni*, there appear to be clear colour differences between generations. The overwintering generation (May) has black antenna and dorsally extensively black thorax and abdomen (DEI-GISHym83879). Later generations (June–July and perhaps later) are completely or nearly completely

pale (DEI-GISHym88888). Among the European species, the most similar are perhaps *E. sylvestris* and *E. respondens*, but the claws of *E. chromata* appear to distinguish it from all European species treated here. The holotype of *E. chromata* and one of the sequenced specimens (DEI-GISHym88888) have distinct small or large subapical teeth clearly separated from the apical one (not distinctly bifid like in the other species of *bergmanni* and *oligospila* groups) and in the second sequenced specimen (DEI-GISHym83879) the subapical teeth are minute to small. The clypeus of all three specimens is shallowly emarginate. Of the East Palaearctic species, *Euura pallens* (see below) seems to have a saw identical to the holotype of *chromata* (slightly different from the sequenced specimens of *chromata*), but has a distinctly emarginate clypeus and bifid claws. *Euura filiformis* (see below) has intermediate claws and clypeus compared to *E. chromata* and *E. pallens*, but the serrulae of the lancet seem to be different (with distinct cypsella, unlike *E. chromata* and *E. pallens*). Whether *E. chromata*, *E. pallens* and *E. filiformis* are conspecific, cannot be answered conclusively at this point without additional material or sequence data from the type specimens.

Type material examined

Holotype *Pristiphora chromata*

RUSSIA • ♀; Kudia River, Amagu [Amgu]; Jul. 1923; T. Cockerell leg.; USNM, USNMENT00778815, <http://n2t.net/ark:/65665/37233f010-e9fd-4291-bfff-66c89cf313e8>.

Host plants

Unknown.

Genetics

COI

Based on two specimens, maximum within-species distance is 0.61% and the nearest neighbour, diverging by a minimum of 6.94%, is the *Euura viridis* subgroup.

Nuclear

Based on two specimens maximum within-species distance is 0.07% (0.29% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 3.85%, is *Euura respondens*.

Distribution and material examined

East Palaearctic. Specimens studied are from Russia.

324 *Euura crassidens* Lindqvist, 1970

Fig. 322

Amauronematus crassidens Lindqvist, 1970: 99–100.

Diagnosis

Similar to *Euura minivittata* sp. nov., but the serrulae are distinctly more broadly lobed. Nevertheless, conspecificity cannot be excluded.

Type material examined

Holotype *Amauronematus crassidens*

RUSSIA – Irkutskaja oblast • ♀; Irkutsk, Oljhonsk, Popovo; 52.741° N, 106.309° E; 14 Apr. 1968; B.N. Verzhutskij leg.; MZH, <http://id.luomus.fi/GL.5123>.

Host plants

Salix sp. (Lindqvist 1970).

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

East Palaearctic. Only one specimen studied from Russia.

325 *Euura filiformis* (Lindqvist, 1975)

Fig. 321

Pachynematus filiformis Lindqvist, 1975: 19–20.

Type material examined

Holotype *Pachynematus filiformis*

RUSSIA – **Buryatia** • ♀; Tunkinsky, Zun-Murino; 51.74° N, 102.87° E; 30 May 1970; T. Dokitjuk leg.; MZH, <http://id.luomus.fi/GL.5146>.

Notes

Belongs to the *Euura bergmanni* group: see discussion under *Euura chromata*.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

East Palaearctic. Only one specimen studied from Russia.

326 *Euura groenlandica* (Malaise, 1933)

Amauronematus groenlandicus Malaise, 1933: 3–4.

Diagnosis

Most similar to *Euura obscuripes* (*toeniata* group) and *E. variator* (*variator* group) and synonymy with one of these species cannot be excluded. Except for its mostly black femora, the colouration of the holotype of *groenlandicus* is most similar to *Euura obscuripes* specimens DEI-GISHym19806 (Abisko, Torne Lappmark, Sweden) and DEI-GISHym84010 (Finnmark, Norway). Similarly to DEI-GISHym19806 (but not DEI-GISHym84010), the thorax of the holotype is noticeably wider than the head in dorsal view, which we have not observed in *E. variator* (as wide as head or only slightly wider). Malar space is about 2.3–2.5 times as long as diameter of front ocellus (1.9–2.1 times in DEI-GISHym84010), which is as in the *opacipleuris* group, but the shape of sawsheath does not fit this group. Based on the shape of serrulae and length of setae (rather short), the lancet (only tip visible in the holotype) seems to be

most similar to some specimens of *E. obscuripes* (DEI-GISHym19904, DEI-GISHym12101: the other checked *E. obscuripes* specimens have longer setae). Although, overall, the holotype of *groenlandicus* seems to fit best with *E. obscuripes*, the combination of mostly black femora, extensively pale head and thorax, and long malar space suggest that it may be a different species. Sequencing of nuclear genes might be required to decide more confidently on the status of *E. groenlandica* and its group affinity.

In the absence of unequivocally determined specimens, we remove *Euura groenlandica* from the list of Palaearctic taxa. Benson (1962) did not examine the holotype of *groenlandicus* and based his concept of the species on specimens from Greenland that were compared with the holotype. Apparently, the specimens were mostly black, because Benson (1962) found them to be very similar to *E. hyperborea*, while the *groenlandicus* type is extensively pale. Benson (1962) synonymised *carbonarius* with *groenlandicus*, but we consider *carbonarius* to be a synonym of *E. obscuripes*. Therefore, the European records of *E. groenlandica* by Benson (1962) and Lindqvist (1959d; under the name *Amauronematus carbonarius*) might refer to *E. obscuripes* or some other similar *Euura*.

Type material examined

Holotype *Amauronematus groenlandicus*

GREENLAND – Wollaston Forland • ♀; Landingsdalen; 74.47° N, 19.13° W; 28 Jul. 1929; Knaben leg.; ZMUN.

Host plants

Not definitely known. Smith (1979) wrote “*Salix* (?)”.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

Nearctic. Only one specimen studied, from Greenland.

327 *Euura memoriakaszabi* (Haris, 2002) comb. nov.

Pristiphora memoriakaszabi Haris, 2002: 72–73.

Type material examined

Holotype *Pristiphora memoriakaszabi*

MONGOLIA • ♀; Khentii, Mörön 7 km NE; 49.73° N, 100.30° E; 1200 m a.s.l.; 28–29 Jul. 1965; Z. Kaszab leg.; HNHM, DEI-GISHym80405.

Notes

Almost completely pale. Possibly a form of *E. annulata*.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

East Palaearctic. Only one specimen studied, from Mongolia.

328 *Euura oehlkei* (Muche, 1973)

Fig. 107

Pachynematus oehlkei Muche, 1973b: 167–169. Holotype ♀, not found in ZMHB (GBIF-GISHym2786), but the slide preparation of the lancet was located. Type locality: Kazakhstan, Alma-Ata, Medeo.

Nematus (Pachynematus) tarani Zhelohovcev, 1976a: 62–63. Holotype ♀ (ZMMU?), not examined. Type locality: Uzbekistan, Fergana District. Synonymized with *oehlkei* by Muche (1981).

Diagnosis

The species is very similar to *E. annulata* and *E. gehrsi*, and synonymy with one of them cannot be excluded. The lancet of *E. oehlkei* has a concave or straight ventral margin while it tends to be slightly convex in *annulata* and *gehrsi*, but the significance of this difference remains unclear. The drawing of the lancet of *tarani* (Zhelohovcev 1976a) does fit very well with the lancet of *oehlkei*. Muche (1973b) and Zhelohovcev (1976a) also described males which are similar to *gehrsi* in their dark colouration. Muche's (1973b) drawing of the penis valve does not seem to be entirely accurate, but Zhelohovcev's (1976a) drawing fits best with *gehrsi* in overall shape, although the size of the valvispina fits better with *annulata*.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

East Palaearctic. Specimens studied are from Kazakhstan.

329 *Euura pallens* (Konow, 1903)

Fig. 320

Pteronus pallens Konow, 1903b: 310 (key). Lectotype designated by Prous *et al.* (2021).

Type material examined

Lectotype *Pteronus pallens*

RUSSIA – Irkutskaja oblast • ♀; Irkutsk; 52.29° N, 104.24° E; B.E. Jakowleff leg.; SDEI, GBIF-GISHym3863.

Notes

Belongs to the *Euura bergmanni* group. Removed from the list of West Palaearctic species by Prous *et al.* (2021). Possibly a synonym of *E. sylvestris*, although serrulae of the lancet are more prominent than in the studied European specimens. See also discussion under *Euura chromata*.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

East Palaearctic. Only one specimen, studied from Russia.

330 *Euura telos* Liston & Prous nom. nov.
Fig. 543

Amauronematus terminalis Malaise, 1931b: 46–47. Secondary homonym of *Pontania terminalis* Marlatt, 1896 [*Euura terminalis* (Marlatt, 1896)].

Diagnosis

Belongs to the *E. humeralis* group. In females, the postocellar area seems to be longer (2.0–2.5 times as long as diameter of lateral ocellus) than in *E. aceroserra* and *E. humeralis* (1.5–2.0 times as long). Ventral margin of valvula 3 in lateral view angled as in *E. aceroserra*, but valvula 3 may be somewhat shorter. The holotype female is slightly paler (mesepisternum slightly pale) than typical *E. humeralis* (*E. aceroserra* is darker), but the females from Primorsky Krai are largely pale (black are antenna, lateral mesoscutal lobes and most of abdomen dorsally). The valviceps of males is dorsally convex as in *E. humeralis* (more or less straight in *E. aceroserra*), but the apical margin of the paravalva is perpendicular to the valvispina whereas it is strongly inclined in *E. humeralis*.

Etymology

The replacement name *telos* is the Greek noun τέλος, used in the figurative sense of an ending.

Type material examined

Holotype *Amauronematus terminalis*

RUSSIA – Kamchatka oblast • ♀; Klutchi [Klyuchi]; 56.32° N, 160.85° E; R. Malaise leg.; NHRS, NHRS-000006399.

Host plants

Unknown.

Genetics

COI

Based on 3 specimens, maximum within-species distance is 0.15% and the nearest neighbours, diverging by a minimum of 0.61%, are *Euura aceroserra* and *E. humeralis*.

Nuclear

Based on 3 specimens, maximum within-species distance is 0.49% (0.18% based on haplotypes of individual females). The nearest neighbour, diverging by a minimum of 0.56%, is *Euura humeralis*.

Distribution and material examined

East Palaearctic. Specimens studied are from Russia.

331 *Euura tiliae* (Zinovjev, 1998) comb. nov.

Nematus tiliae Zinovjev, 1998: 23–26.

Diagnosis

Could be confused with almost completely pale specimens of *Euura miliaris* or members of the *E. bergmanni* and *E. oligospila* groups. The rather short valvula 3 is most similar to *E. jugicola*, *E. hypoxantha*, and the *E. papillosa* group. The lancet is most similar to the *E. papillosa* group (overall shape, serrulae, and radix seems to be about as long as lamnium). Its darker pterostigma and not clearly bifid claws (somewhat similar to *E. gregaria*) distinguish *E. tiliae* from the species mentioned above. Without genetic data it is not clear to which *Euura* group *E. tiliae* could belong, but there seems to be little doubt that the species belongs to *Euura* rather than *Nematus*. Shinohara & Hara (2015) retained it in *Nematus*. We do not consider the small differences in claws to other *Euura* to be sufficient to exclude the species from this genus.

Type material examined

Holotype *Nematus tiliae*

JAPAN – **Hokkaido** • ♀; Akaigawa, Meiji; 43.013° N, 140.898° E; 11 Sep. 1996; M. Ohara leg.; NSMT, NSMT-HYM62118.

Host plants

Tilia maximowicziana Shiras. (Zinovjev 1998).

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

East Palaearctic. Only one specimen studied, from Japan.

332 *Euura trochanterata* (Malaise, 1931)

Pteronidea trochanterata Malaise, 1931a: 149–151.

Nematus hequensis G.R. Xiao, 1990. Holotype ♀ (CFRB?), not examined. Type locality: China, Shanxi Province, Hequ County. **Syn. nov.**

Diagnosis

The black pterostigma and mesepisternum, yellow costa, mostly black abdomen, reddish head and reddish thorax dorsally, and mostly black femora make the females rather easily recognizable. Penis

valves (Xiao 1990) might not be clearly distinguishable from, e.g., the *melanocephalus* and *miliaris* groups. Larvae (Wang *et al.* 2015) are most similar to those of *E. miliaris* or *E. salicis*. Phylogenetically (based only on COI, > 1000 bp) appears to be closest to *E. salicis* and the *E. melanocephalus* group.

Type material examined

Holotype *Pteronidea trochanterata*

RUSSIA – Primorsky Krai • ♀; Vladivostok, Sedanka; 43.21° N, 131.96° E; 12 Aug. 1930; R. Malaise leg.; NHRS, NHRS-HEVA000006438.

Notes

The holotype is 8.2 mm long, not 9 mm as stated in the original description. Based on the details given in Wang *et al.* (2015), *Nematus hequensis* is not different from *Pteronidea trochanterata* Malaise.

Host plants

Salix spp. and *Populus* spp. (Wang *et al.* 2015).

Genetics

COI

Based on 2 specimens (NC_072336, identified as *Nematus trochanteratus* and NC_072337 identified as *N. hequensis*), maximum within-species distance is 0.91% and the nearest neighbour, diverging by a minimum of 3.96%, is *Euura vicina*.

Nuclear

No data.

Distribution and material examined

East Palaearctic. Specimens studied are from China (only genetics), Russia.

333 *Euura variabilis* (Malaise, 1931)

Fig. 278

Amauronematus variabilis Malaise, 1931b: 42–44. Lectotype designated below.

Type material examined

Lectotype *Amauronematus variabilis*, here designated

RUSSIA • ♀; Kamchatka oblast; R. Malaise leg.; NHRS, NHRS-HEVA000006365.

Paralectotype *Amauronematus variabilis*

RUSSIA • ♀; Kamchatka oblast; R. Malaise leg.; NHRS, NHRS-HEVA000006364.

Notes

Possibly belongs to the *variator* group. The lancet is most similar to *E. lethe*, but the malar space is longer (1.7–1.8 times as long as diameter of front ocellus compared to 1.4–1.6 in *E. lethe*). The species was questionably listed for Europe by Zhelochovtsev & Zinovjev (1995), but we exclude it here, because no confirmed specimens are known.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

East Palaearctic. Specimens studied are from Russia.

334 *Euura wuyishanica* (Wei, 2003) comb. nov.

Nematus wuyishanicus Wei, 2003 in Wei & Nie 2003: 55, 197. Holotype ♀ (CSFU?), not examined.

Type locality: China, Fujian, Wuyishan.

Notes

Probably belongs to the *E. bergmanni* group, and might be a synonym of *E. respondens*.

Host plants

Unknown.

Genetics

COI

No data.

Nuclear

No data.

Distribution and material examined

East Palaearctic. No specimens studied.

Species outside Euura

335 *Nematus umbratus* Thomson, 1871

Nematus breviusculus Eversmann, 1847: 17. **Nomen oblitum**. Lectotype designated below. Was incorrectly synonymised with *Euura melanocephalus* (Hartig, 1837) by Prous *et al.* (2017). **Syn. nov.**

Nematus umbratus Thomson, 1871: 142–143. **Nomen protectum**. Lectotype designated by Prous *et al.* (2019).

Pteronidea holmgreni Lindqvist, 1968: 192. Synonymy by Liston *et al.* (2023).

In accordance with Article 23.9.1 of the International Code of Zoological Nomenclature (ICZN 1999), we retain the junior name *umbratus* as valid, because it has been used more than 25 times by at least ten authors as the valid name for this taxon during the last 50 years, whereas *breviusculus* has not been used as valid since 1899. Examples of use of *umbratus* or *umbrata* as the valid name for this taxon during the last fifty years: Hellén 1976; Smith 1979; Verzhutskii 1981; Kangas 1985; Viitasaari & Vikberg 1985; Zhelochovtsev 1988; Liston 1995, 1997; Zhelochovtsev & Zinovjev 1995; Taeger *et al.* 1998, 2006, 2010; Lacourt 1999, 2020; Pschorn-Walcher & Altenhofer 2000; Haris 2001; Liston *et al.* 2006; Roller & Haris 2008; Schedl 2009; Prous *et al.* 2014, 2017, 2021; Macek & Kula 2014; Chevin & Savina 2016; Sundukov 2017b; Macek *et al.* 2020; Liston *et al.* 2023

Diagnosis (male)

The penis valve of *holmgreni* figured in the original description (Lindqvist 1968: 195, fig. 11) appears to be taken from an earlier publication under the name *Nematus (Pteronidea)* sp. (Lindqvist 1967a: 20, fig. 14), which fits better with the penis valve of *Euura pohjola*. The actual penis valve of the *holmgreni* holotype is not different from the penis valve of *Nematus umbratus*, which indeed is rather similar to that of *Euura pohjola*. Differences between the penis valves of *N. umbratus* and *E. pohjola* are as follows:

- a Ventroapical lobe of paravalva extending about one third of the length of valvispina so that the apical margin of paravalva appears less oblique or even roughly perpendicular relative to the valvispina
- b Basal third or half of valvar strut more or less at the ventral margin of paravalva
- c Dorsobasal part of paravalva narrowing more abruptly *Nematus umbratus*
- aa Ventroapical lobe of paravalva extending about half of the length of valvispina so that the apical margin of paravalva appears more oblique relative to the valvispina
- bb Valvar strut distinctly removed from ventral margin of paravalva
- cc Dorsobasal part of paravalva narrowing more gradually *Euura pohjola*

Type material examined

Lectotype *Nematus brevisculus*, here designated

RUSSIA – Tatarstan • Gynandromorph; Kasan Province; 55.8° N, 49.1° E; 8 Jul.; E. Eversmann leg.; ZIN, DEI-GISHym30032.

Lectotype *Nematus umbratus*

SWEDEN • ♀; Lapponia Media [central Lapland]; 25 Jul.; C.H. Boheman leg.; MZLU, MZLU2017310.

Holotype *Pteronidea holmgreni*

SWEDEN – Torne Lappmark • ♂; Torneträsk; 68.22° N, 19.74° E; 400 m a.s.l.; R. Malaise leg.; NHRS, NHRS-HEVA000004010.

Notes

The paratype female belongs to *E. leptostigma*.

336 *Platycampus luridiventris* (Fallén, 1808)

Tenthredo luridiventris Fallén, 1808: 115–116. Syntypes ♀♀ (1 ♀ examined by Lindqvist (1956), MZLU). Type locality: Sweden.

Nematus emarginatus André, 1880a: 119. Lectotype designated below. Junior primary homonym of *Nematus emarginatus* Förster, 1854. **Syn. nov.**

Nematus fennicus André, 1880a: 133. Lectotype designated by Forsius (1920). Synonymy by Forsius (1920).

Type material examined

Lectotype *Nematus emarginatus*, here designated

FRANCE • ♂; southern France; Desbrochers leg.; ZIN, DEI-GISHym89374.

Lectotype *Nematus fennicus*

FINLAND • ♀; Finland; Desbrochers leg.; ZIN, DEI-GISHym89373.

Notes

Nematus emarginatus was listed by Taeger *et al.* (2010) under “Unplaced Nematinae”. The synonymy of *Nematus fennicus* with *P. luridiventris* proposed by Forsius (1920) is here confirmed.

337 *Pristiphora biscalis* (Förster, 1854)

Fig. 544

Nematus biscalis Förster, 1854b: 326–327. Lectotype ♀ (ZSM), designated by Prous *et al.* (2017).
Nematus meridionalis André, 1880a: 154. Lectotype designated below. **Syn. nov.**

Type material examined

Lectotype *Nematus biscalis*

GERMANY – **Nordrhein-Westfalen** • ♀; Aachen area; 50.77° N, 6.09° E; A. Förster leg.; ZSM, GBIF-GISHym3698.

Lectotype *Nematus meridionalis*, here designated

UNKNOWN COUNTRY • ♂; Pyrenees; ZIN, DEI-GISHym89376.

Notes

Examination of the penis valve of the lectotype of *meridionalis* establishes it as *Pristiphora biscalis*.

338 *Pristiphora mollis* (Hartig, 1837)

Nematus mollis Hartig, 1837: 201. Lectotype ♀ (ZSM), designated by Prous *et al.* (2017).
Pachynematus penegalensis Enslin, 1911a: 176–177. Syntype ♀. Lectotype designated below.

Type material examined

Lectotype *Nematus mollis*

GERMANY – **Niedersachsen** • ♀; Harz; 51.8° N, 10.3° E; W. Saxesen leg.; ZSM, GBIF-GISHym3355.

Lectotype *Pachynematus penegalensis*, here designated

ITALY – **South Tirol** • ♀; Penegal bei Bozen, in der Naehe des Gipfels; 46.43° N, 11.22° E; 1700 m a.s.l.; ZSM, DEI-GISHym12487.

Notes

The synonymy proposed by Conde (1934) is here confirmed.

339 *Pristiphora wesmaeli* (Tischbein, 1853)

Fig. 323

Nematus wesmaeli Tischbein, 1853: 347–348. Syntypes ♀♂, probably destroyed. Type locality: Germany, Rheinland-Pfalz, near Herrstein.

Pachynematus edentatus Lindqvist, 1975: 19. Holotype ♀, not found in MZH. Type locality: Russia, Republic of Buryatia, Tunkinsky, Zun-Murino. **Syn. nov.**

Notes

A specimen in MZH (<http://id.luomus.fi/GL.5147>) labelled as the type of *edentatus* cannot be the holotype because of the different locality on its label (unless there has been a mix-up). The specimen does not appear to differ from the original description (including the lancet) and therefore we treat

edentatus as a synonym of *Pristiphora wesmaeli*, although synonymy instead with *P. glauca* cannot be excluded, should it really be a species separate from *P. wesmaeli*: see Prous *et al.* (2017).

Discussion

The number of currently recognized West Palaearctic species of *Euura* (266) is likely to increase, despite possible additional synonyms (mainly among gall-makers). Additional species may come to be recognized in the *Euura clitellata*, *E. toeniata*, *E. miltonota* and perhaps some other groups when species boundaries are better assessed with more data. Also, at least a few distinct species new to science or new to the West Palaearctic can be expected. Nevertheless, we do not expect the number of species of *Euura* to increase significantly in the region; perhaps by 10–20 species. Besides additional species, some of the currently valid West Palaearctic *Euura* names may need to be changed in future revisions if earlier names turn out to be available among the Nearctic taxa. Even considering only the names of the West Palaearctic taxa, changes are possible if it proves that we have misidentified some of the examined types.

The high proportion of species that cannot be reliably identified based on mitochondrial barcodes (> 20% species can have barcode sequences identical to at least one other species, while at the same time within-species divergence is > 2% in most cases) necessitates the use of alternative markers to more efficiently identify species of *Euura* genetically. The most widely available nuclear gene for *Euura* or sawflies in general is NaK, which would be useful to add as a standard for at least sawfly identification, but it is unlikely to be adopted for other insects, because even in other Hymenoptera, including some sawflies, introns are present that complicate amplification of the target region.

Although some monophyletic groups within *Euura* can be relatively easily recognized using morphology, the majority of lineages and many individual species are poorly defined or difficult to identify, and occupy widely scattered positions across the phylogeny. This situation does not favour splitting *Euura* into a larger number of genera. Based on the phylogenetic analyses of 10 genes (Fig. 2), a stronger case could instead be made for the synonymy of *Euura* with *Nematus*. This would solve the possible problem of paraphyly of *Nematus* (although monophyly cannot be excluded based on current data) and would be a favourable arrangement in the light of morphological data. Many of the names within *Euura* have already been combined under *Nematus* in the past. The most significant problem with synonymising *Euura* with *Nematus* is that this would change a large number of names that have been adopted rather widely since 2014 (Prous *et al.* 2014; Shinohara & Hara 2015; Liston *et al.* 2017; Taeger *et al.* 2018; taxonomy in GenBank and BOLD), although not universally (Lacourt 2020; Macek *et al.* 2020). Because *Nematus* was closer to *Pristiphora* in an analysis based on 4 genes, although weakly supported (Prous *et al.* 2014; two mitochondrial and two nuclear, only the mitochondrial Cytb of these is missing here), we cannot exclude the possibility of finding additional support for this relationship in the future with more or a different selection of genes. Admittedly, based on our analyses of 10 genes where *Nematus* is strongly supported as closer to *Euura* than to the other Nematini (Fig. 2), a result replicated by an analysis of ultraconserved elements (Wutke *et al.* 2024), finding support for a *Nematus*–*Pristiphora* relationship with more genes seems unlikely. Nevertheless, we refrain from synonymising *Euura* with *Nematus* at this point. Besides the still somewhat ambiguous position of *Nematus* pending further phylogenetic analyses of larger numbers of genes, one could alternatively argue for treating the exceptionally species-rich, genetically unambiguously supported (after excluding the *epilosa* group, Figs 2, 3D), largely *Salix*-feeding, and almost exclusively arctic-boreal group as a separate genus. If *Euura* is kept as a genus separate from *Nematus* (as we propose here), *Nematus* might require splitting up into additional genera (depending on future phylogenetic analyses) and the *Euura epilosa* group might require its own genus name (if it turns out not be a sister group of the other *Euura*). Because of the small number of species in *Nematus*, these taxonomic changes would have a minor impact on nomenclature compared to a synonymisation of *Euura* and *Nematus*.

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Supplementary files

Supp. file 1. Occurrence data for the studied specimens, including GenBank accessions.

<https://doi.org/10.5852/ejt.2025.977.2799.12781>

Supp. file 2. Neighbour-joining distance trees (TN93 model) for COI (alignment in Supp. file 6) and nuclear genes (alignment in Supp. file 7). <https://doi.org/10.5852/ejt.2025.977.2799.12783>

Supp. file 3. Alignment in fasta format (combined COI and 9 nuclear genes) used to produce the tree in Fig. 1. <https://doi.org/10.5852/ejt.2025.977.2799.12785>

Supp. file 4. Alignment in fasta format (combined COI and 9 nuclear genes) used to produce the tree in Fig. 2. <https://doi.org/10.5852/ejt.2025.977.2799.12787>

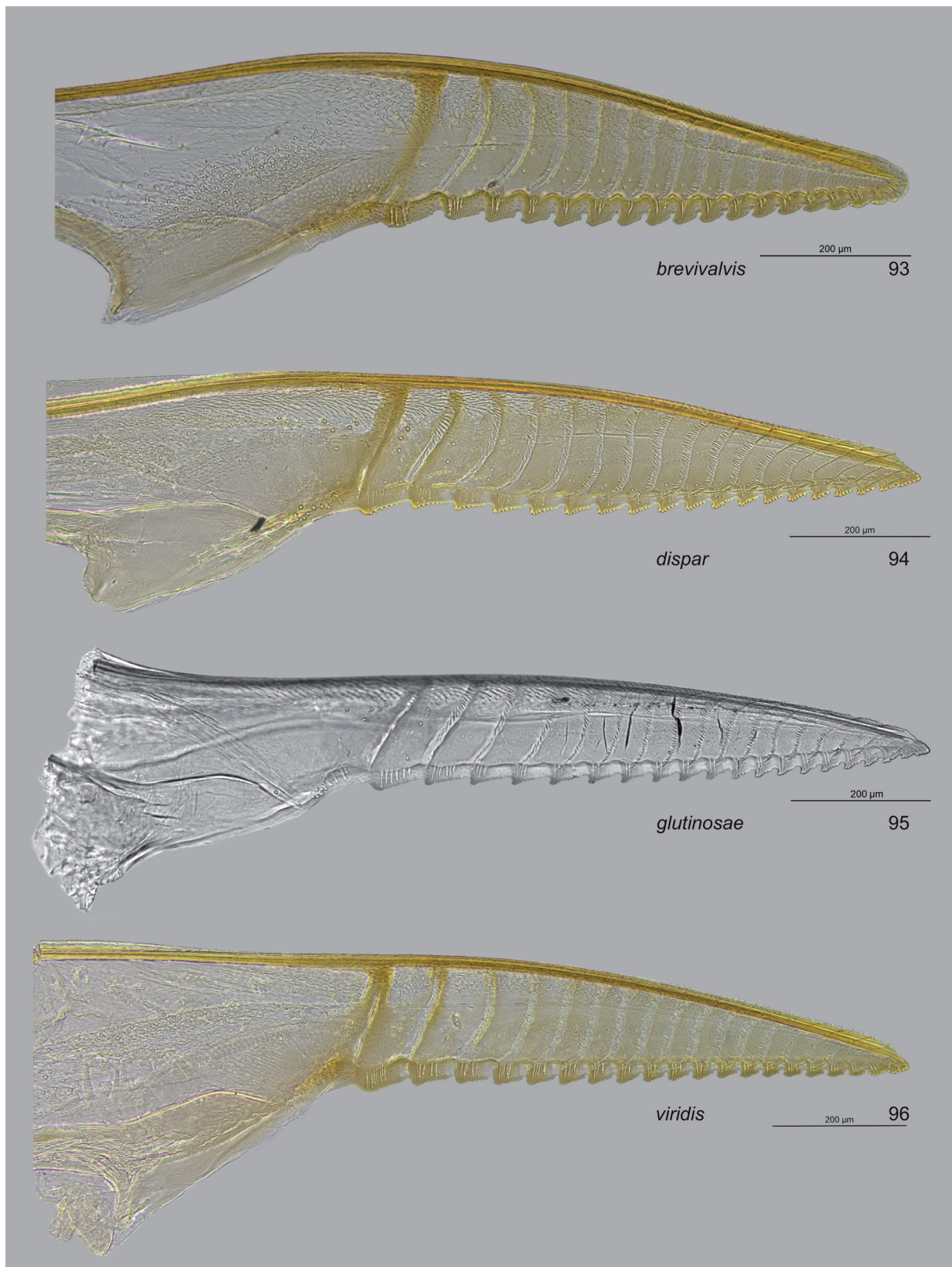
Supp. file 5. Alignment in fasta format (9 nuclear genes) used to produce the tree in Fig. 3. <https://doi.org/10.5852/ejt.2025.977.2799.12789>

Supp. file 6. Alignment in fasta format of COI, including intraindividual variants (minimum 621 bp, 1905 specimens, 2254 sequences). <https://doi.org/10.5852/ejt.2025.977.2799.12791>

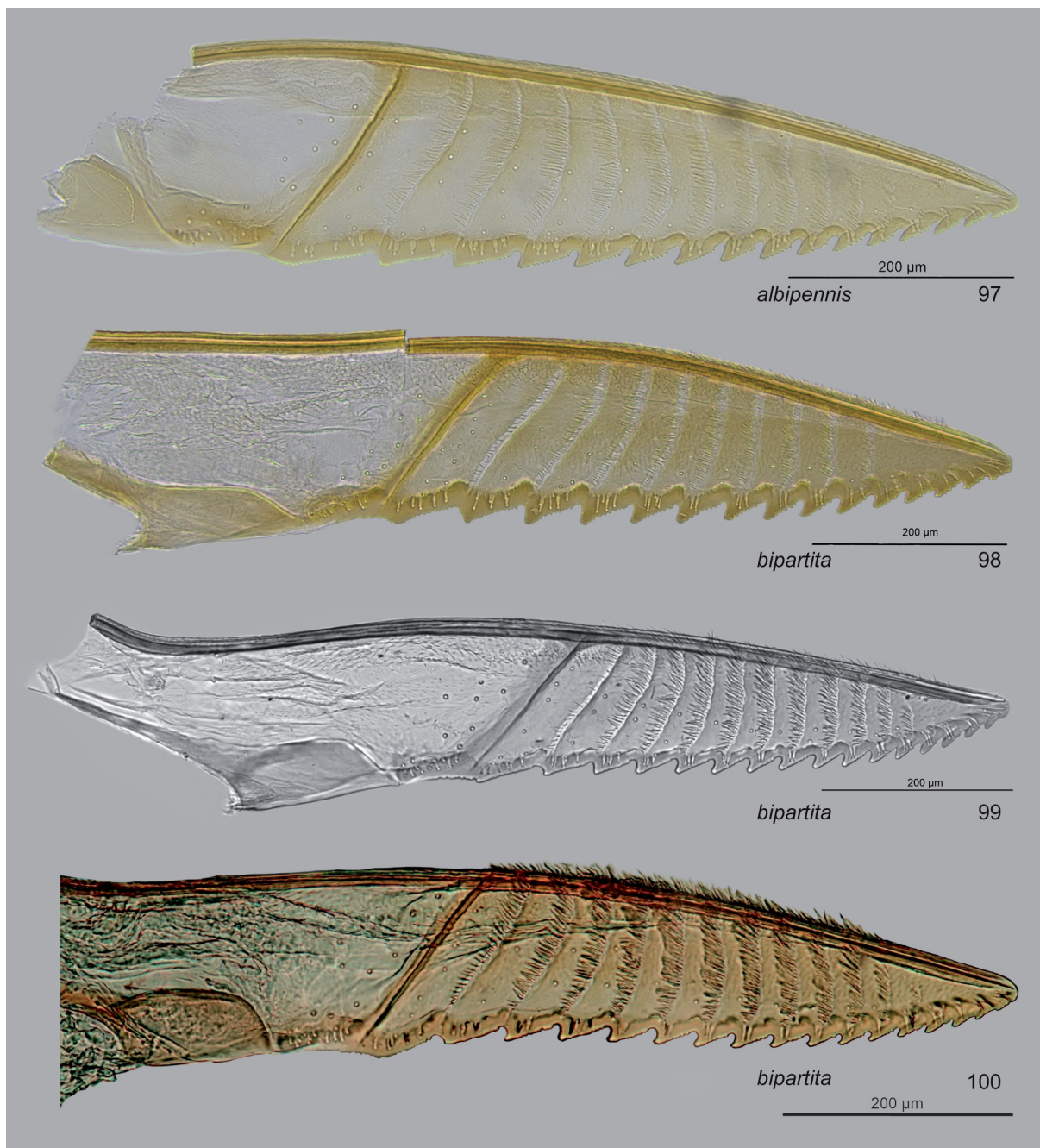
Supp. file 7. Alignment in fasta format of 9 nuclear genes (at least 667 bp of NaK and 802 bp of POL2, minimum 1529 bp, maximum 14439 bp, 1381 specimens). <https://doi.org/10.5852/ejt.2025.977.2799.12793>



Figs 89–92. Lancets of *Euura* Newman, 1837. **89.** *bergmanni* (Dahlbom, 1835) DEI-GISHym12585. **90.** *leptcephalus* (Thomson, 1863), holotype NHRS-HEVA000003974. **91.** *respondens* (Förster, 1854) DEI-GISHym11597. **92.** *sylvestris* (Cameron, 1884) PR.574VV.



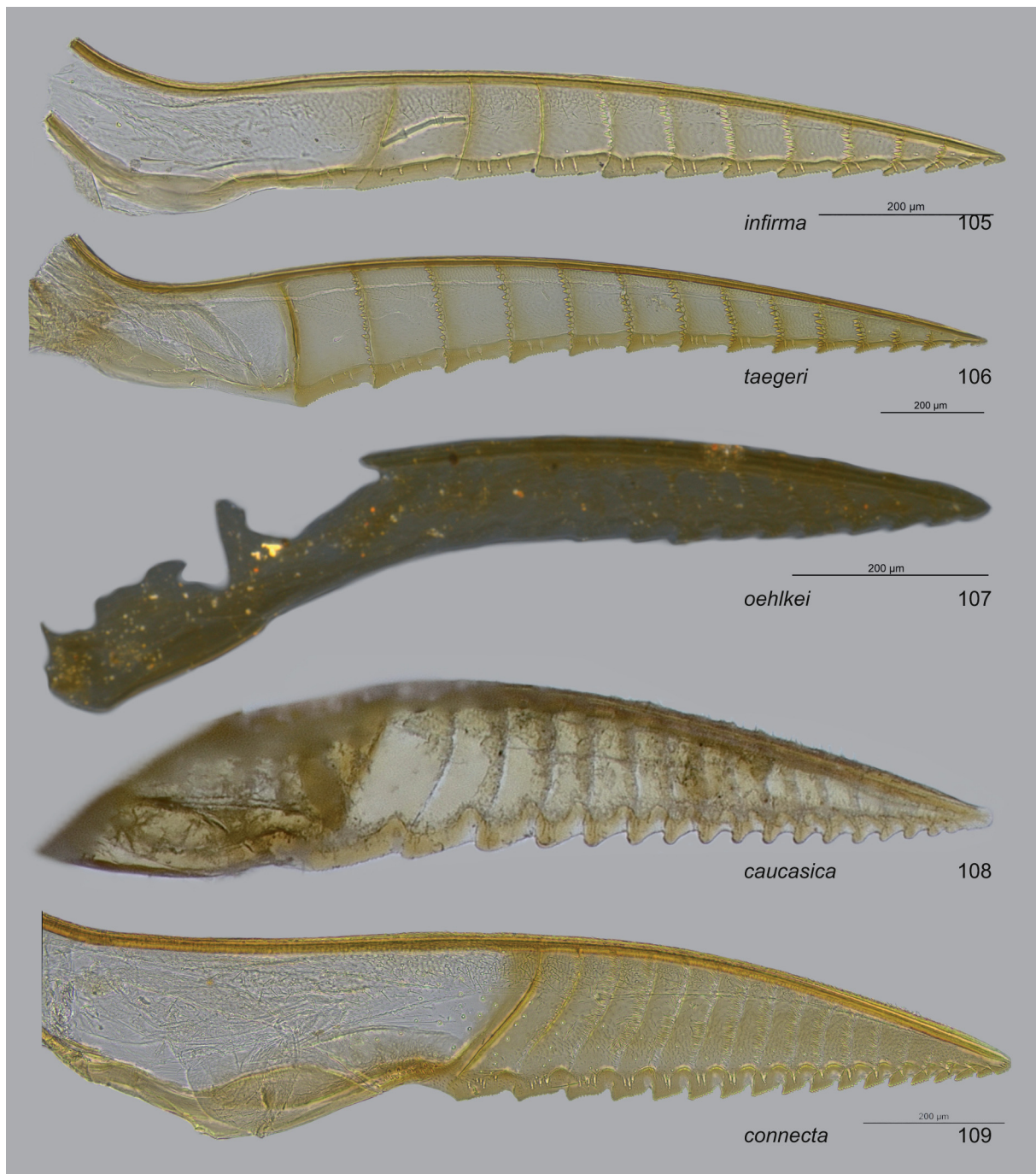
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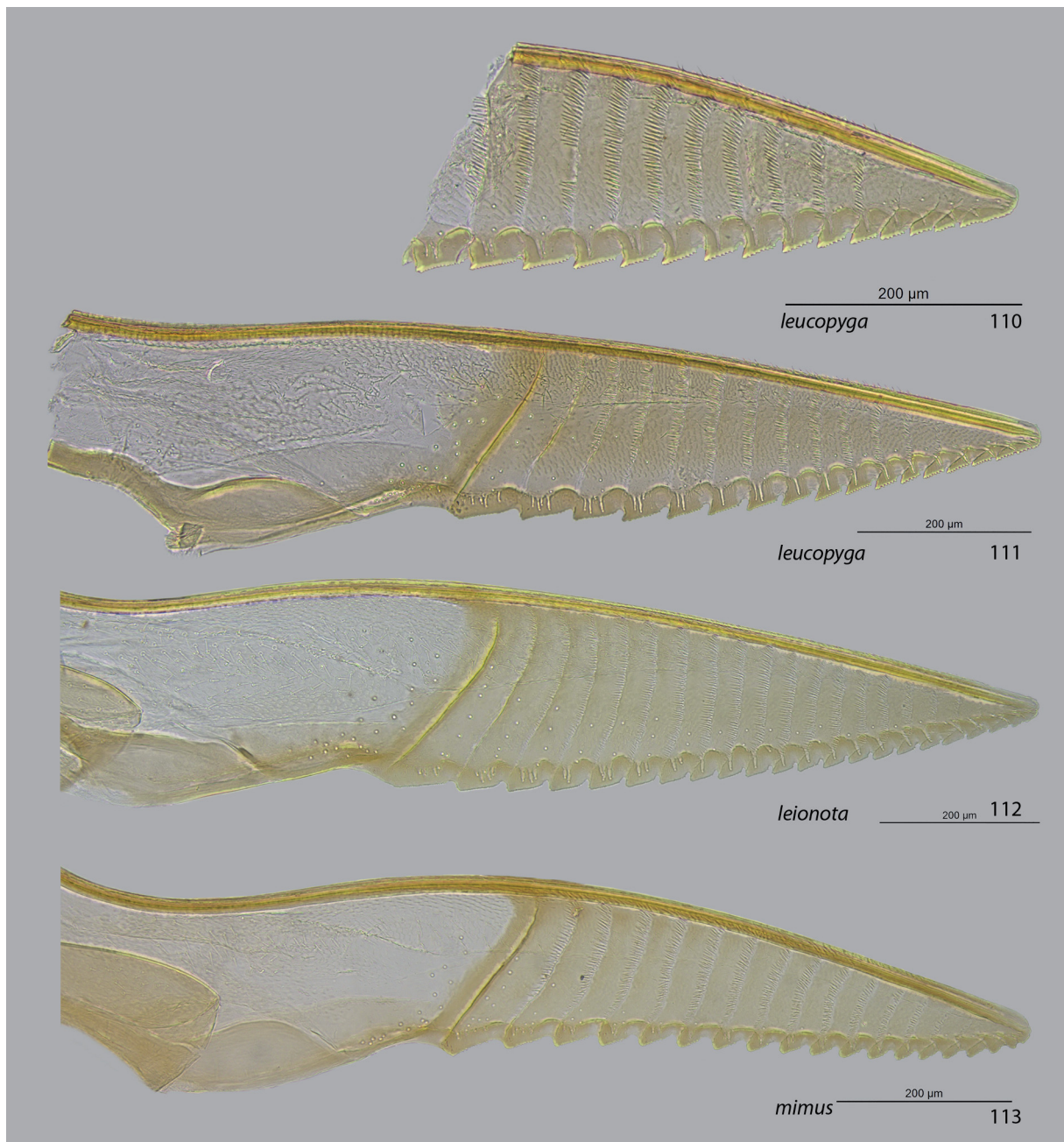
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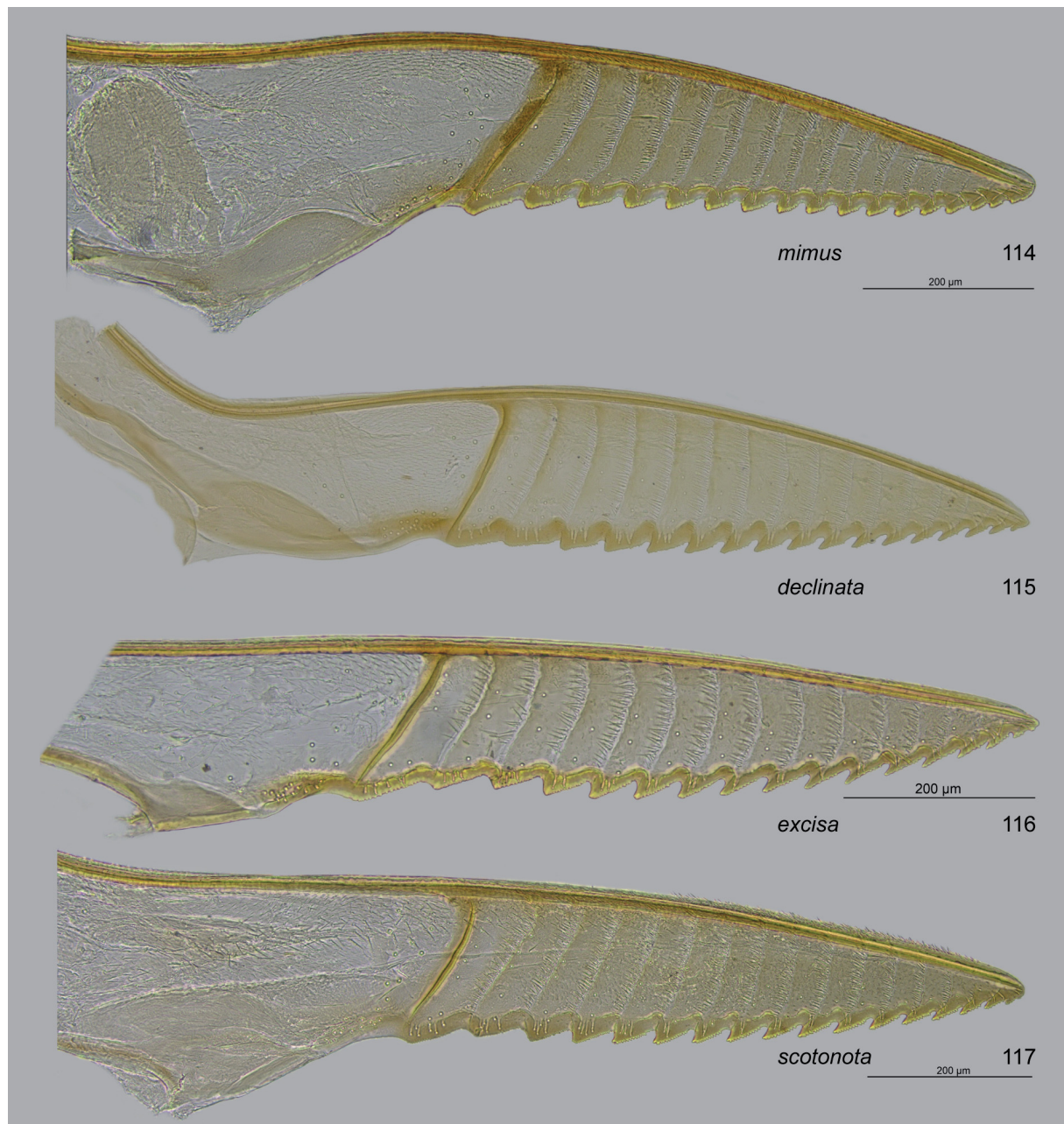
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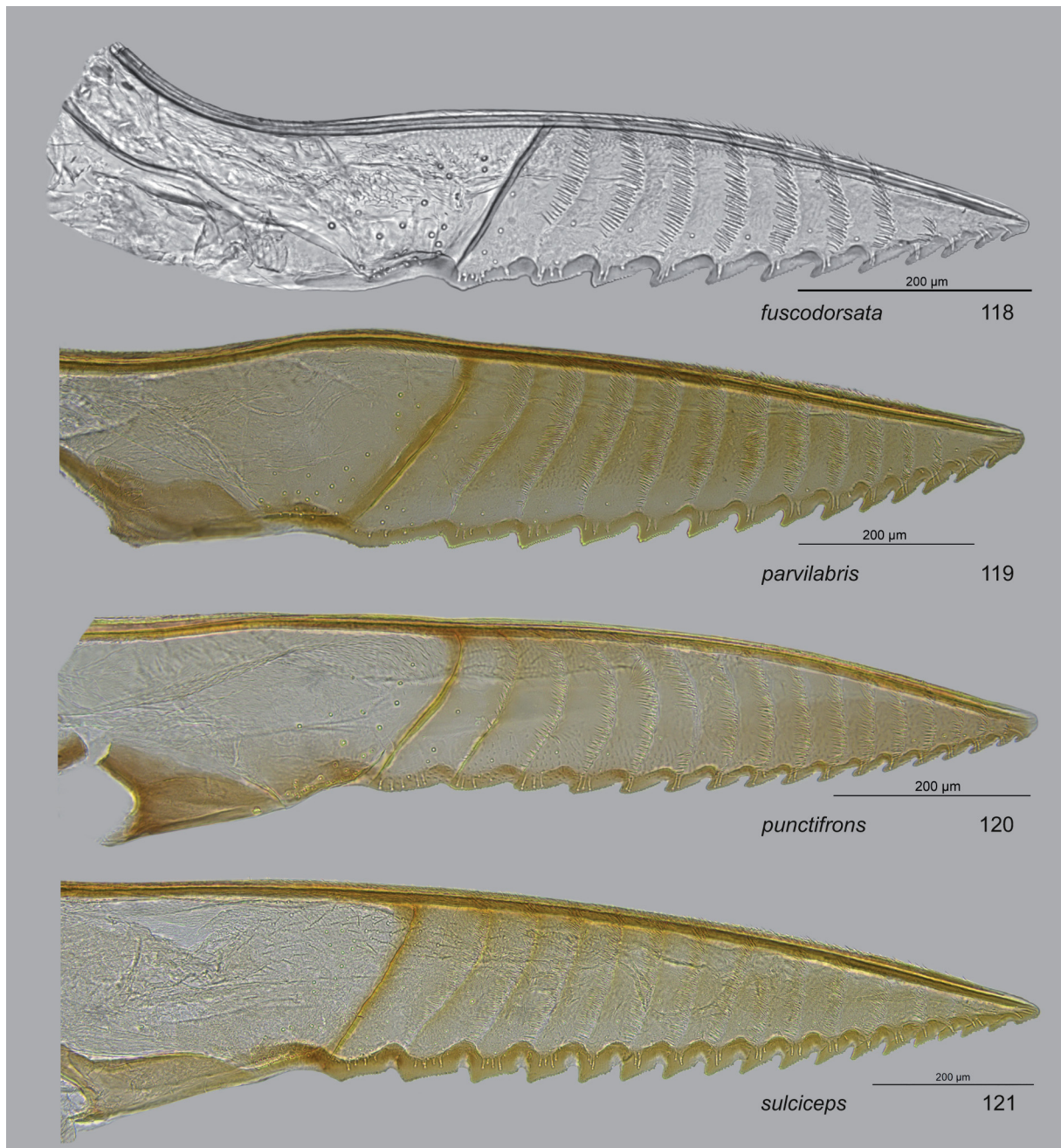
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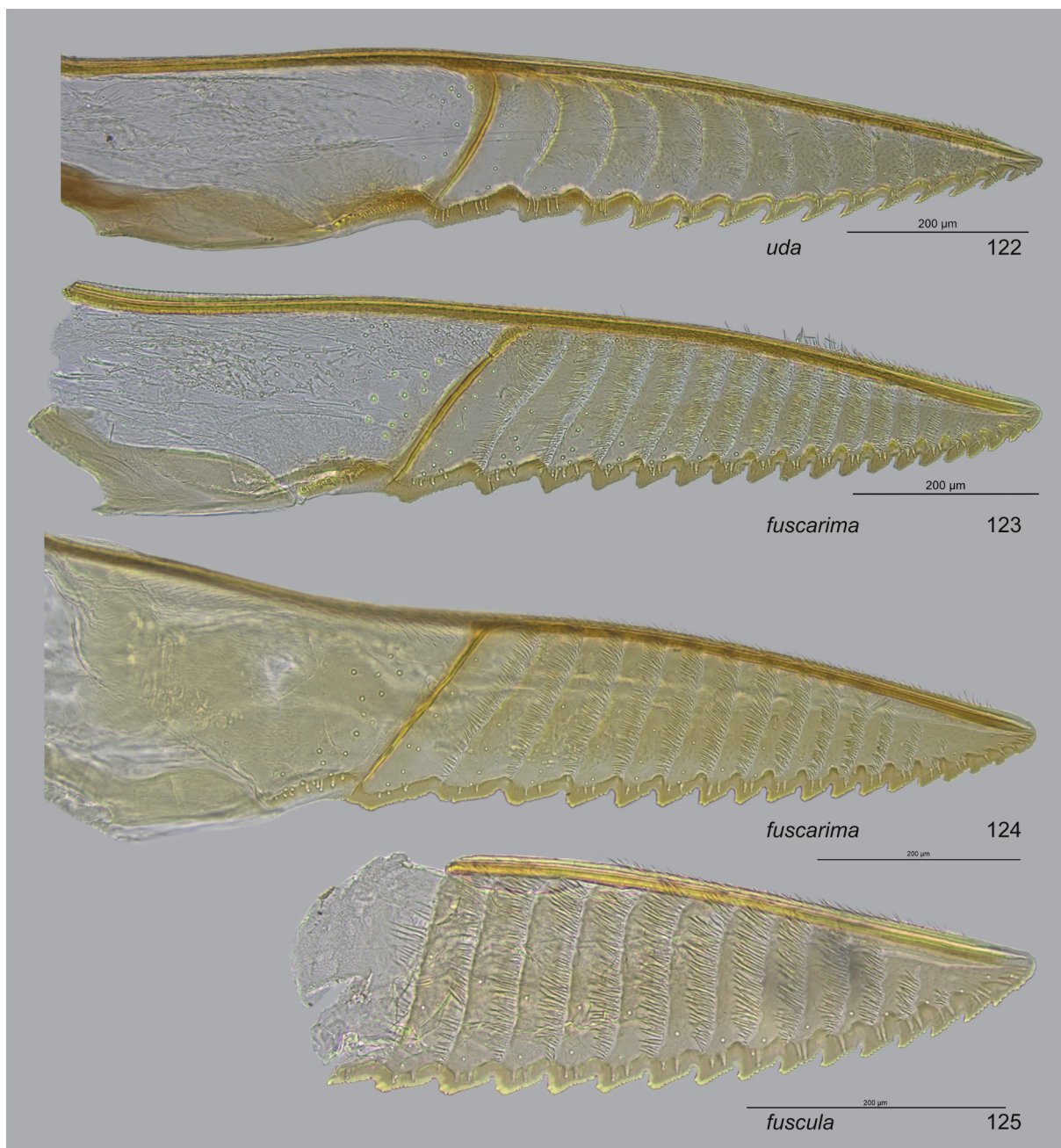
Figs 110–113. Lancets of *Euura* Newman, 1837. **110.** *leucopyga* (Lindqvist, 1949), *Amauronematus crassiserra* Lindqvist, 1960, holotype, ♀ <https://id.luomus.fi/GL.2525>. **111.** *leucopyga* DEI-GISHym21347. **112.** *leionota* (Benson, 1933) PR.348VV. **113.** *mimus* (Konow, 1903) PR.562VV.



Figs 114–117. Lancets of *Euura* Newman, 1837. **114.** *mimus* (Konow, 1903) DEI-GISHym20610. **115.** *declinata* (Förster, 1854) OR.408. **116.** *excisa* (Thomson, 1863) DEI-GISHym19635. **117.** *scotonota* (Förster, 1854) DEI-GISHym17157.



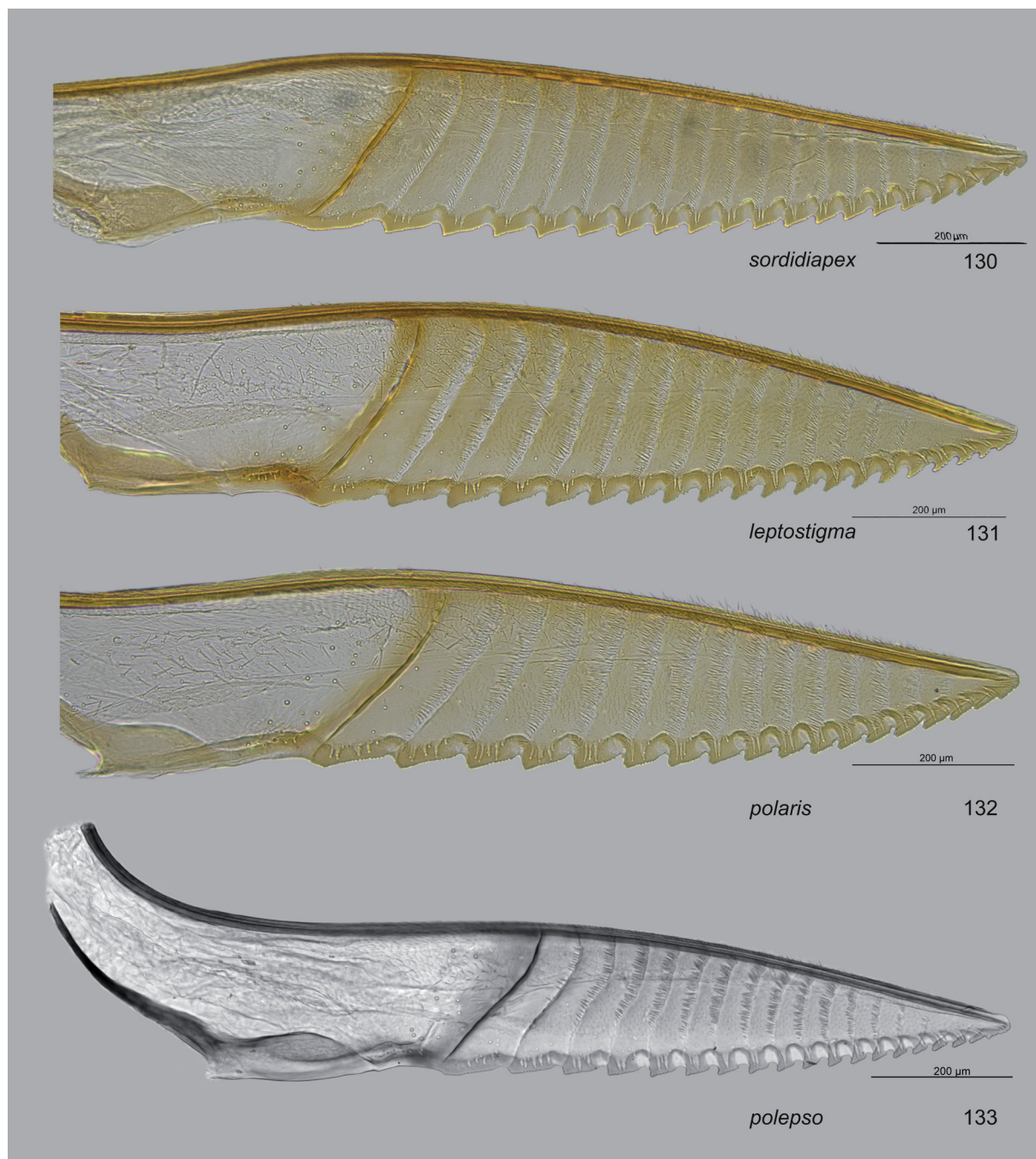
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Figs 122–125. Lancets of *Euura* Newman, 1837. **122.** *uda* (Holmgren, 1883) DEI-GISHym21394. **123.** *fuscарima* (Benson, 1933) comb. nov. DEI-GISHym17066. **124.** *fuscарima* ZMUO.035621. **125.** *fuscula* (Lindqvist, 1958), holotype, ♀ GL.3566.



Figs 126–129. Lancets of *Euura* Newman, 1837. **126.** *fuscomaculata* (Förster, 1854) ZMUO.029742. **127.** *poppii* (Konow, 1904) comb. nov. DEI-GISHym21379. **128.** *bipartita* group sp. 1 DEI-GISHym84691. **129.** *parviserrata* (Lindqvist, 1944) DEI-GISHym21434.



Figs 130–133. Lancets of *Euura* Newman, 1837. **130.** *sordidiapex* (Lindqvist, 1959) DEI-GISHym12536. **131.** *leptostigma* (Lindqvist, 1958) DEI-GISHym12621. **132.** *polaris* (Holmgren, 1883) DEI-GISHym12056. **133.** *polepso* Prous & Mutanen sp. nov., holotype, ♀ ZMUO.059303.



Figs 134–137. Lancets of *Euura* Newman, 1837. **134.** *lipovskyi* (D.R. Smith, 1974) DEI-GISHym21049. **135.** *caeruleocarpus* (Hartig, 1837) DEI-GISHym21380. **136.** *villosa* (Thomson, 1863) DEI-GISHym88925. **137.** *clibrichella* (Cameron, 1878) DEI-GISHym83669.



Figs 138–141. Lancets of *Euura* Newman, 1837. **138.** *clitellata* (Serville, 1823) DEI-GISHym21348. **139.** *clitellata* cluster 3 DEI-GISHym83657. **140.** *clitellata* cluster 4 DEI-GISHym84266. **141.** *clitellata* cluster 5 DEI-GISHym84245.



Figs 142–145. Lancets of *Euura* Newman, 1837. **142.** *fallax* (Serville, 1823) DEI-GISHym16232. **143.** *lichtwardti* (Konow, 1903) EI-GISHym84226. **144.** *moerens* (Förster, 1854) DEI-GISHym21044. **145.** *obducta* (Hartig, 1837) DEI-GISHym19628.



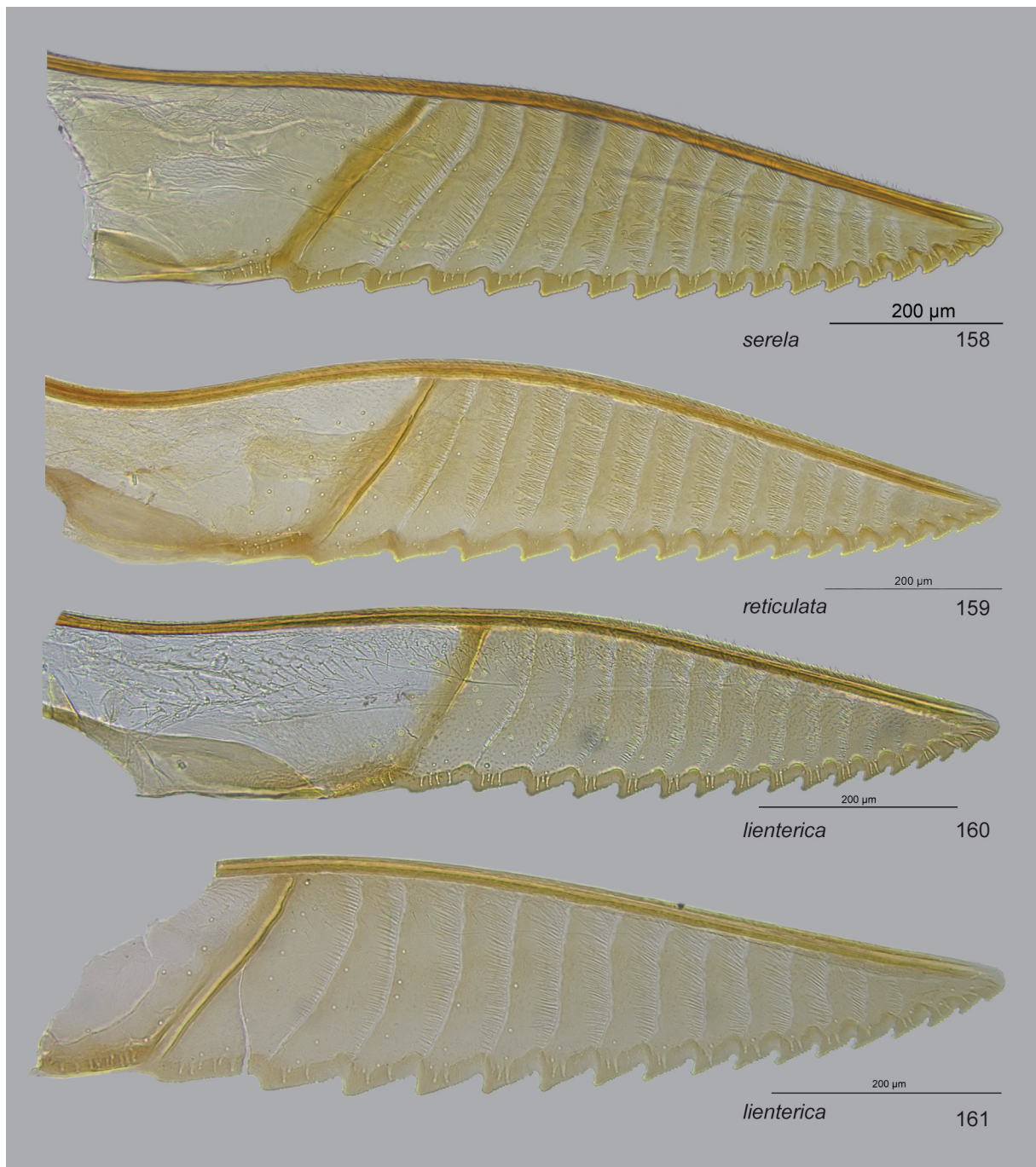
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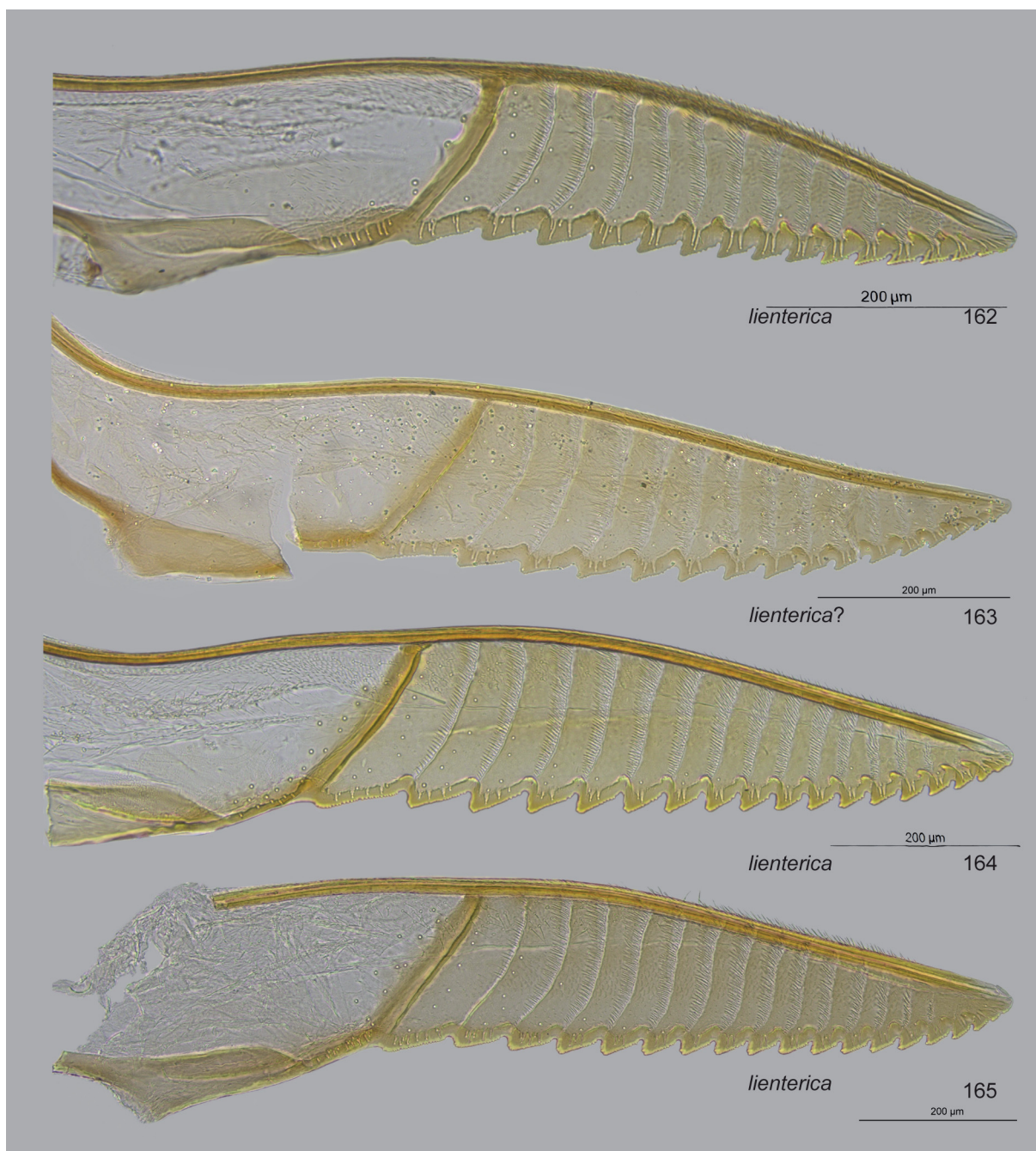
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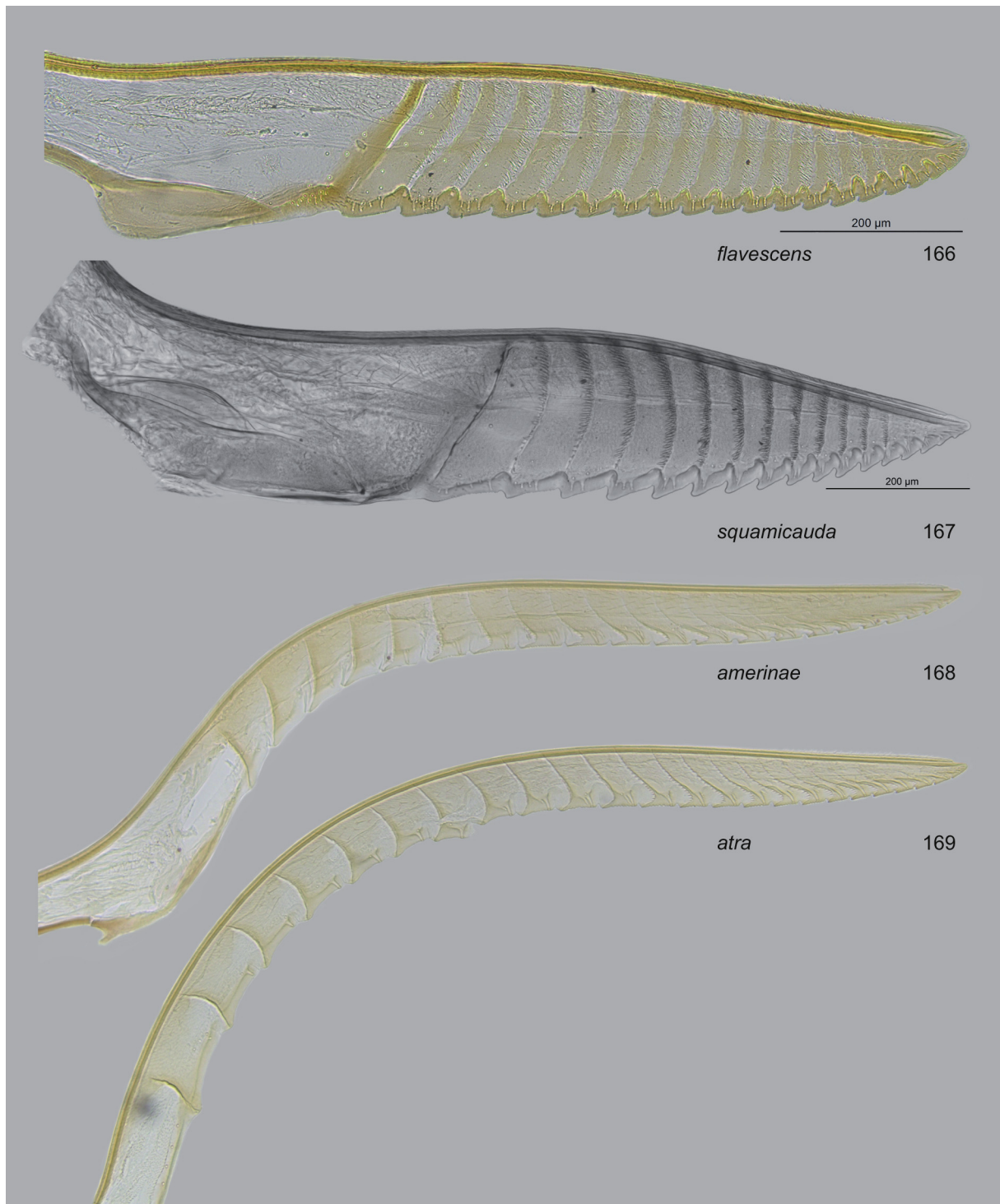
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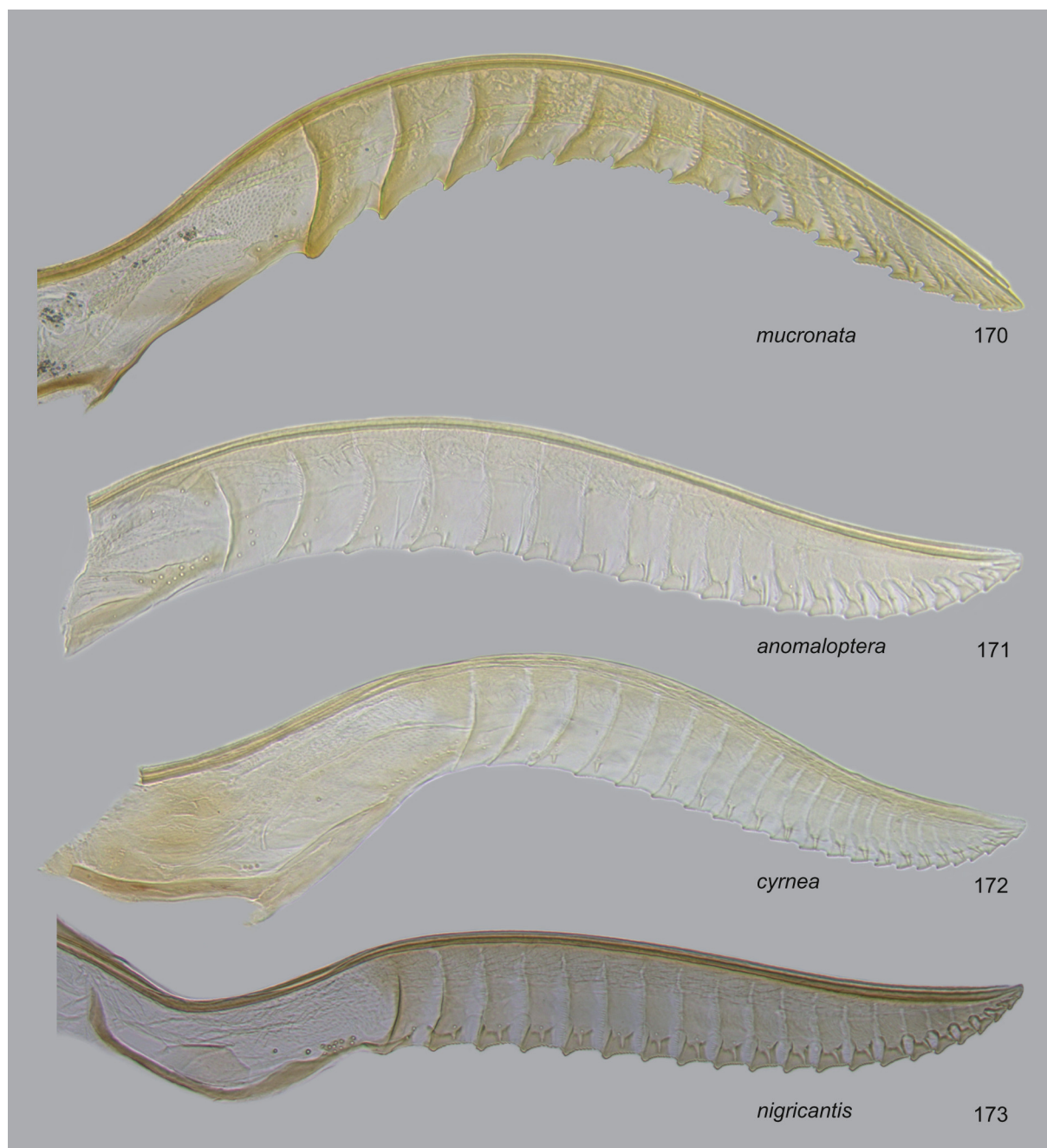
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Figs 162–165. Lancets of *Euura* Newman, 1837. **162.** *lienterica* (Holmgren, 1883) DEI-GISHym12558. **163.** *lienterica?* NHRS-HEVA000006478. **164.** *lienterica* DEI-GISHym12555. **165.** *lienterica*, *Pteronidea facialis* Lindqvist, 1969, holotype, ♀ <http://id.luomus.fi/GL.3564>.



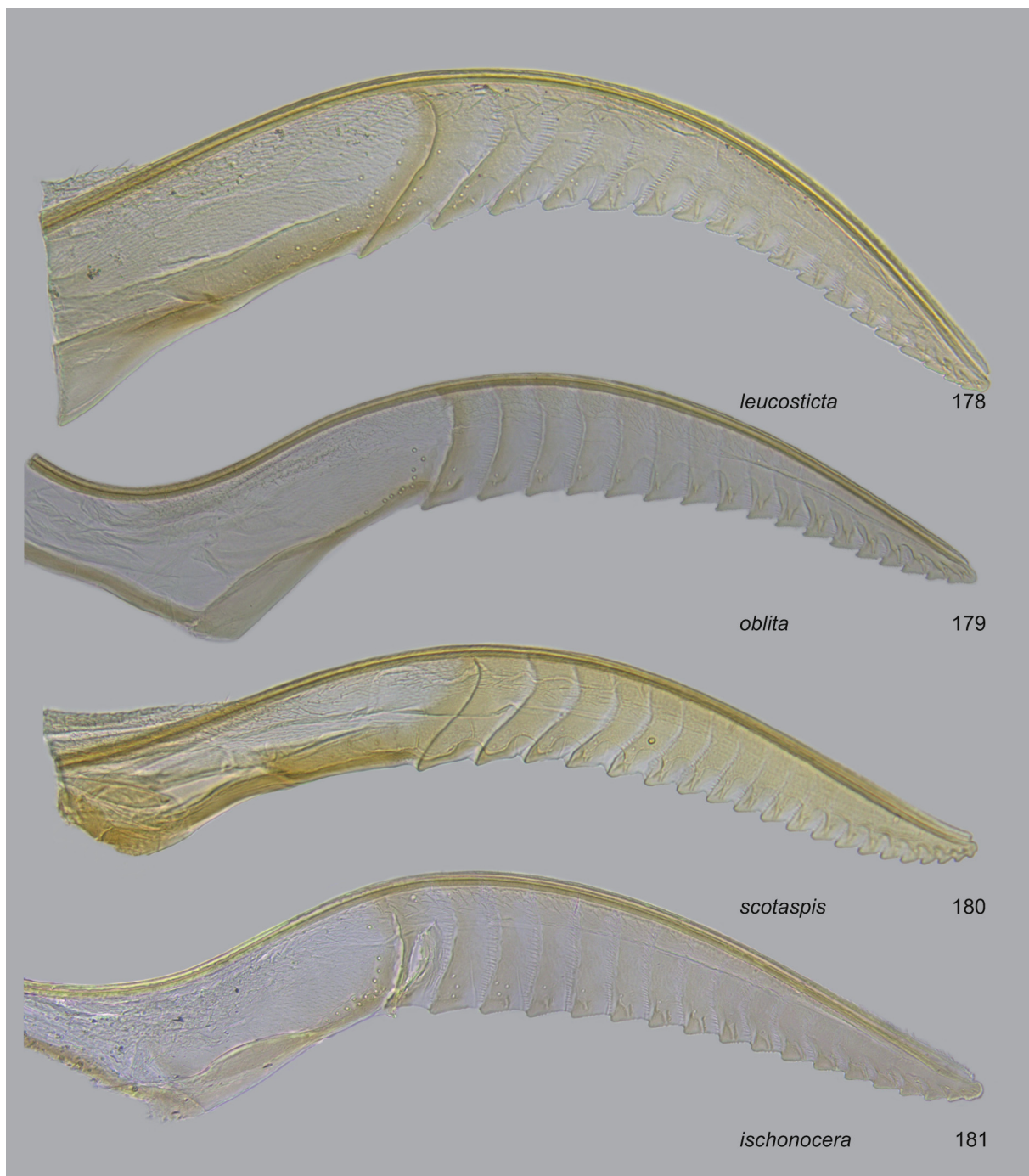
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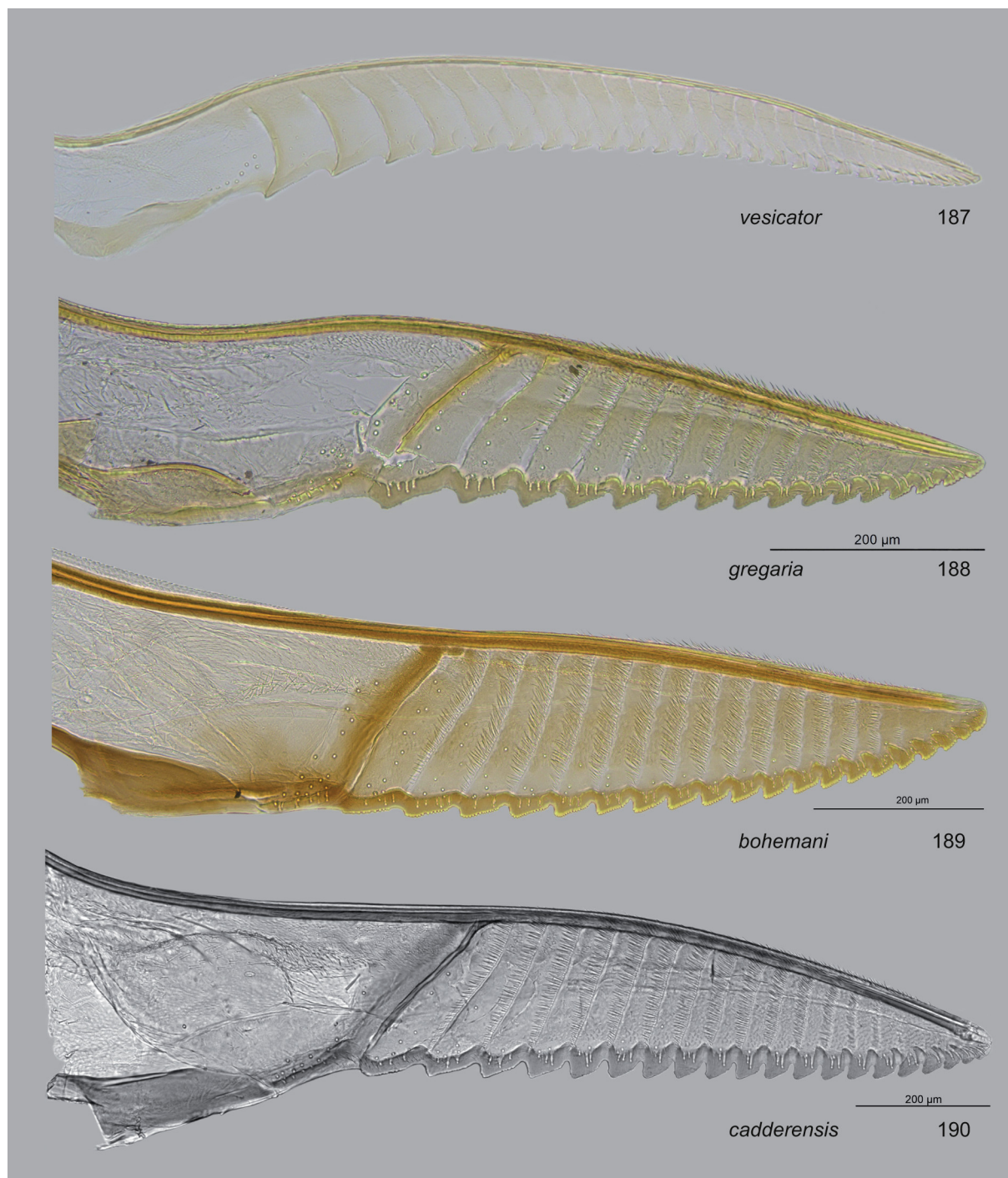
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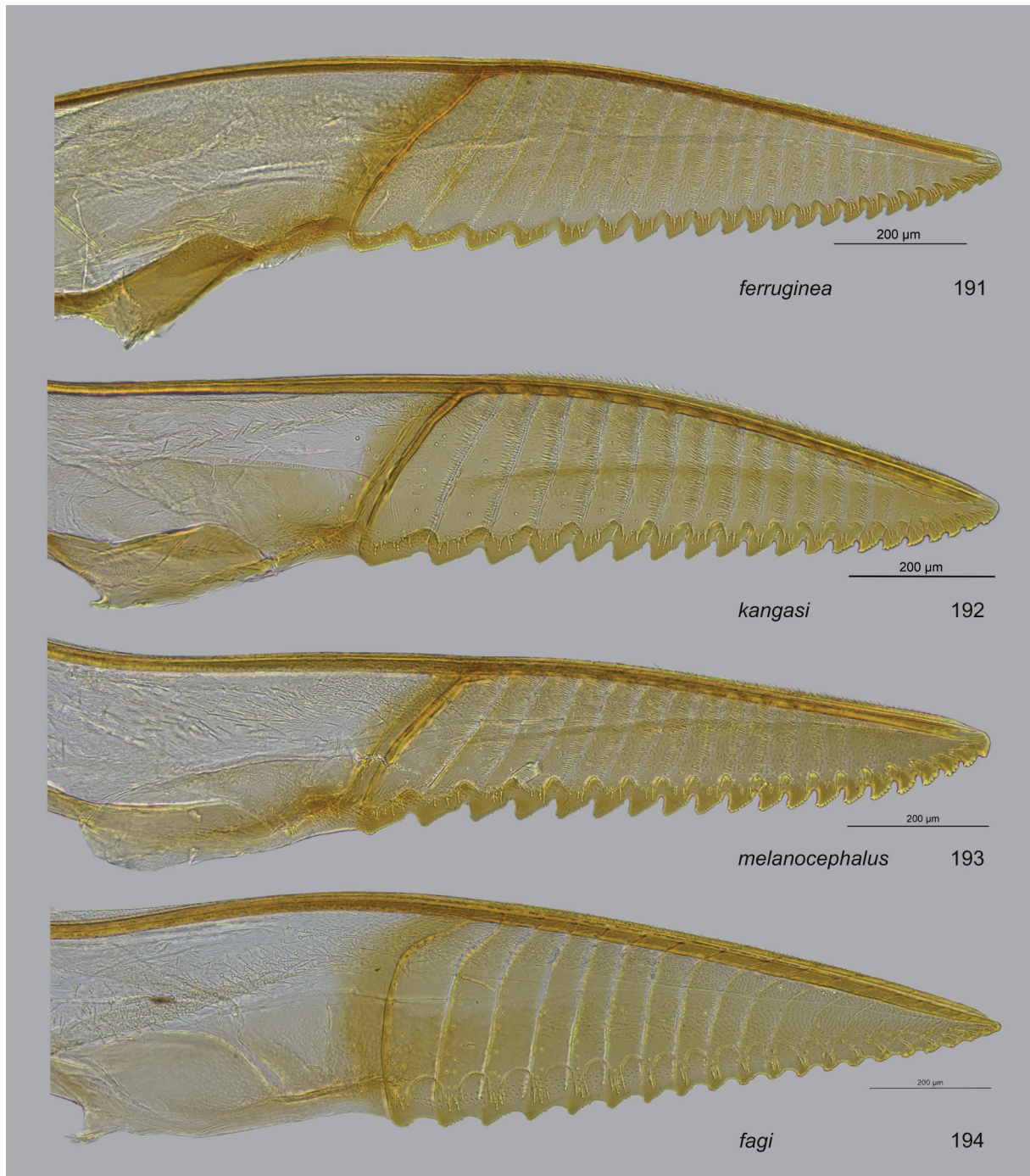
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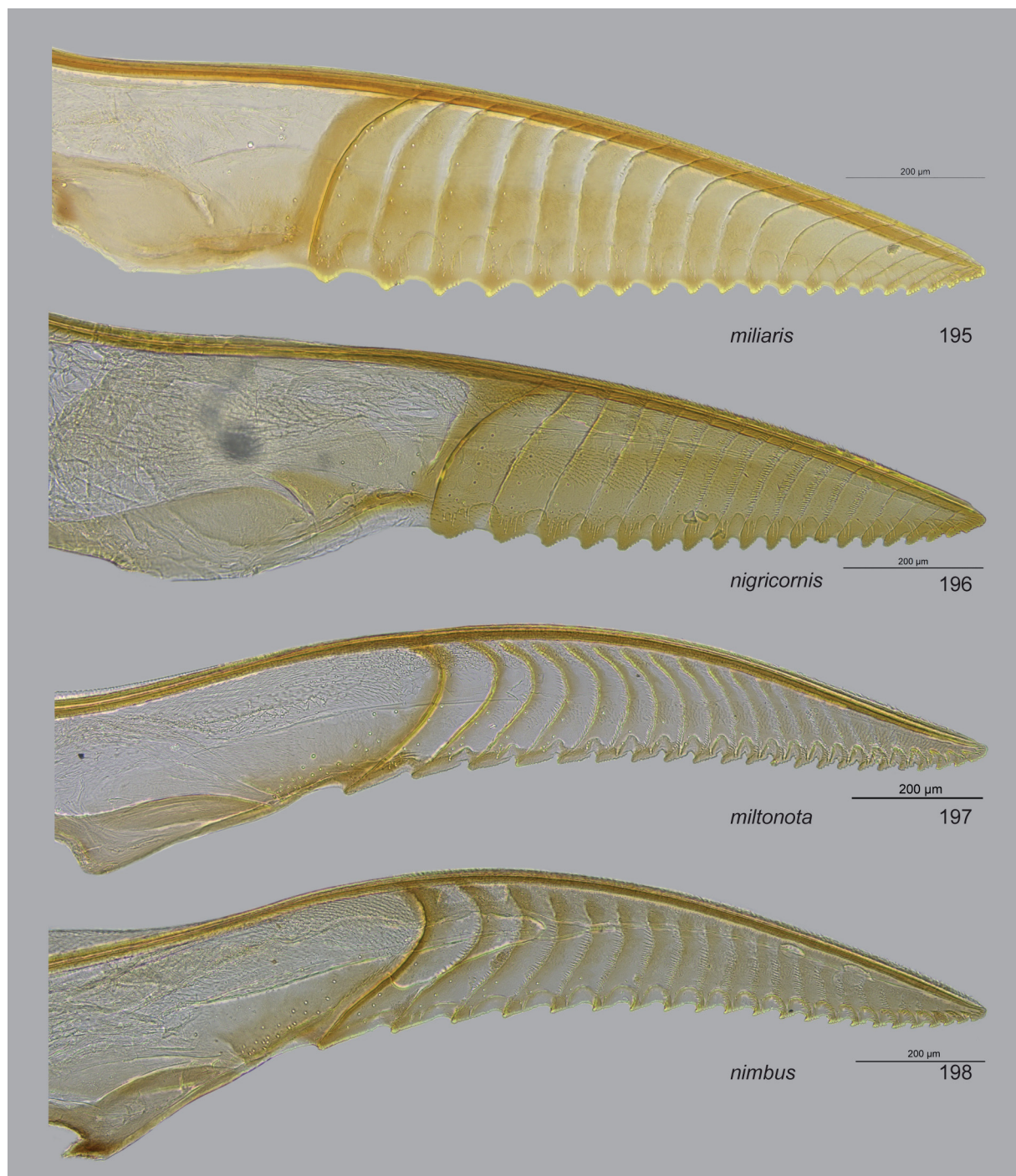
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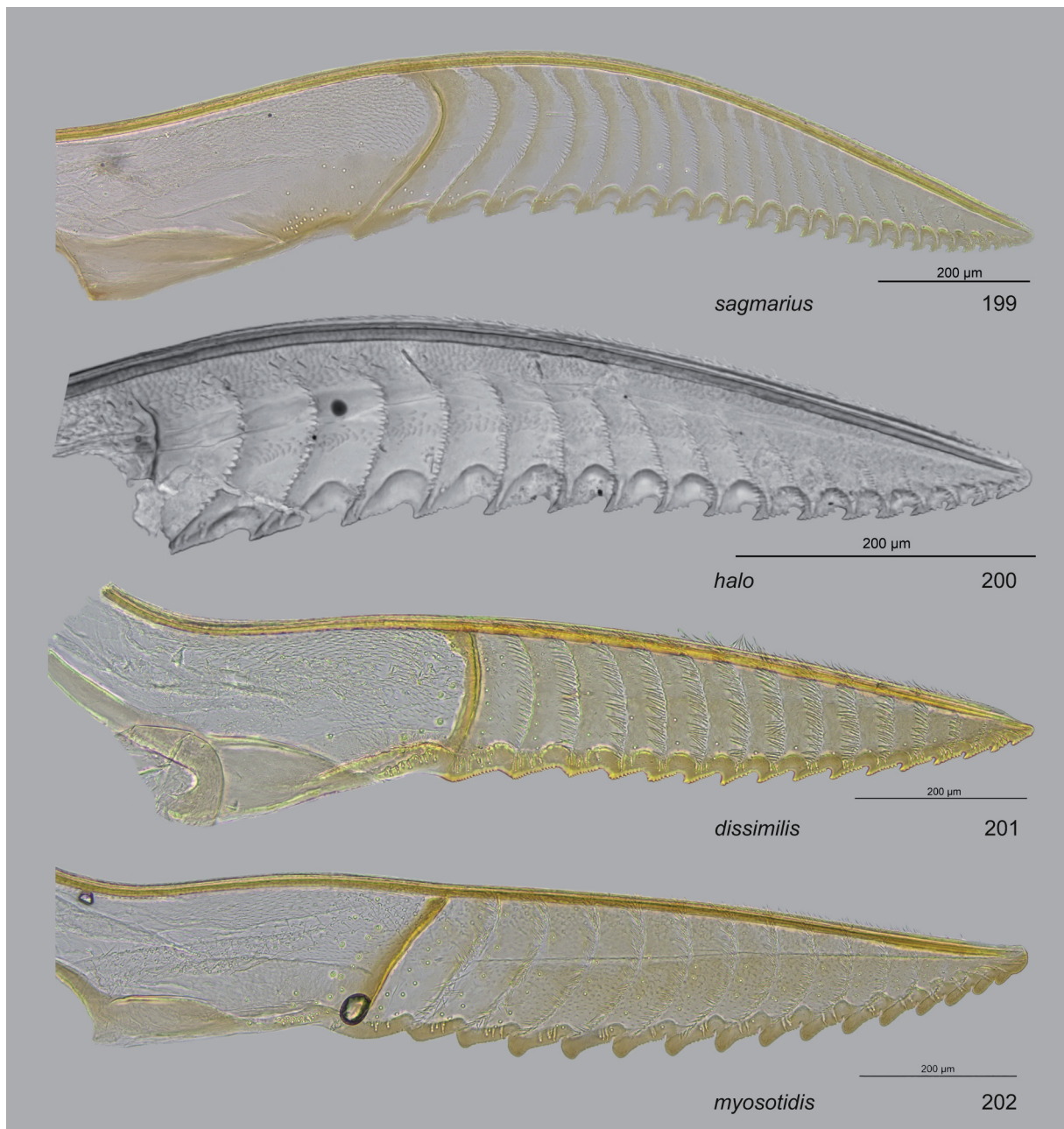
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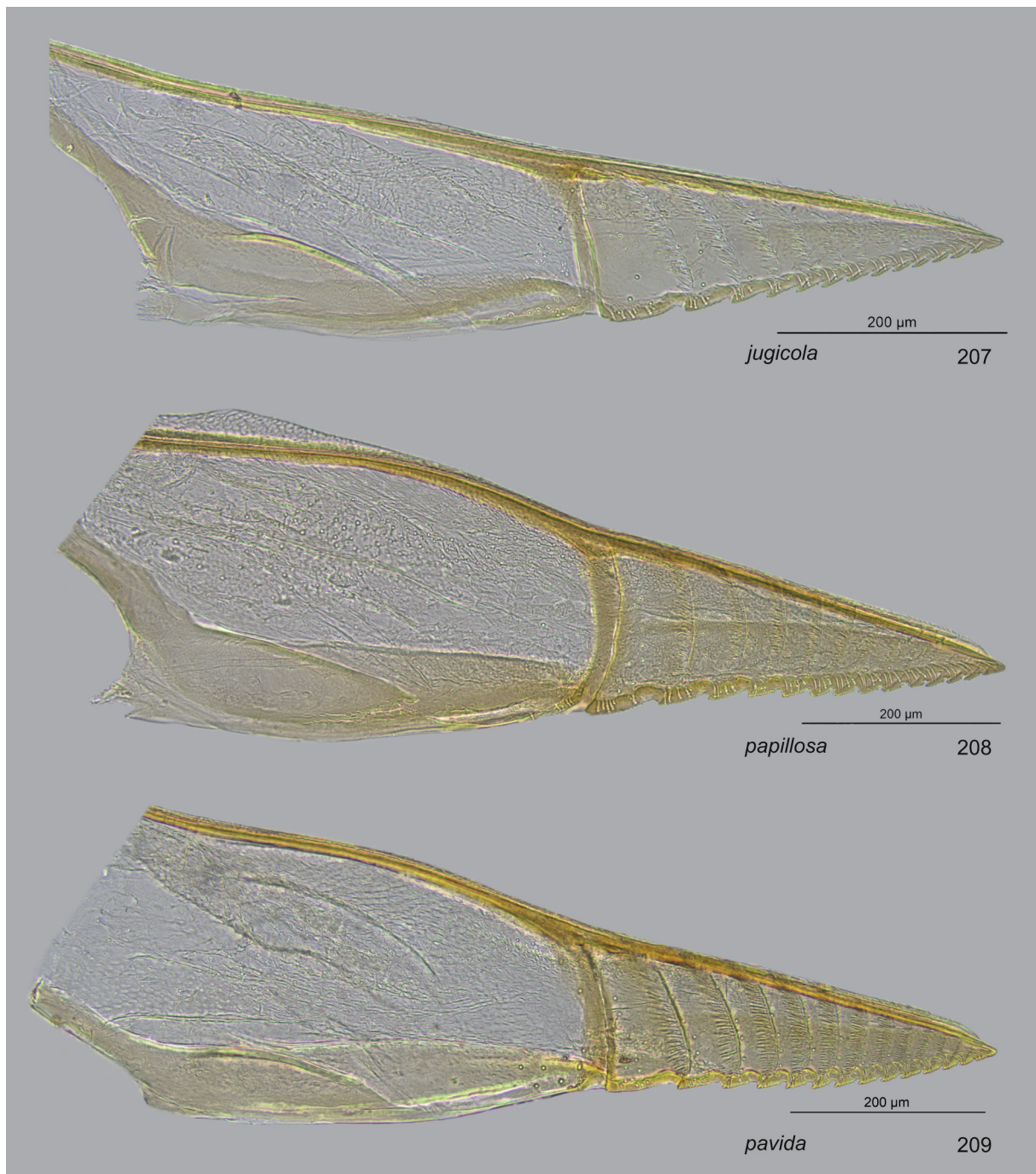
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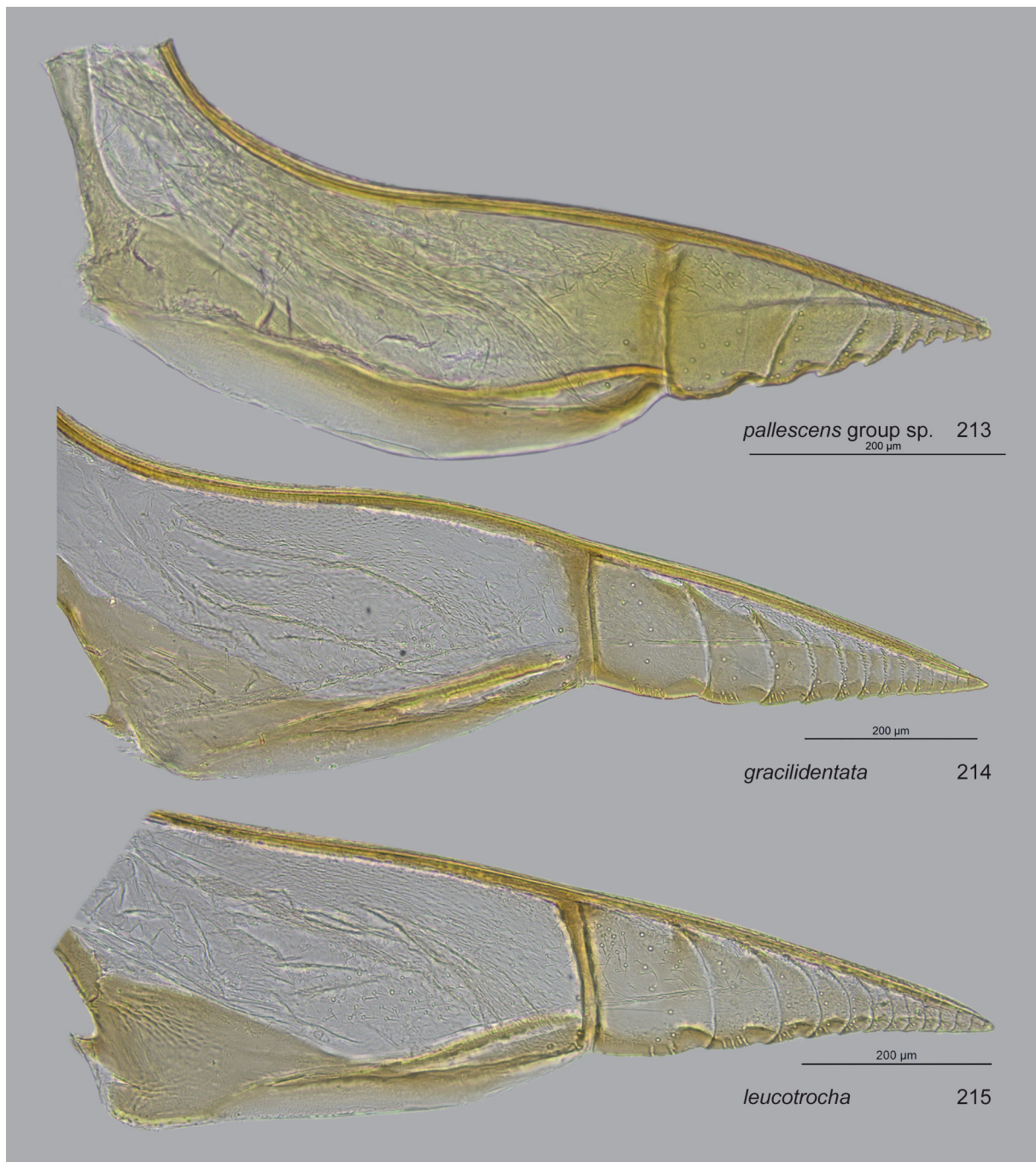
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Figs 207–209. Lancets of *Euura* Newman, 1837. **207.** *jugicola* (Thomson, 1871) DEI-GISHym21401. **208.** *papillosa* (Retzius, 1783) DEI-GISHym31160. **209.** *pavida* (Serville, 1823) DEI-GISHym17865.



Figs 210–212. Lancets of *Euura* Newman, 1837. **210.** *montana* (Zaddach, 1883) DEI-GISHym84263. **211.** *pallescens* (Hartig, 1837) DEI-GISHym12526. **212.** *styx* (Benson, 1958), holotype, ♀ B.M.TYPEHYM.1.791.



Figs 213–215. Lancets of *Euura* Newman, 1837. **213.** *pallens* group sp. DEI-GISHym80693. **214.** *gracilidentata* (Viitasaari, 1980) DEI-GISHym12504. **215.** *leucotrocha* (Hartig, 1837) DEI-GISHym17610.



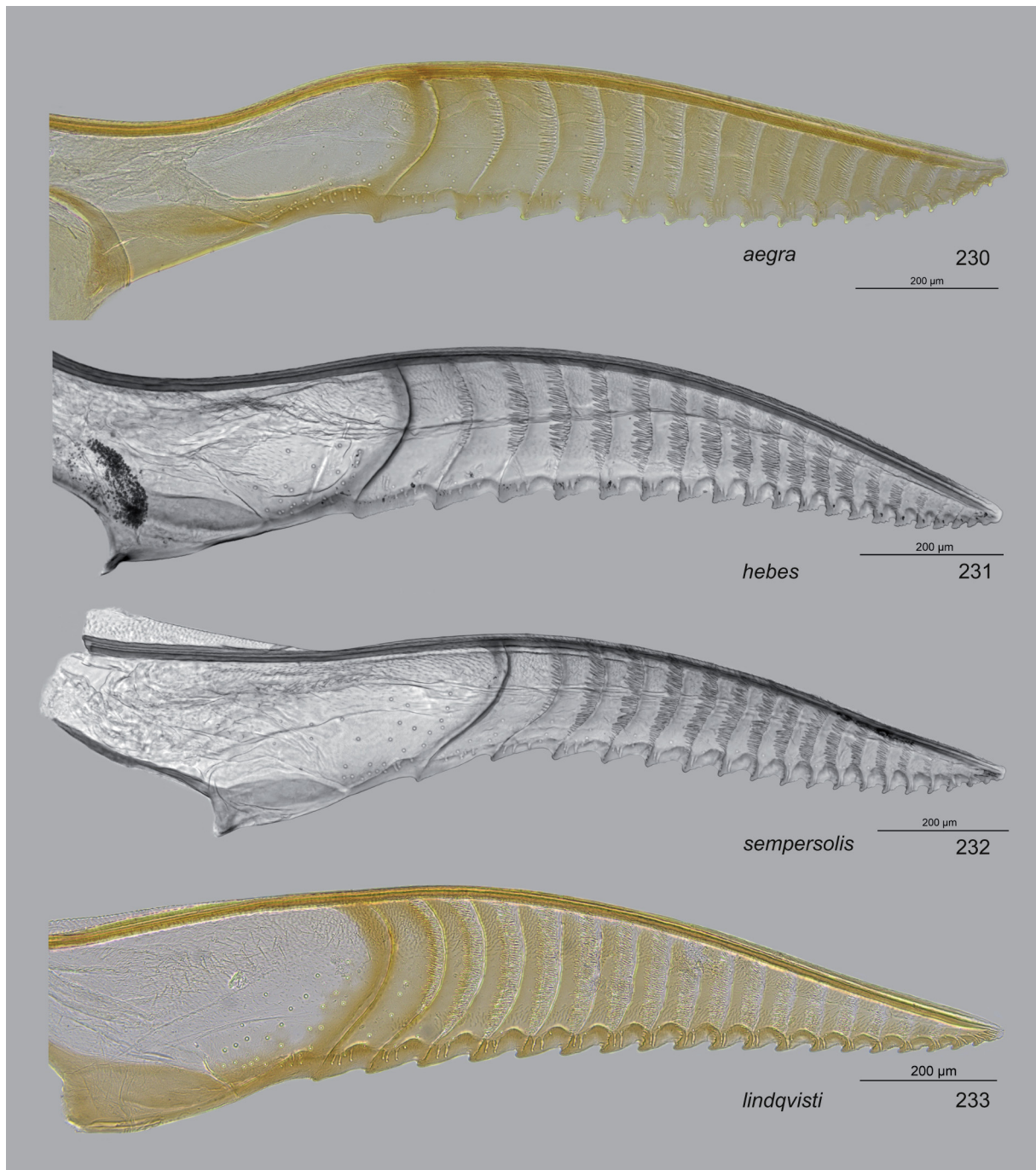
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Figs 220–224. Lancets of *Euura* Newman, 1837. **220.** *frenalis* (Thomson, 1888) DEI-GISHym31132. **221.** *oligospila* (Förster, 1854) DEI-GISHym88899. **222.** *amentorum* (Förster, 1854) PR.505VV. **223.** *latiserra* (Malaise, 1921) PR.486VV. **224.** *dahlbomi* (Thomson, 1871) PR.516VV.



Figs 225–229. Lancets of *Euura* Newman, 1837. **225.** *microphyes* (Förster, 1854) PR.498VV. **226.** *itelmene* (Malaise, 1931) PR.519VV. **227.** *freyja* (Liston, Taeger & Blank, 2009) DEI-GISHym31215. **228.** *pohjola* Liston *et al.*, 2023 ZMUO.033762. **229.** *ursaminor* Liston *et al.*, 2023, holotype PR.513VV.



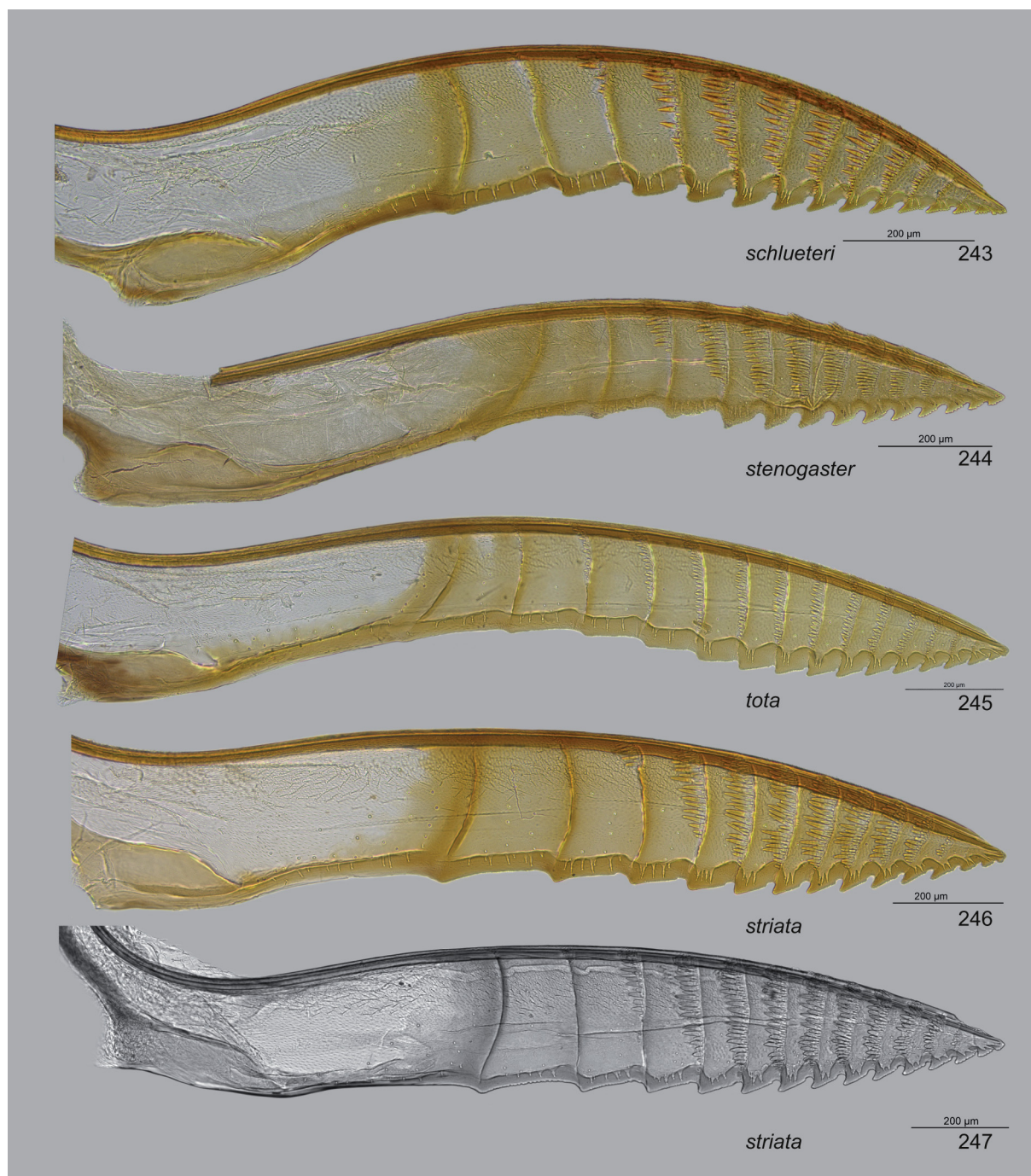
Figs 230–233. Lancets of *Euura* Newman, 1837. **230.** *aegra* (Konow, 1895) PrepN170. **231.** *hebes* (Konow, 1907) ZMUO.043925. **232.** *sempersolis* (Kiaer, 1898) ZMUO.031725. **233.** *lindqvisti* (Hellén, 1951) DEI-GISHym19985.



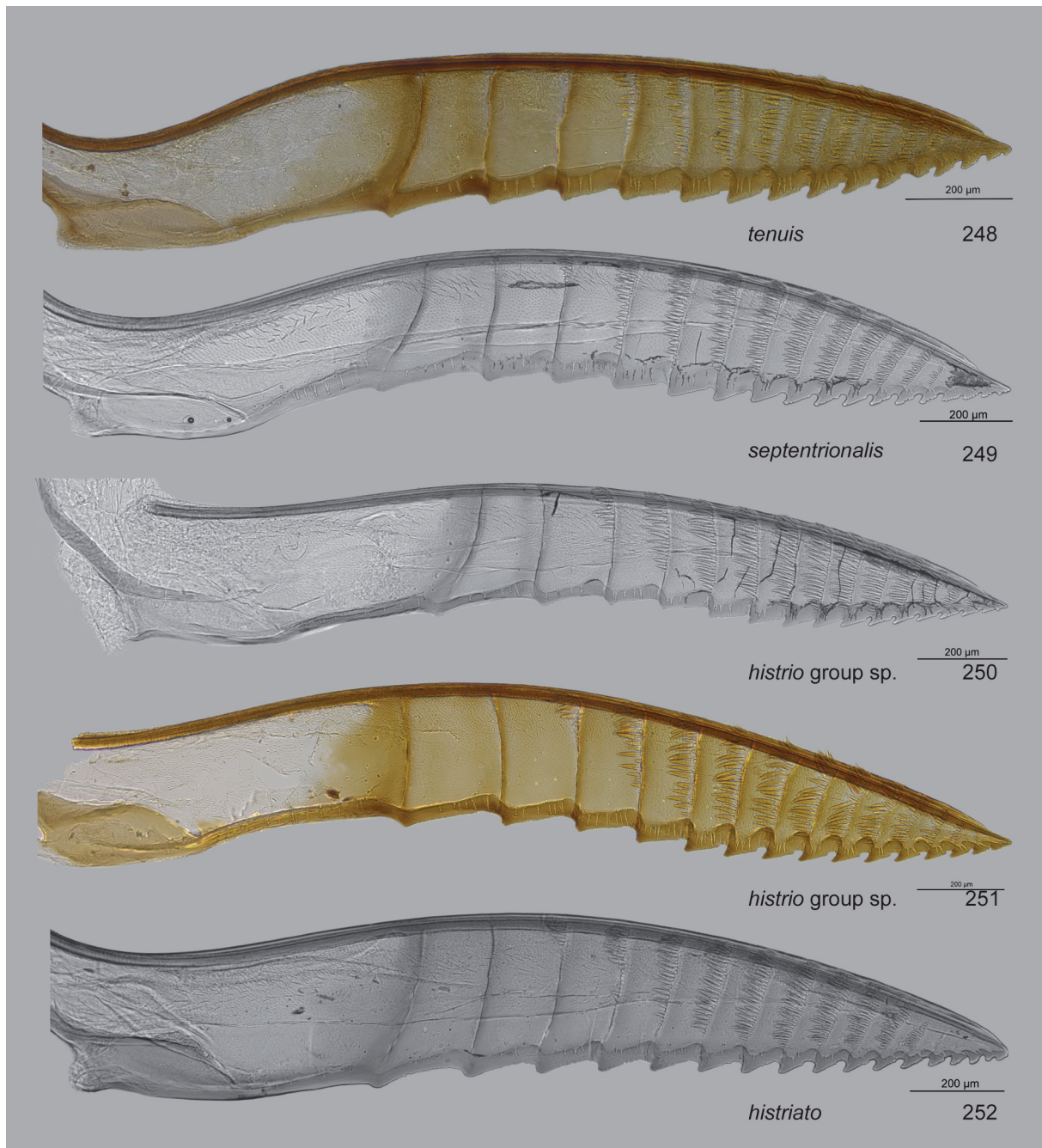
Figs 234–237. 234–235, 237. Lancelets of *Euura* Newman, 1837. **236.** Lance and lancet of *Euura*. **234.** *amicula* (Saarinen, 1950) DEI-GISHym21337. **235.** *betulae* (Schmidt, 1997), holotype, ♀ <http://id.luomus.fi/GL.2501>. **236.** *elbrus* Sundukov, 2017, *Nematus nivalis* Muche, 1973, holotype, ♀ ZMHB dbcac7. **237.** *propinquator* Schmidt, 2014 DEI-GISHym84201.



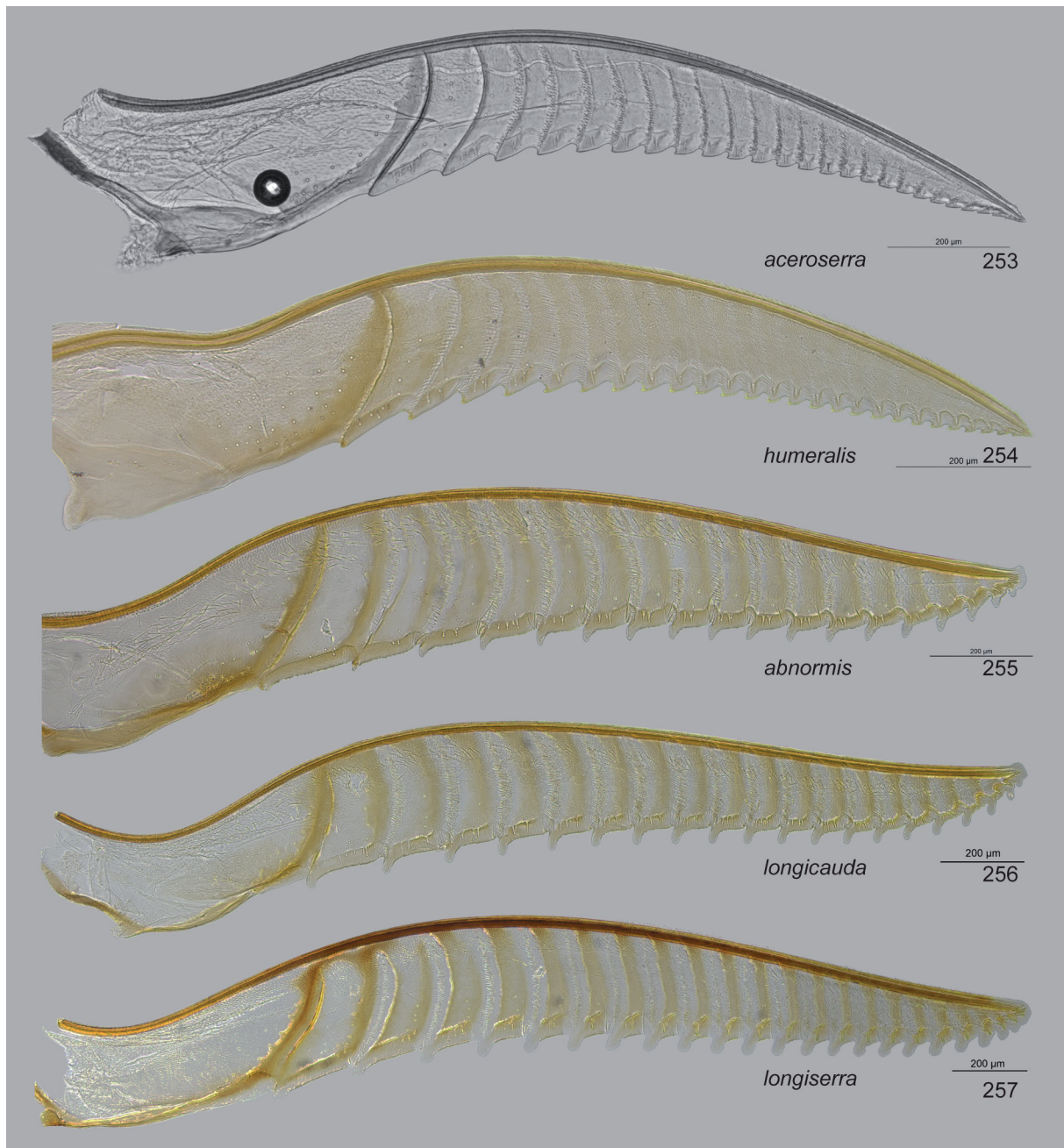
Figs 238–242. Lancets of *Euura* Newman, 1837. **238.** *hartigi* (Saarinen, 1950) holotype, ♀ GBIF-GISHym3677. **239.** *histrío* (Serville, 1823) GBIF-GISHym3689. **240.** *nigrina* (Schmidt, 1997), *Amauronematus nigrinus* Schmidt, 1997, holotype, ♀ <http://id.luomus.fi/GL.2494>. **241.** *nuorbinjargi* (Saarinen, 1949) <http://id.luomus.fi/GL.2607>. **242.** *rufa* (Konow, 1896) DEI-GISHym12520.



Figs 243–247. Lancets of *Euura* Newman, 1837. **243.** *schlueteri* (Enslin, 1915) DEI-GISHym84207. **244.** *stenogaster* (Förster, 1854), neotype, ♀ GBIF-GISHym3057. **245.** *tota* (Saarinen, 1950) DEI-GISHym84215. **246.** *striata* (Hartig, 1837) DEI-GISHym84235. **247.** *striata* ZMUO.035392.



Figs 248–252. Lancets of *Euura* Newman, 1837. **248.** *tenuis* (Schmidt, 1997), holotype, ♀ <http://id.luomus.fi/GL.3370>. **249.** *septentrionalis* (Saarinen, 1950) ZMUO.037302. **250.** *histrio* group sp. ZMUO.046519. **251.** *histrio* group sp. DEI-GISHym12061. **252.** *histriato* Prous, Liston & Mutanen sp. nov. DEI-GISHym12305.



Figs 253–257. Lancets of *Euura* Newman, 1837. **253.** *aceroserra* Taeger & Blank, 2014 ZMUO.043917. **254.** *humeralis* (Serville, 1823) PrepN132. **255.** *abnormis* (Holmgren, 1883) <http://id.luomus.fi/GP.110170>. **256.** *longicauda* (Hellén, 1948) DEI-GISHym21342. **257.** *longiserra* (Thomson, 1863) DEI-GISHym12509.



Figs 258–262. Lancets of *Euura* Newman, 1837. **258.** *neglecta* (W.F. Kirby, 1882) DEI-GISHym84198. **259.** *munda* (Konow, 1895) PR.217VV. **260.** *eiteli* (Saarinen, 1948) ZMUO.030850. **261.** *opacipleuris* (Konow, 1895) DEI-GISHym12561. **262.** *opacipleuris* W17802.



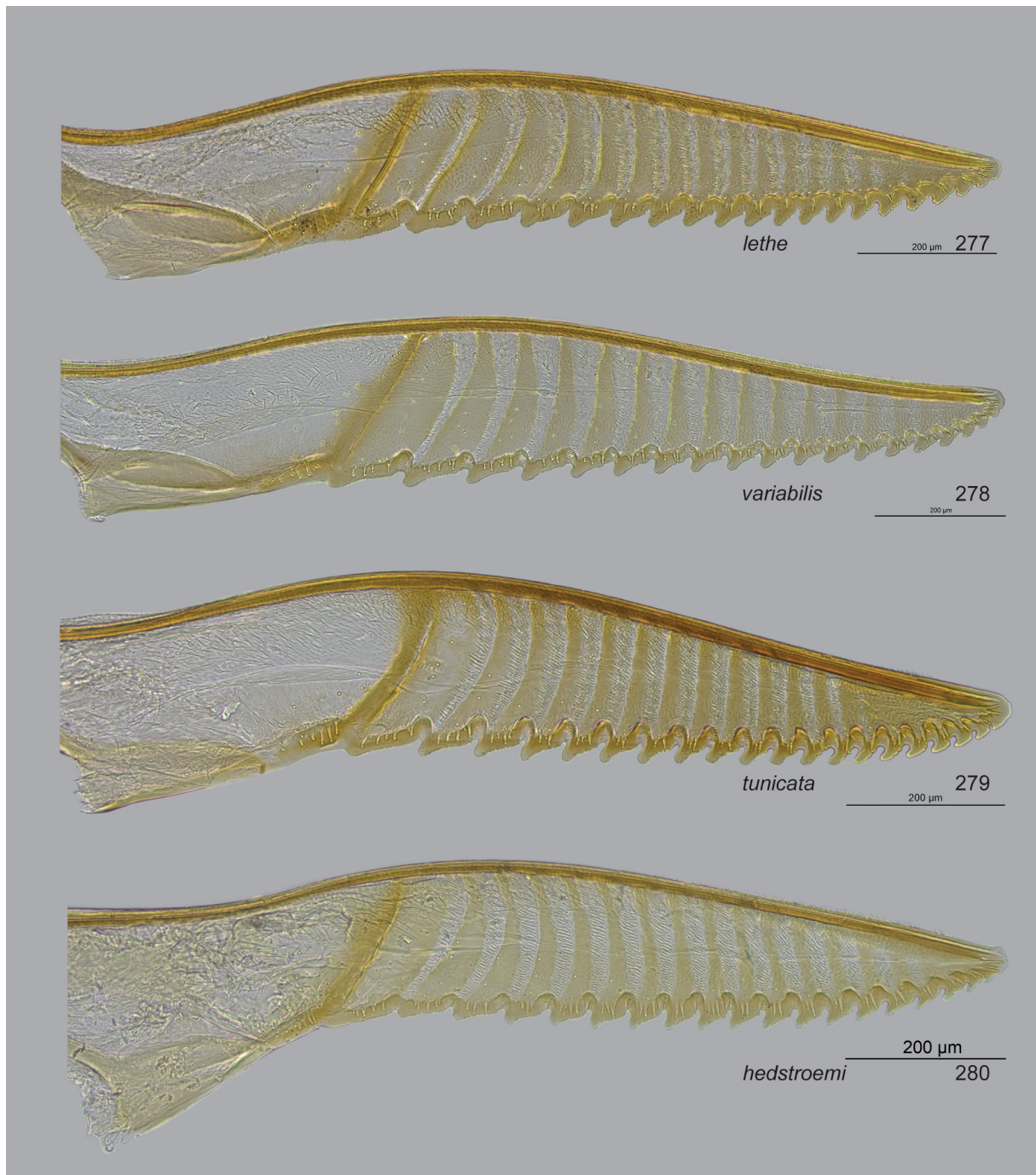
Figs 263–267. Lancets of *Euura* Newman, 1837. **263.** *stordalensis* (Strand, 1905) PR.325VV. **264.** *fasciata* (Konow, 1897) DEI-GISHym18784. **265.** *semilactea* (Zaddach, 1883) PR.334VV. **266.** *variator* (Ruthe, 1859) DEI-GISHym21334. **267.** *variator* DEI-GISHym21418.



Figs 268–271. Lancets of *Euura* Newman, 1837. **268.** *obscuripes* (Holmgren, 1883) DEI-GISHym84010. **269.** *obscuripes* DEI-GISHym19904. **270.** *obscuripes* DEI-GISHym12101. **271.** *toeniata* (Serville, 1823) PR.256VV.



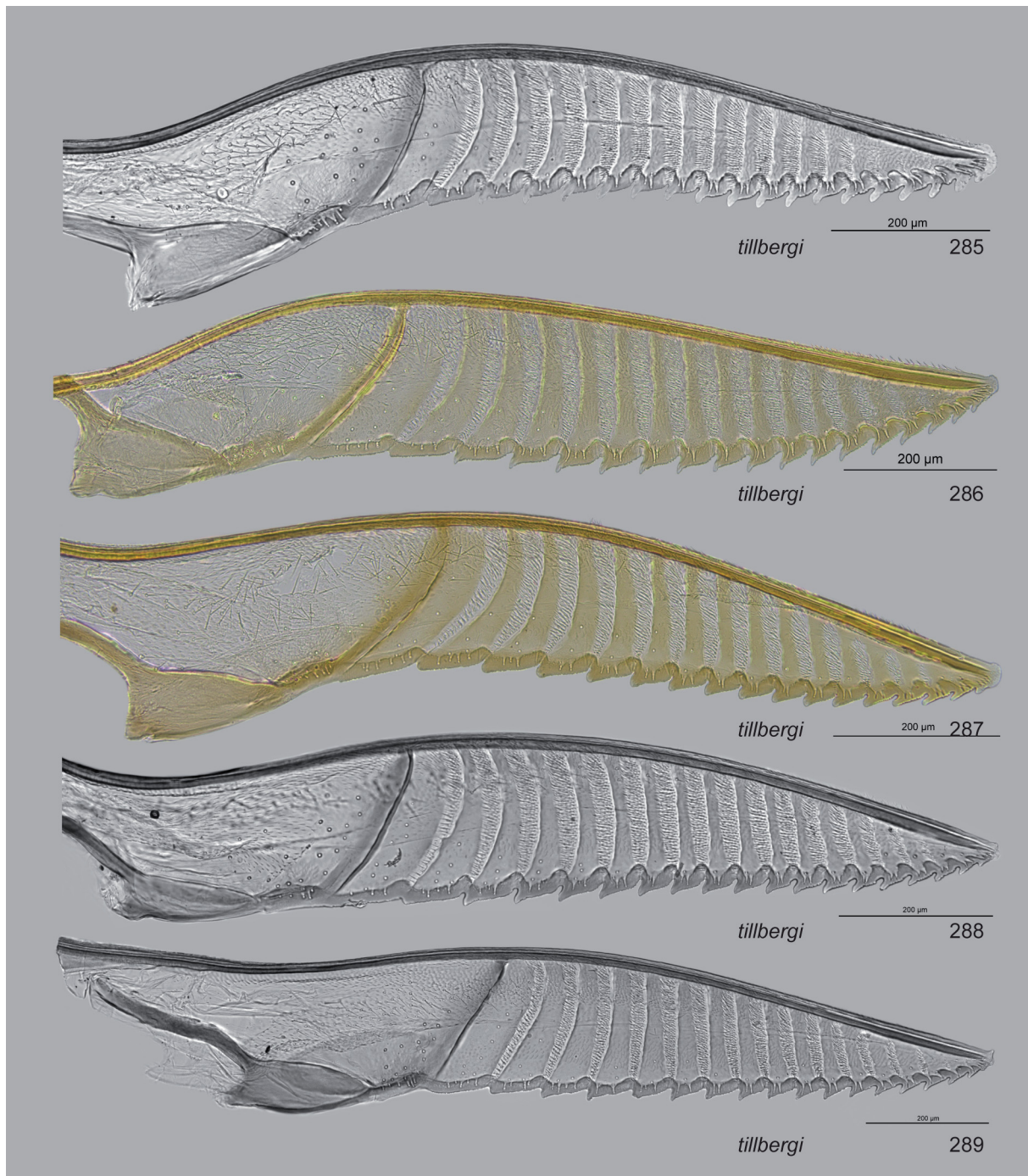
Figs 272–276. Lancets of *Euura* Newman, 1837. **272.** *ampla* (Konow, 1895) PrepN115. **273.** *berlinensis* (Muche, 1970) PR.552VV. **274.** *punicea* (Christ, 1791) Prep.438.OR. **275.** *ranini* (Lindqvist, 1960) DEI-GISHym80671. **276.** *ranini*, holotype, ♀ <http://id.luomus.fi/GL.2757>.



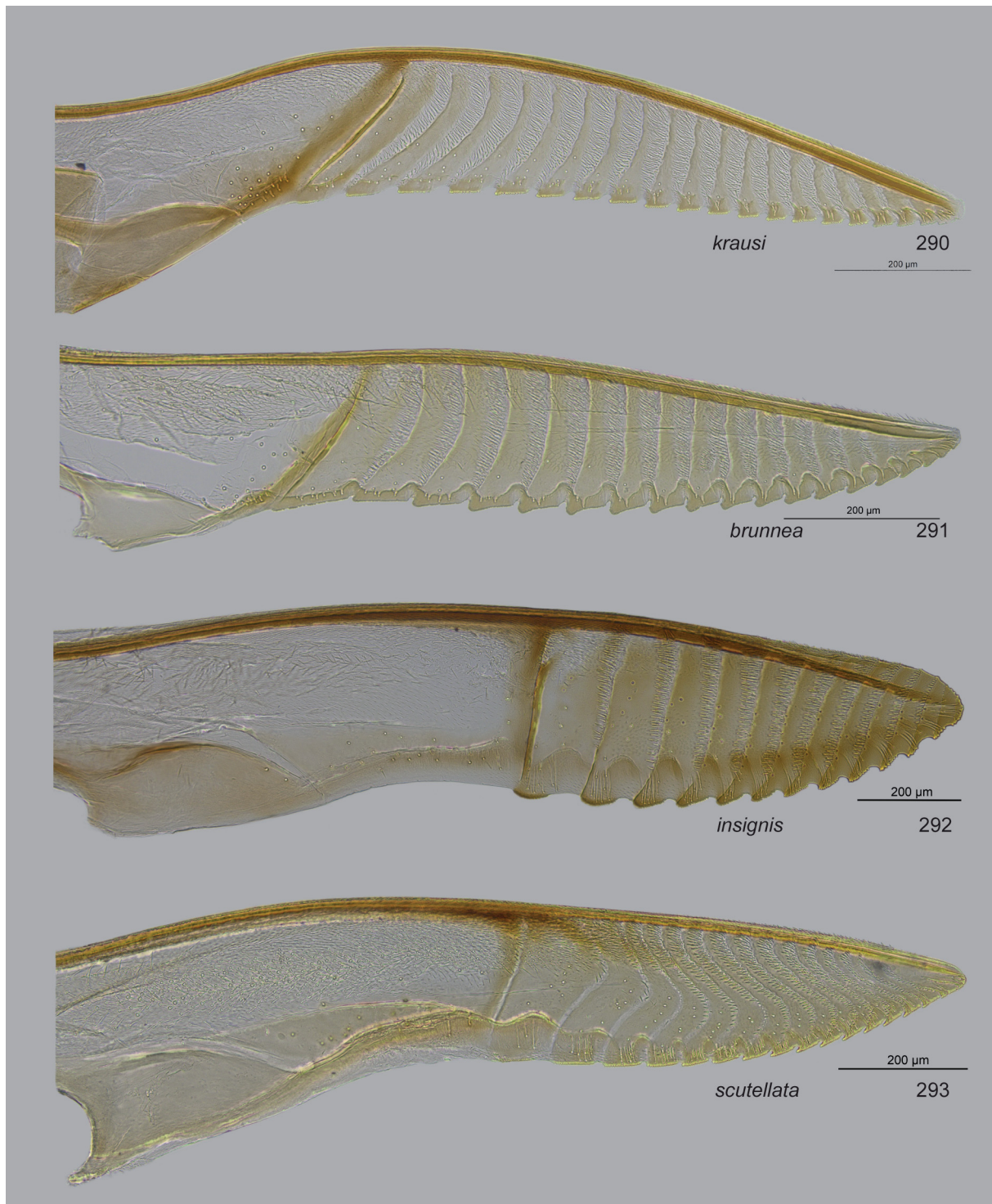
Figs 277–280. Lancets of *Euura* Newman, 1837. **277.** *lethe* Prous & Liston, 2014 ZMUO.033742. **278.** *variabilis* (Malaise, 1931), lectotype, ♀ NHRS-HEVA000006365. **279.** *tunicata* (Zaddach, 1883) DEI-GISHym18903. **280.** *hedstroemi* (Malaise, 1931) ZMUO.030878.



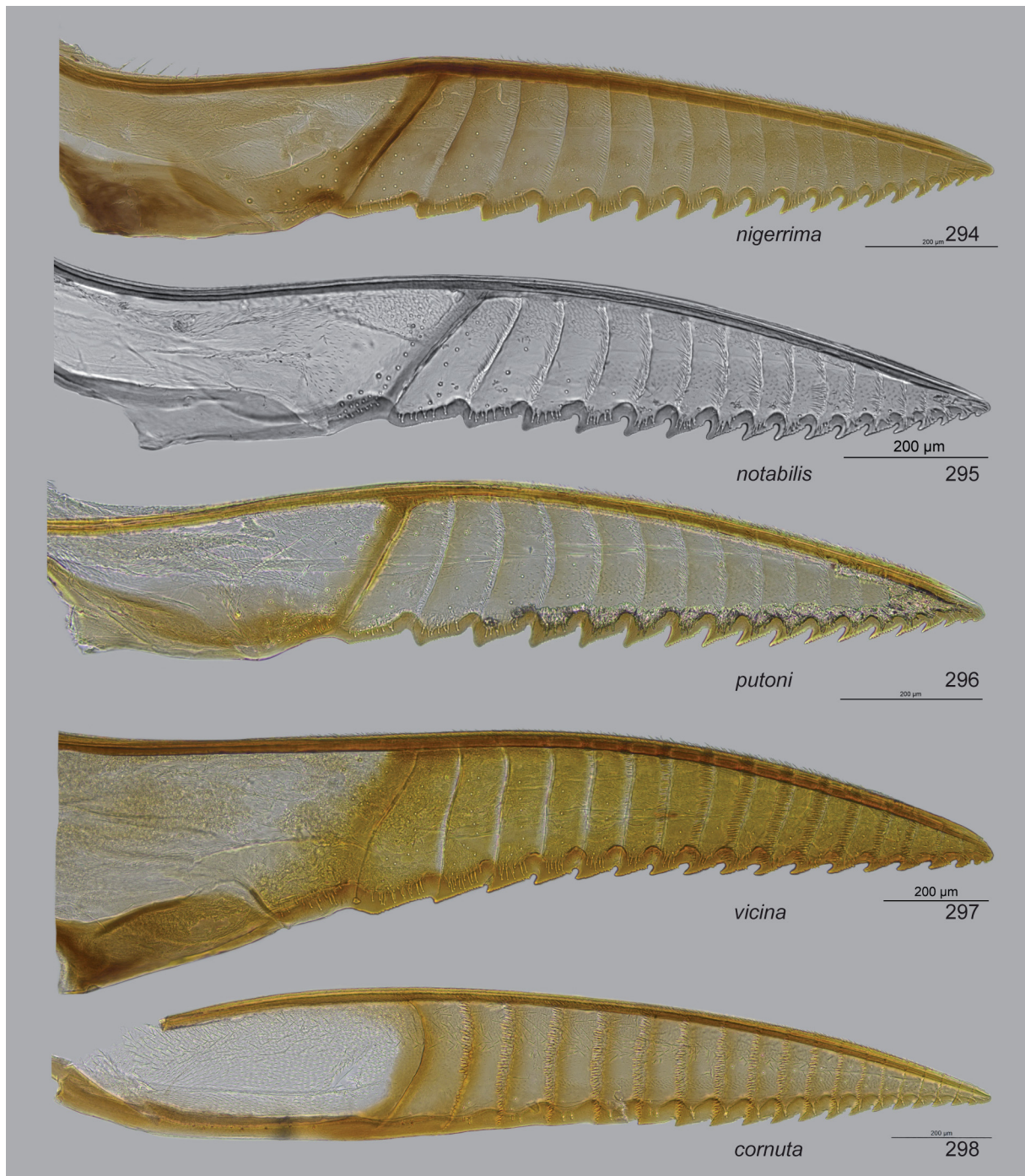
Figs 281–284. Lancets of *Euura* Newman, 1837. **281.** *hulteni* (Malaise, 1931) DEI-GISHym84197. **282.** *vittata* (Serville, 1823) DEI-GISHym21433. **283.** *minivittata* Prous & Mutanen sp. nov. ZMUO.031642. **284.** *tillbergi* (Malaise, 1921) DEI-GISHym84199.



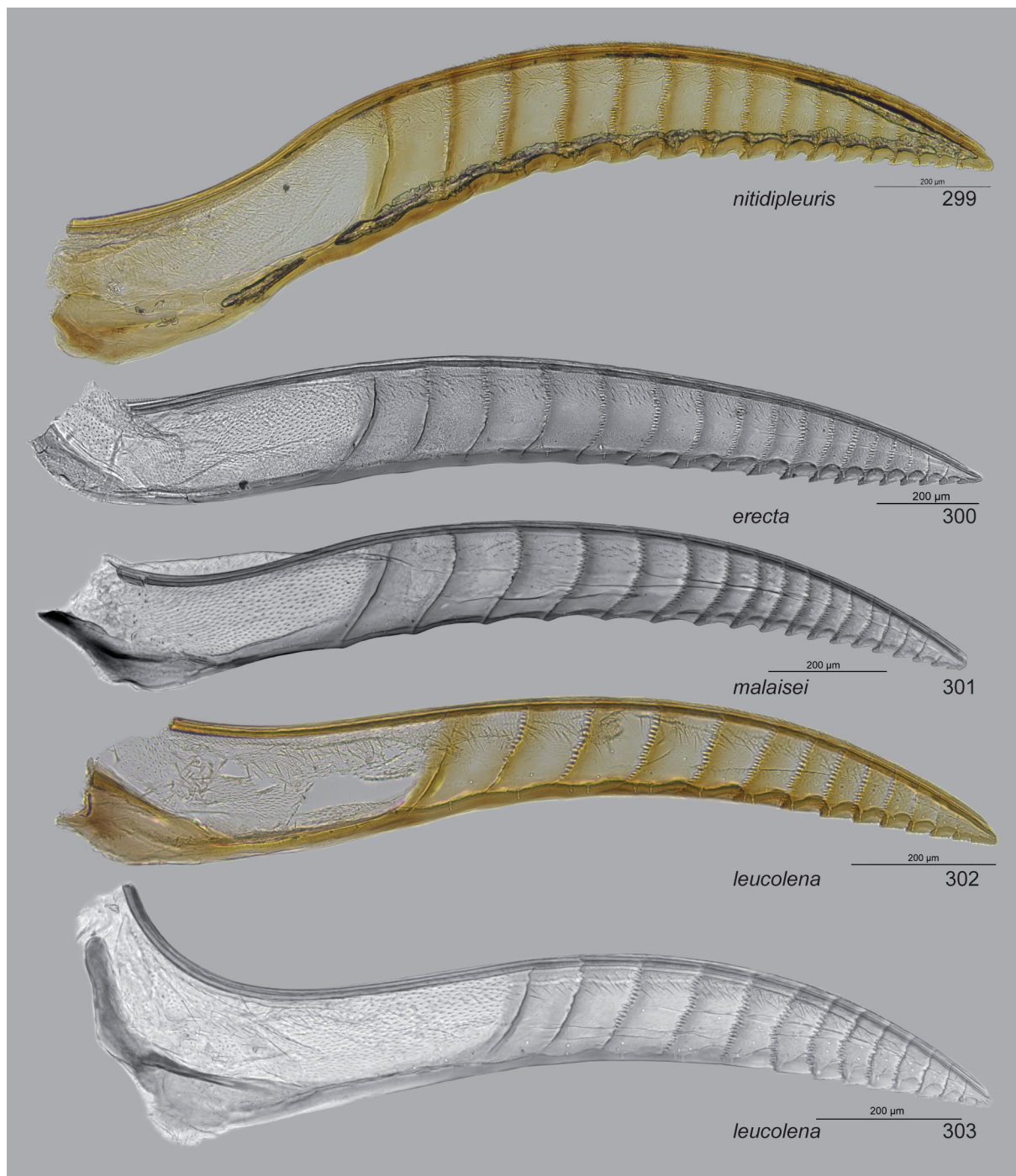
Figs 285–289. Lancets of *Euura tillbergi* (Malaise, 1921). **285.** ZMUO.063886. **286.** DEI-GISHym83702. **287.** DEI-GISHym84434. **288.** ZMUO.067344. **289.** ZMUO.064546.



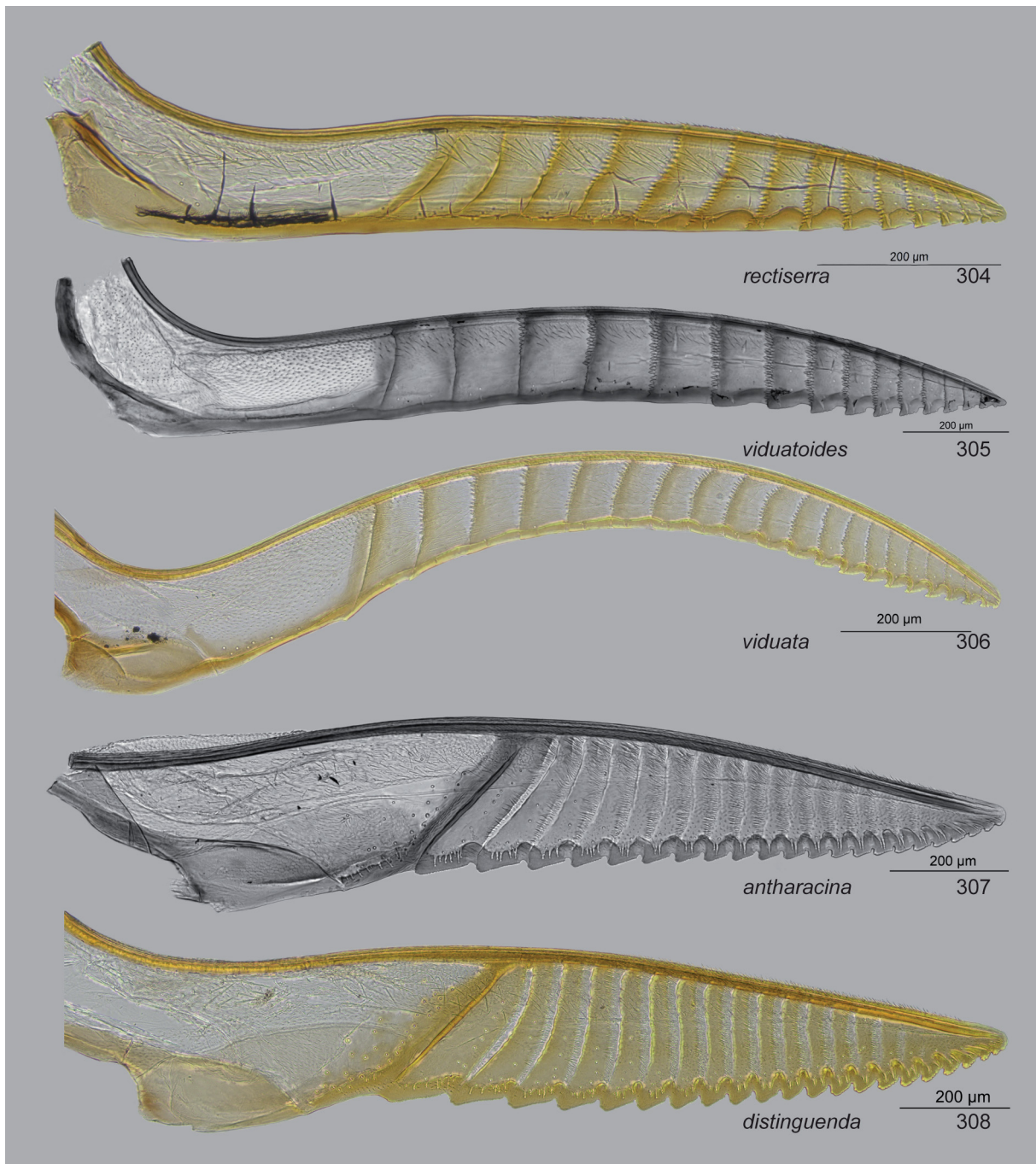
Figs 290–293. Lancets of *Euura* Newman, 1837. **290.** *krausi* (Taeger & Blank, 1998) 4f. **291.** *brunnea* (Norton, 1864) DEI-GISHym12050. **292.** *insignis* (Hartig, 1840) DEI-GISHym11925. **293.** *scutellata* (Hartig, 1837) DEI-GISHym11331.



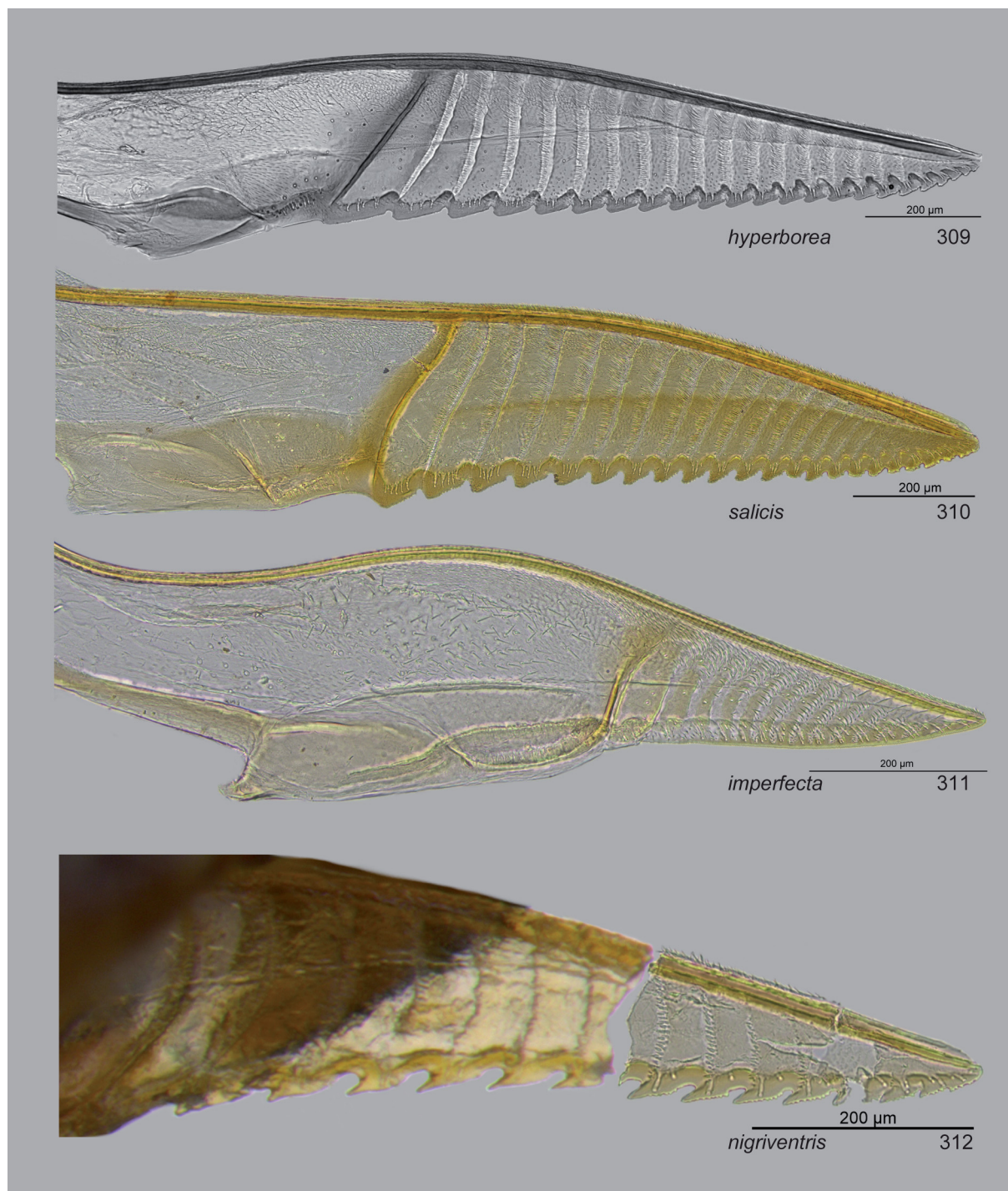
Figs 294–298. Lancets of *Euura* Newman, 1837. **294.** *nigerrima* (Konow, 1903) DEI-GISHym12671. **295.** *notabilis* (Konow, 1903) <http://id.luomus.fi/LS.46>. **296.** *putoni* (Konow, 1903) DEI-GISHym12528. **297.** *vicina* (Serville, 1823) DEI-GISHym86183. **298.** *cornuta* (Lindqvist, 1962) <http://id.luomus.fi/GL.2465>.



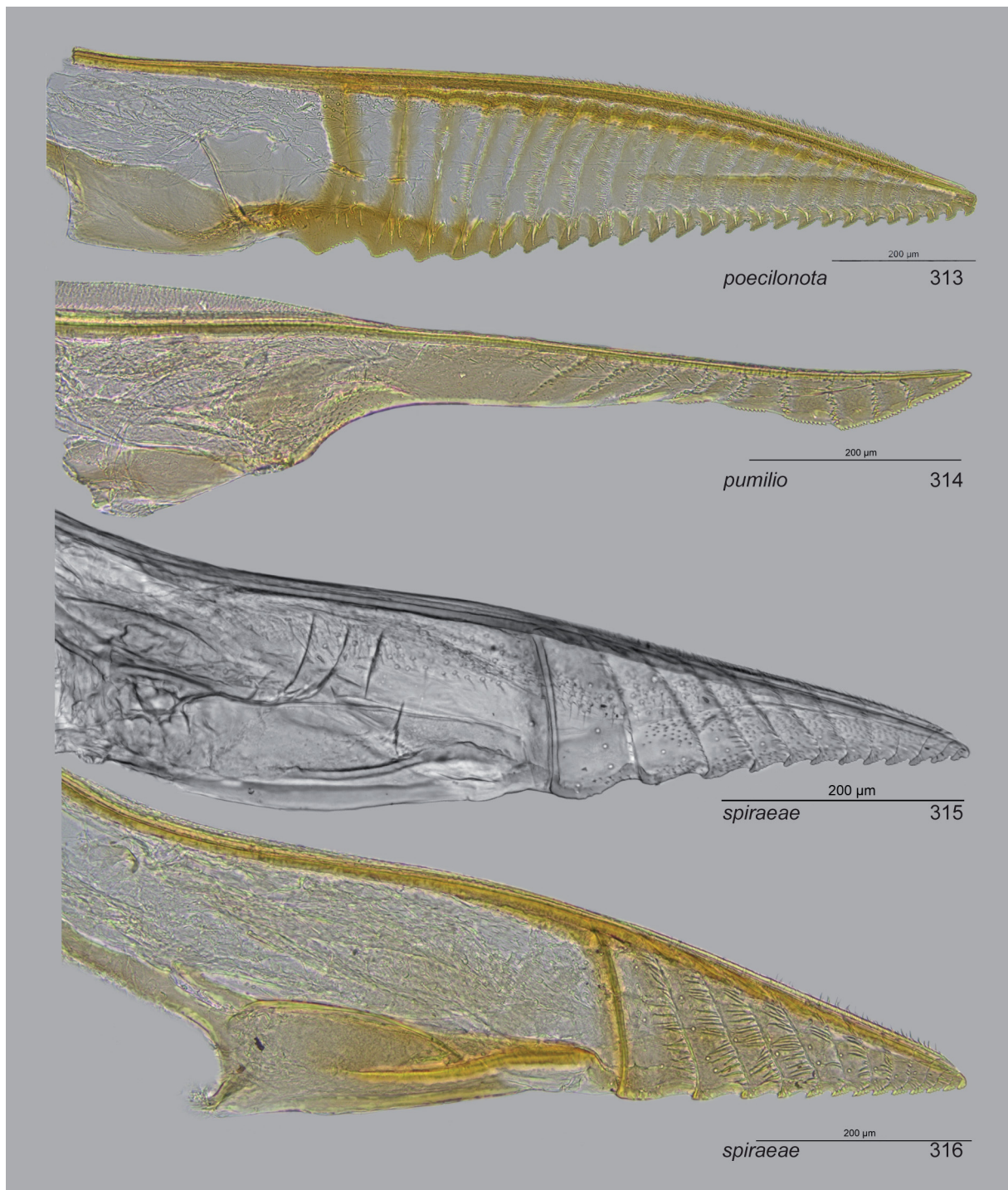
Figs 299–303. Lancets of *Euura* Newman, 1837. **299.** *nitidipleuris* (Malaise, 1931), lectotype, ♀ NHRS-HEVA000006358. **300.** *erecta* (Lindqvist, 1945) 210008_SSR. **301.** *malaisei* (Hellén, 1970) ZMUO.058223. **302.** *leucolena* (Brischke, 1883) DEI-GISHym21132. **303.** *leucolena* ZMUO.058207.



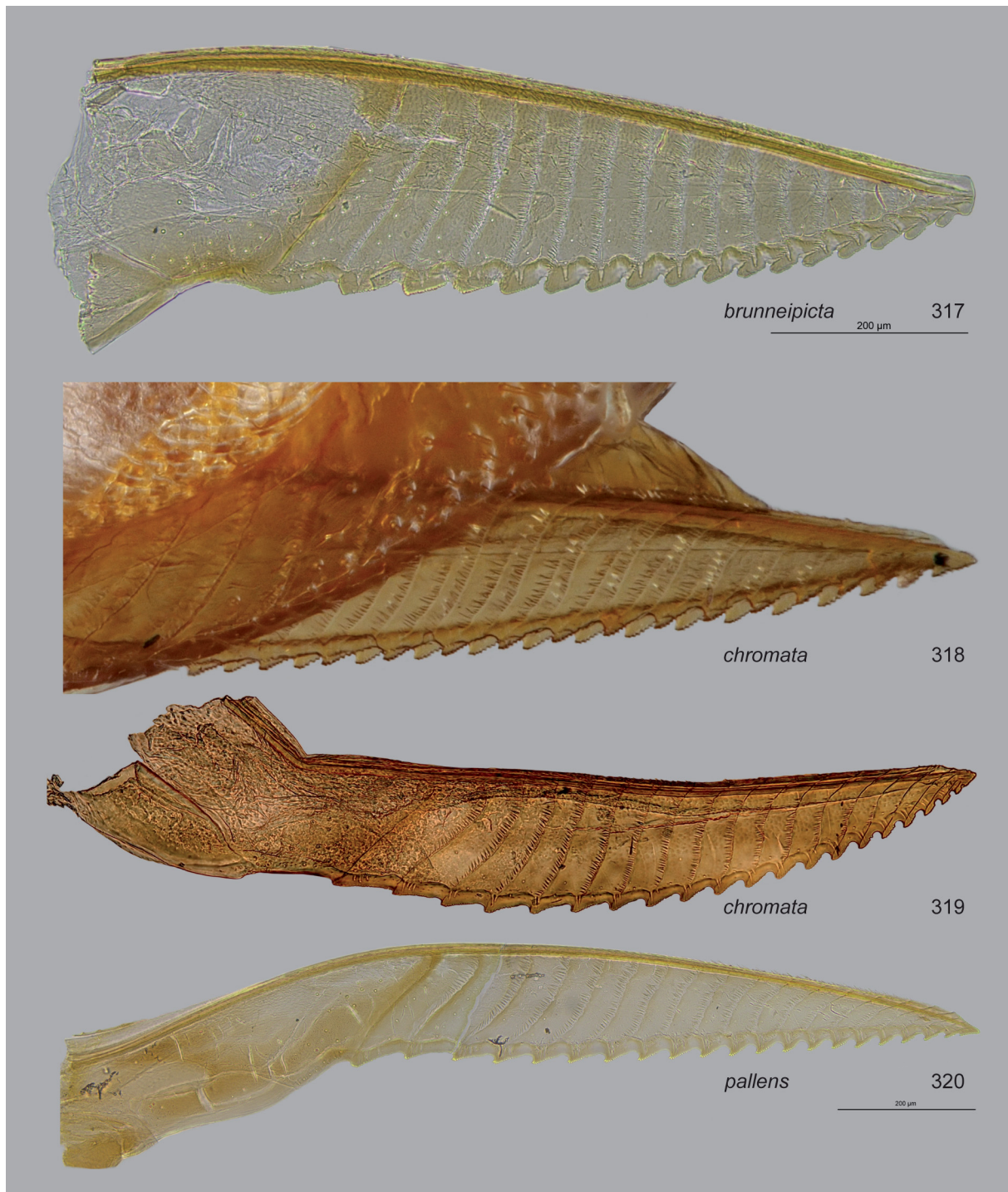
Figs 304–308. Lancets of *Euura* Newman, 1837. **304.** *rectiserra* (Lindqvist, 1971), holotype, ♀ <http://id.luomus.fi/GL.9211>. **305.** *viduatoides* (Lindqvist, 1960) ZMUO.038737. **306.** *viduata* (Zetterstedt, 1838) PR.254VV. **307.** *anthracina* (Lindqvist, 1959) ZMUO.041203. **308.** *distinguenda* (Enslin, 1915) DEI-GISHym20792.



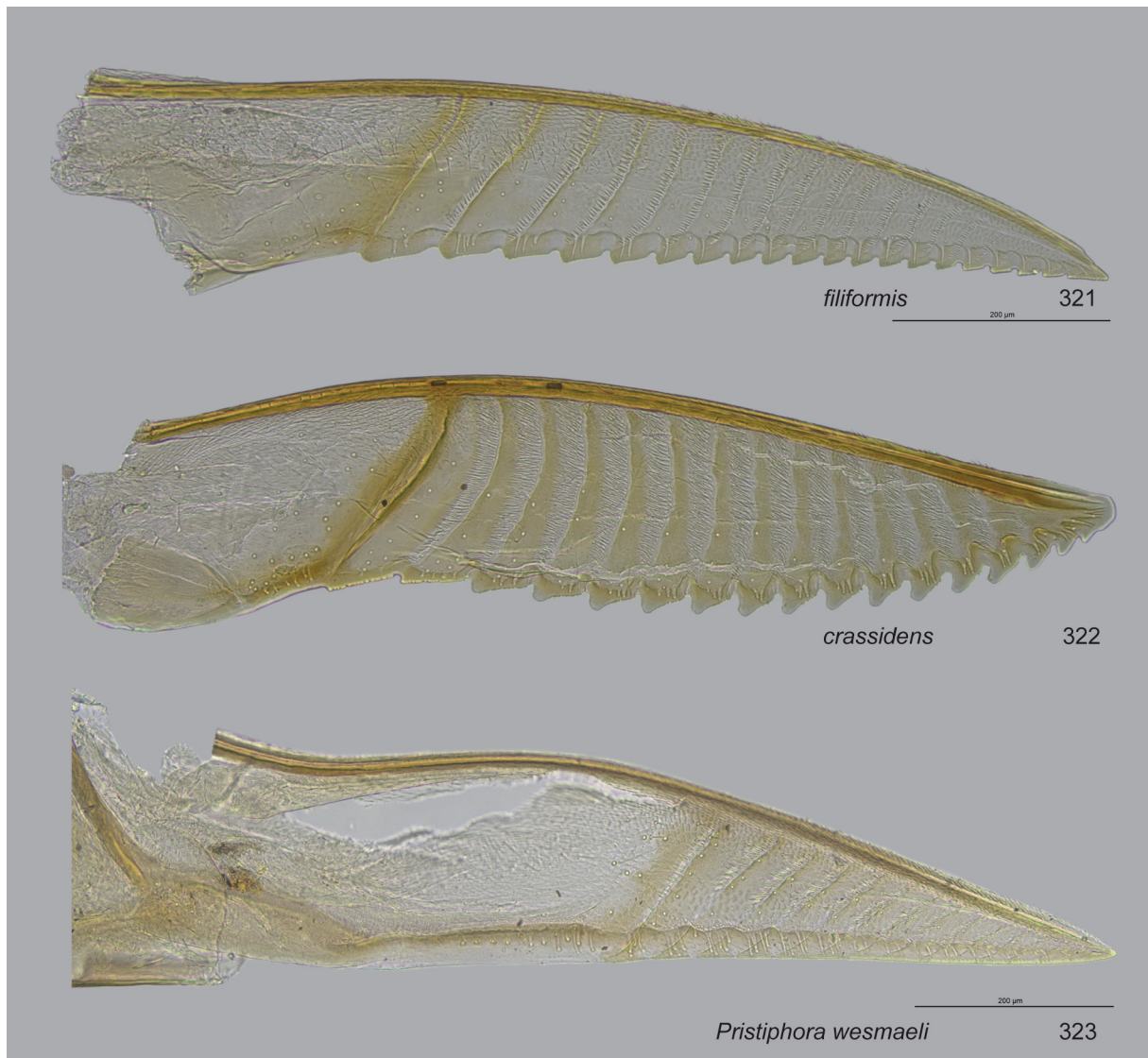
Figs 309–312. Lancets of *Euura* Newman, 1837. **309.** *hyperborea* (Thomson, 1871) ZMUO.041209. **310.** *salicis* (Linnaeus, 1758) DEI-GISHym12532. **311.** *imperfecta* (Zaddach, 1876) DEI-GISHym11467. **312.** *nigriventris* (Holmgren, 1883), lectotype, ♀ NHRS-HEVA000006477.



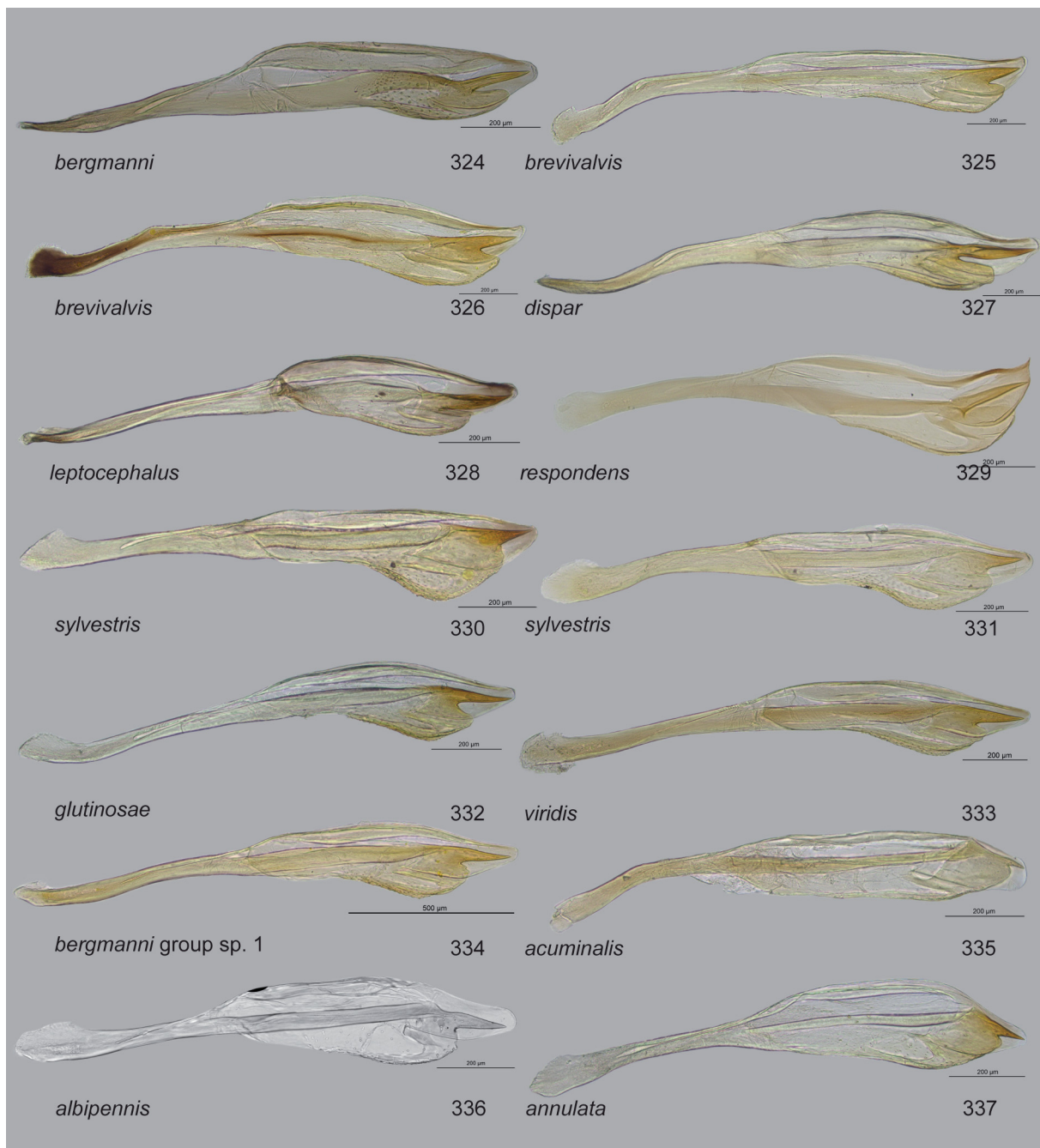
Figs 313–316. Lancets of *Euura* Newman, 1837. **313.** *poecilonota* (Zaddach, 1876) DEI-GISHym21400. **314.** *pumilio* (Konow, 1903) DEI-GISHym19767. **315.** *spiraeae* (Zaddach, 1883) ZMUO.029419 (Finland). **316.** *spiraeae* DEI-GISHym83965 (China).



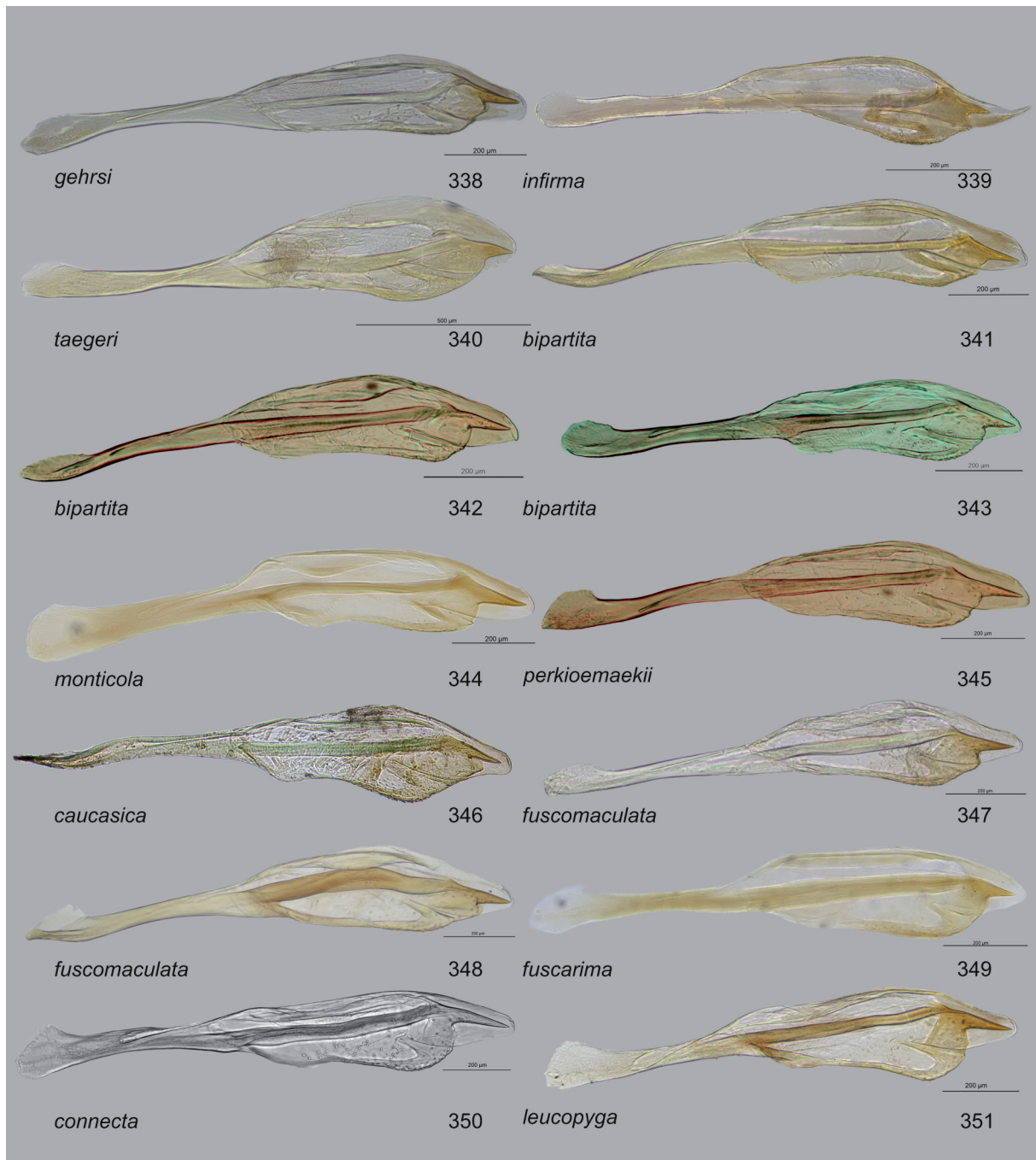
Figs 317–320. Lancets of *Euura* Newman, 1837. **317.** *brunneipicta* (Lindqvist, 1975), holotype, ♀ <http://id.luomus.fi/GL.5124>. **318.** *chromata* (Rohwer, 1925) comb. nov., holotype, ♀ USNMENT00778815. **319.** *chromata* DEI-GISHym88888. **320.** *pallens* (Konow, 1903), lectotype, ♀ GBIF-GISHym3863.



Figs 321–323. Lancets of *Euura* Newman, 1837. and *Pristiphora* Latreille, 1810. **321.** *filiformis* (Lindqvist, 1975), holotype, ♀ <http://id.luomus.fi/GL.5146>. **322.** *crassidens* (Lindqvist, 1970), holotype, ♀ <http://id.luomus.fi/GL.5123>. **323.** *Pristiphora wesmaeli* (Tischbein, 1853) <http://id.luomus.fi/GL.5147>.



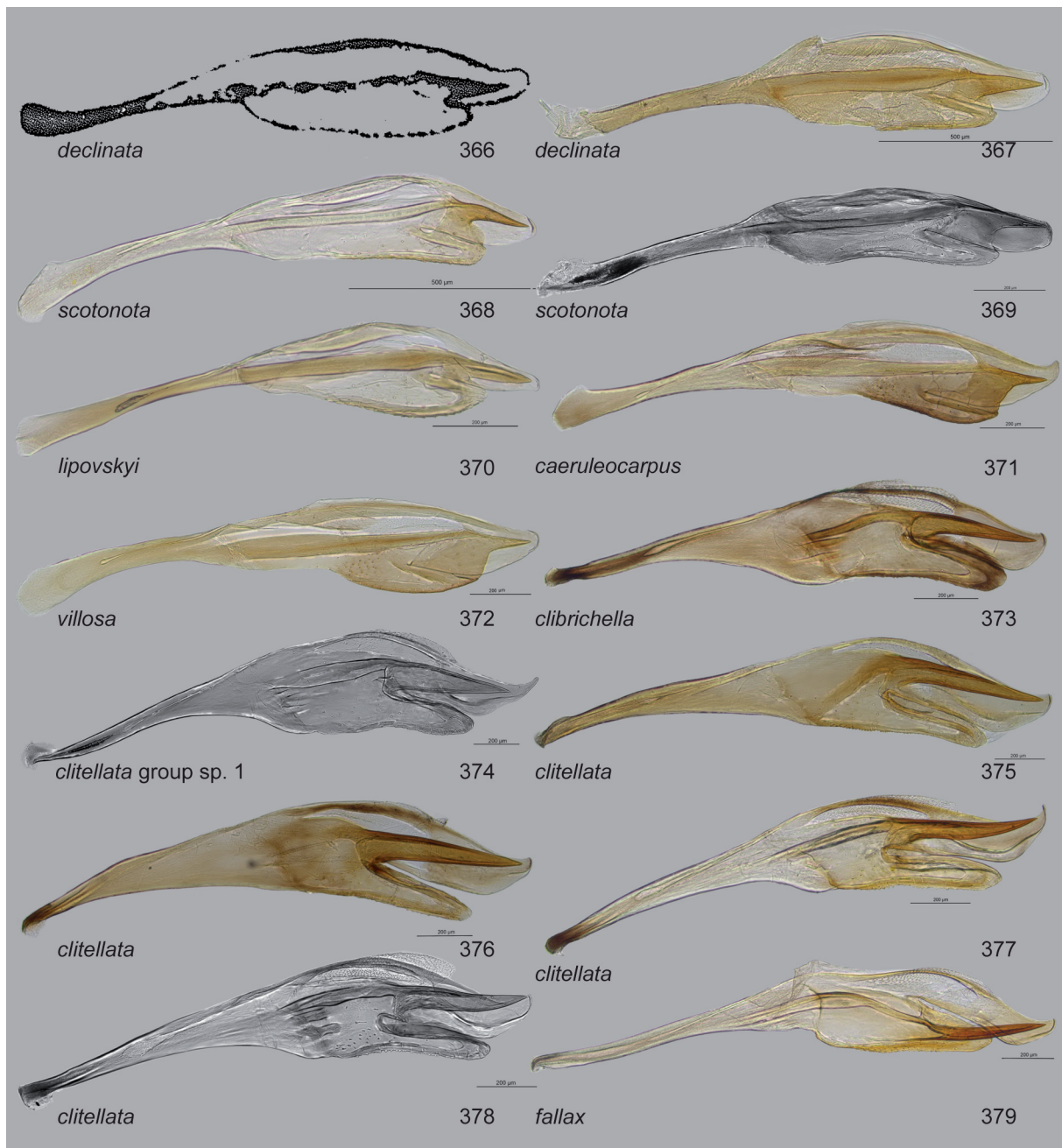
Figs 324–337. Penis valves of *Euura* Newman, 1837. **324.** *bergmanni* (Dahlbom, 1835) <http://id.luomus.fi/GP.110174>. **325.** *brevivalvis* (Thomson, 1871) DEI-GISHym84227. **326.** *brevivalvis* ZMUO.030870. **327.** *dispar* (Zaddach, 1876) DEI-GISHym88519. **328.** *leptocephalus* (Thomson, 1863) DEI-GISHym88730. **329.** *respondens* (Förster, 1854) DEI-GISHym12514. **330.** *sylvestris* (Cameron, 1884) DEI-GISHym83594. **331.** *sylvestris* ZMUO.033416. **332.** *glutinosae* (Cameron, 1882) DEI-GISHym84096. **333.** *viridis* (Stephens, 1835) ZMUO.030834. **334.** *bergmanni* group sp. 1 ZMUO.033968. **335.** *acuminalis* (Vikberg, 1982), holotype NHRS-HEVA000003990. **336.** *albipennis* (Hartig, 1837) ZMUO.060241. **337.** *annulata* (Gimmerthal, 1834) DEI-GISHym84060.



Figs 338–351. Penis valves of *Euura* Newman, 1837. **338.** *gehrsi* (Konow, 1903) DEI-GISHym84687. **339.** *infirma* (Förster, 1854) DEI-GISHym20732. **340.** *taegeri* (Lacourt, 1996) DEI-GISHym12669. **341.** *bipartita* (Serville, 1823) DEI-GISHym31236. **342.** *bipartita* ZMUO.035732. **343.** *bipartita* ZMUO.041907. **344.** *monticola* (Thomson, 1871) PR.564VV. **345.** *perkioemaekii* (Lindqvist, 1960) comb. nov. ZMUO.039249. **346.** *caucasica* (Liston, Taeger & Blank, 2009) DEI-GISHym12542. **347.** *fuscomaculata* (Förster, 1854) DEI-GISHym12492. **348.** *fuscomaculata* DEI-GISHym31250. **349.** *fuscarima* (Benson, 1933) comb. nov. Ex-Nr.179103. **350.** *connecta* (Lindqvist, 1958) ZMUO.067317. **351.** *leucopyga* (Lindqvist, 1949) DEI-GISHym84254.



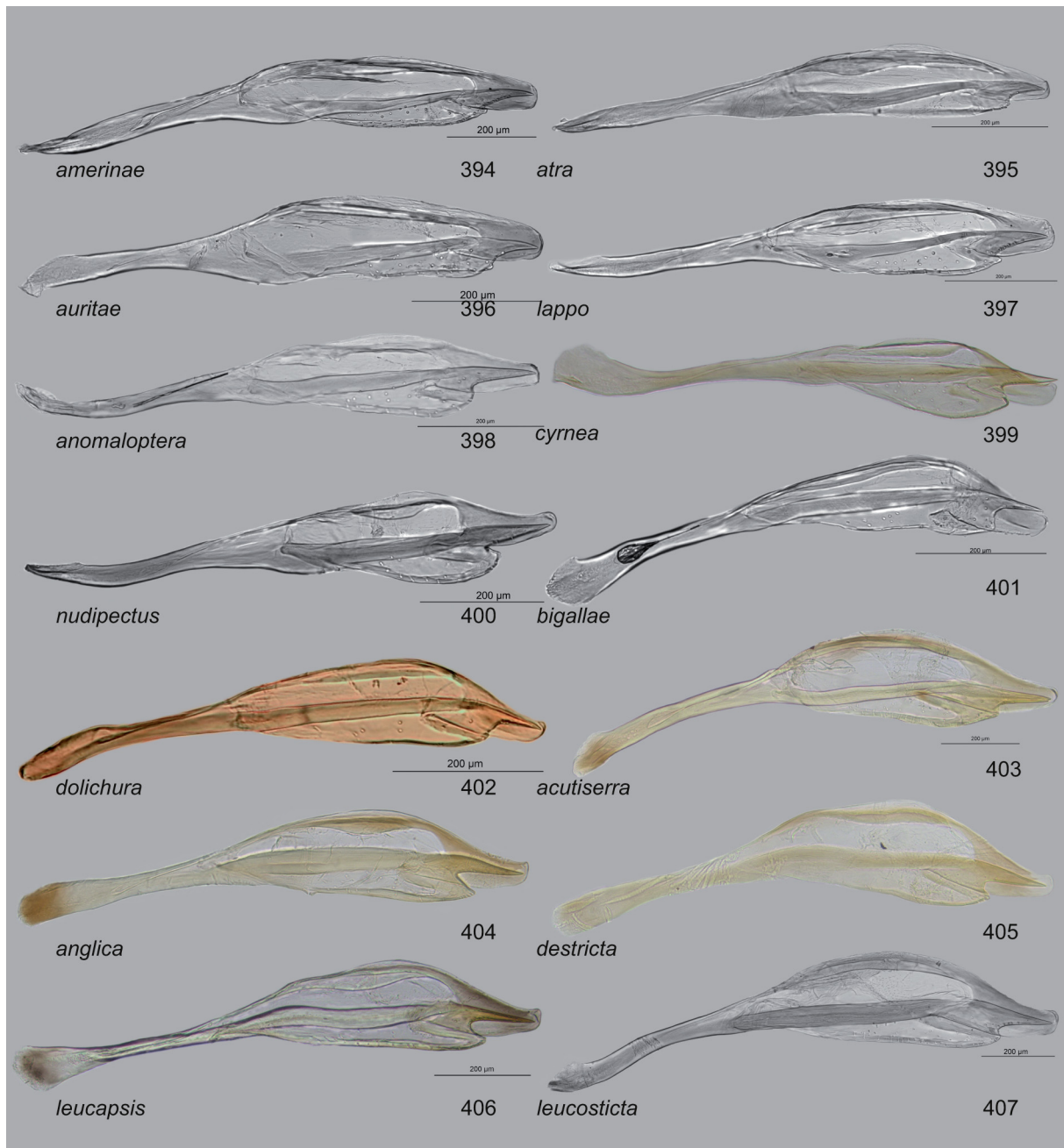
Figs 352–365. Penis valves of *Euura* Newman, 1837. **352.** *leptostigma* (Lindqvist, 1958) ZMUO.059783. **353.** *leptostigma* ZMUO.067450. **354.** *parviserrata* (Lindqvist, 1944) ZMUO.031499. **355.** *parviserrata* DEI-GISHym83822. **356.** *polaris* (Holmgren, 1883) DEI-GISHym12040. **357.** *sulciceps* (Lindqvist, 1959) DEI-GISHym84188. **358.** *polepso* Prous & Mutanen sp. nov., paratype ZMUO.059951. **359.** *mimus* (Konow, 1903) ZMUO.035273. **360.** *sordidiapex* (Lindqvist, 1959) DEI-GISHym12185. **361.** *punctifrons* (Malaise, 1921) DEI-GISHym84261. **362.** *fuscodorsata* (Lindqvist, 1949) comb. nov. ZMUO.035607. **363.** *parvilabris* (Thomson, 1863) DEI-GISHym80108. **364.** *poppii* (Konow, 1904) comb. nov. ZMUO.030843. **365.** *uda* (Holmgren, 1883) DEI-GISHym84183.



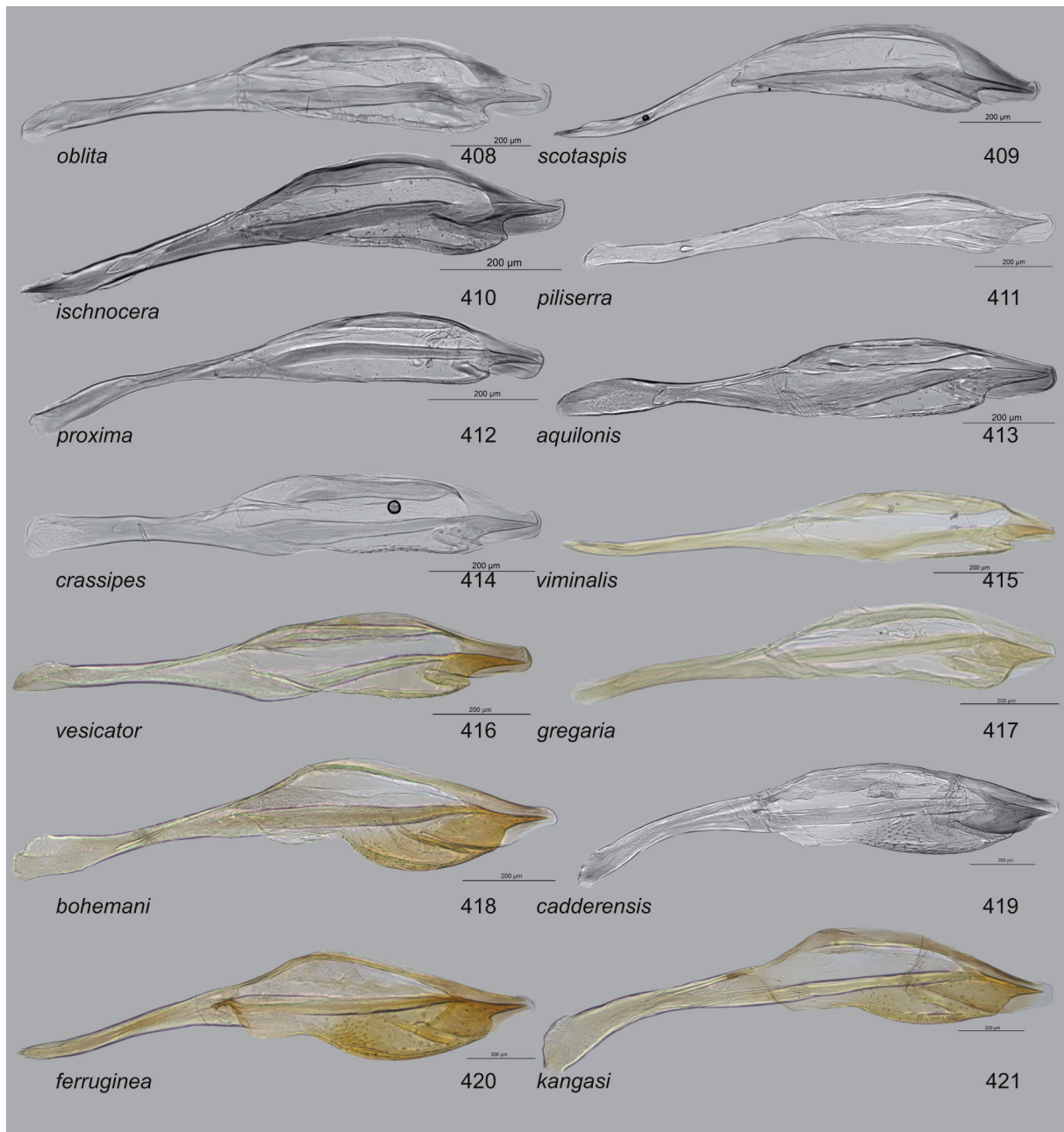
Figs 366–379. Penis valves of *Euura* Newman, 1837. **366.** *declinata* (Förster, 1854), holotype? (Conde unpubl.). **367.** *declinata* DEI-GISHym17598. **368.** *scotonota* (Förster, 1854) DEI-GISHym12002. **369.** *scotonota* W18212. **370.** *lipovskyi* (D.R. Smith, 1974) DEI-GISHym84702. **371.** *caeruleocarpus* (Hartig, 1837) DEI-GISHym88914. **372.** *villosa* (Thomson, 1863), *Nematus arcticus* Holmgren, 1869, lectotype NHRS-HEVA000006480. **373.** *clibrichella* (Cameron, 1878) DEI-GISHym84184. **374.** *clitellata* group sp. 1 ZMUO.035580. **375.** *clitellata* (Serville, 1823) ZMUO.030824. **376.** *clitellata* cluster 3 ZMUO.030823. **377.** *clitellata* cluster 4 DEI-GISHym84255. **378.** *clitellata* cluster 5 ZMUO.059059. **379.** *fallax* (Serville, 1823) DEI-GISHym84275.



Figs 380–393. Penis valves of *Euura* Newman, 1837. **380.** *lichtwardti* (Konow, 1903) DEI-GISHym84256. **381.** *moerens* (Förster, 1854) DEI-GISHym84252. **382.** *obducta* (Hartig, 1837) DEI-GISHym84481. **383.** *fahraei* (Thomson, 1863) <http://id.luomus.fi/GL.3496>. **384.** *tenuiserra* (Lindqvist, 1944) DEI-GISHym80664. **385.** *dorsata* (Cameron, 1875) ZMUO.031338. **386.** *flavescens* (Stephens, 1835) DEI-GISHym84191. **387.** *latibasis* (Lindqvist, 1949) ZMUO.035676. **388.** *lintera* (Holmgren, 1883) DEI-GISHym88729. **389.** *pravus* (Konow, 1895) ZMUO.031418. **390.** *reticulata* (Holmgren, 1883) DEI-GISHym88880. **391.** *seriepunctata* (Malaise, 1921) ZMUO.035721. **392.** *squamicauda* (Vikberg, 1982) 210004_VMZ. **393.** *serela* Prous & Mutanen sp. nov., paratype ZMUO.028330.



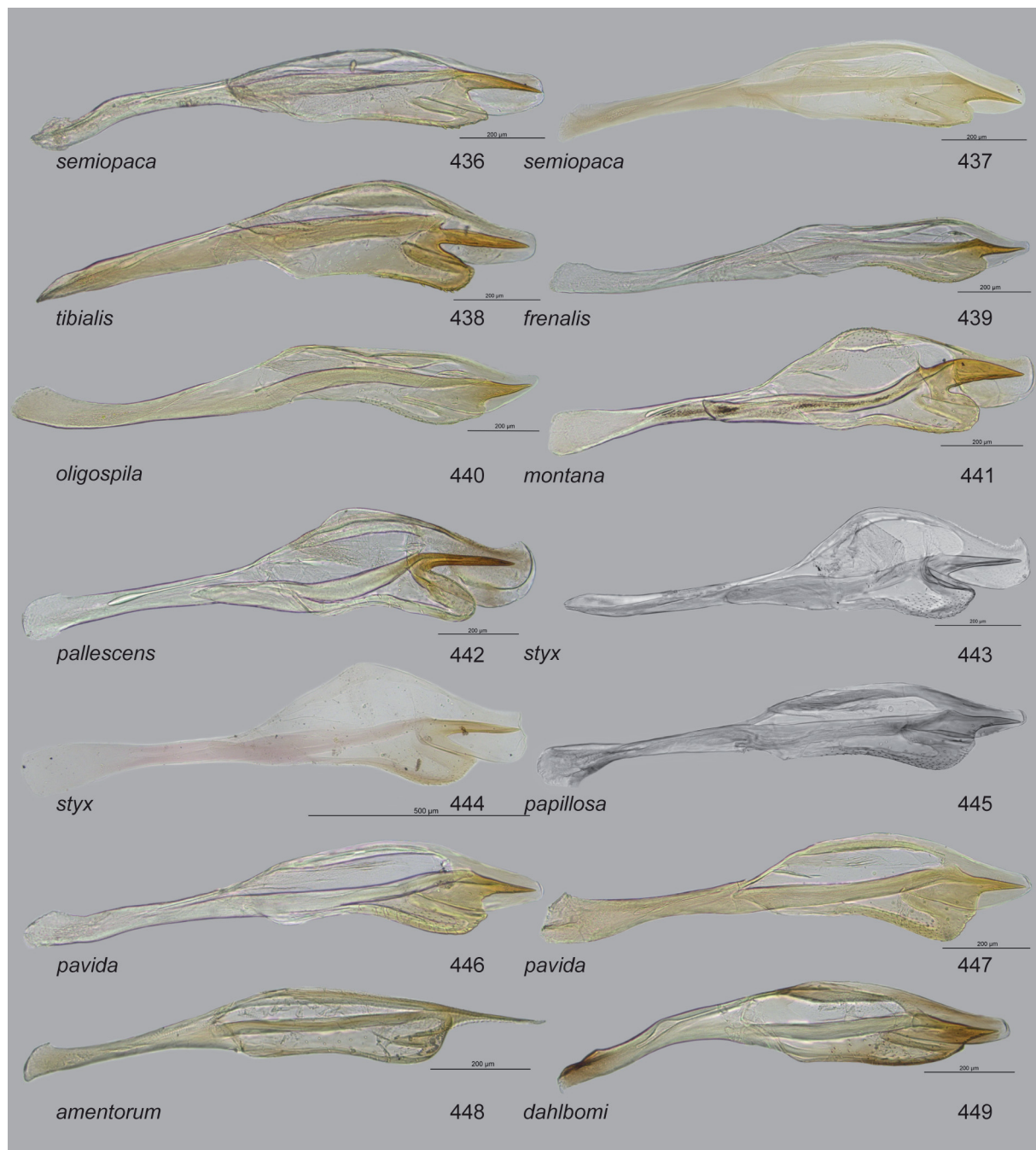
Figs 394–407. Penis valves of *Euura* Newman, 1837. **394.** *amerinae* (Linnaeus, 1758) ZMUO.039000. **395.** *atra* (Jurine, 1807) ZMUO.045611. **396.** *auritae* Kopelke, 2000 ZMUO.031377. **397.** *lappo* Malaise, 1921 ZMUO.045124. **398.** *anomaloptera* (Förster, 1854) ZMUO.031583. **399.** *cyrnea* (Liston, 2005) DEI-GISHym31774. **400.** *nudipectus* (Vikberg, 1965) ZMUO.060349. **401.** *bigallae* (Vikberg & Zinovjev, 2014) ZMUO.038812. **402.** *dolichura* (Thomson, 1871) ZMUO.044203. **403.** *acutiserra* (Lindqvist, 1949) DEI-GISHym86357. **404.** *anglica* (Cameron, 1877) Ex-Nr.131886. **405.** *destrecta* (MacGillivray, 1923) Ex-Nr.132162. **406.** *leucapsis* (Tischbein, 1846) DEI-GISHym80913. **407.** *leucosticta* (Hartig, 1837) MUO.032622.



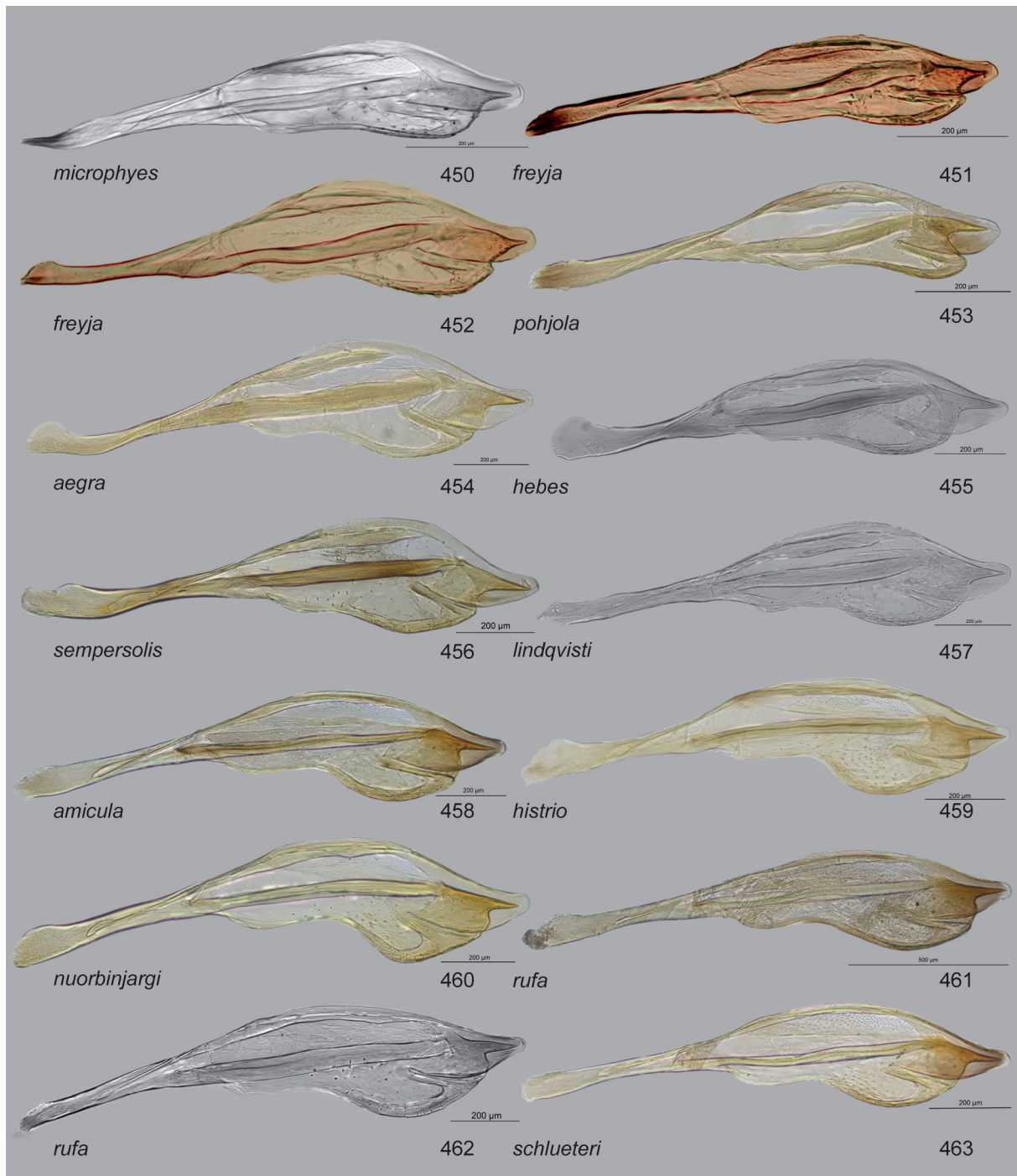
Figs 408–421. Penis valves of *Euura* Newman, 1837. **408.** *oblita* (Serville, 1823) ZMUO.058538. **409.** *scotaspis* (Förster, 1854) DEI-GISHym13858. **410.** *ischnocera* (Thomson, 1863) ZMUO.044317. **411.** *piliserra* (Thomson, 1863) DEI-GISHym13868. **412.** *proxima* (Serville, 1823) ZMUO.067243. **413.** *aquilonis* (Benson, 1941) ZMUO.032908. **414.** *crassipes* (Thomson, 1871) ZMUO.044270. **415.** *viminalis* (Linnaeus, 1758) DEI-GISHym20789. **416.** *vesicator* (Bremi-Wolf, 1849) DEI-GISHym80052. **417.** *gregaria* (Marlatt, 1896) DEI-GISHym83963. **418.** *bohemani* (Thomson, 1871) DEI-GISHym80206. **419.** *cadderensis* (Cameron, 1875) ZMUO.041205. **420.** *ferruginea* (Förster, 1854) DEI-GISHym88726. **421.** *kangasi* (Lindqvist, 1964) ZMUO.033876.



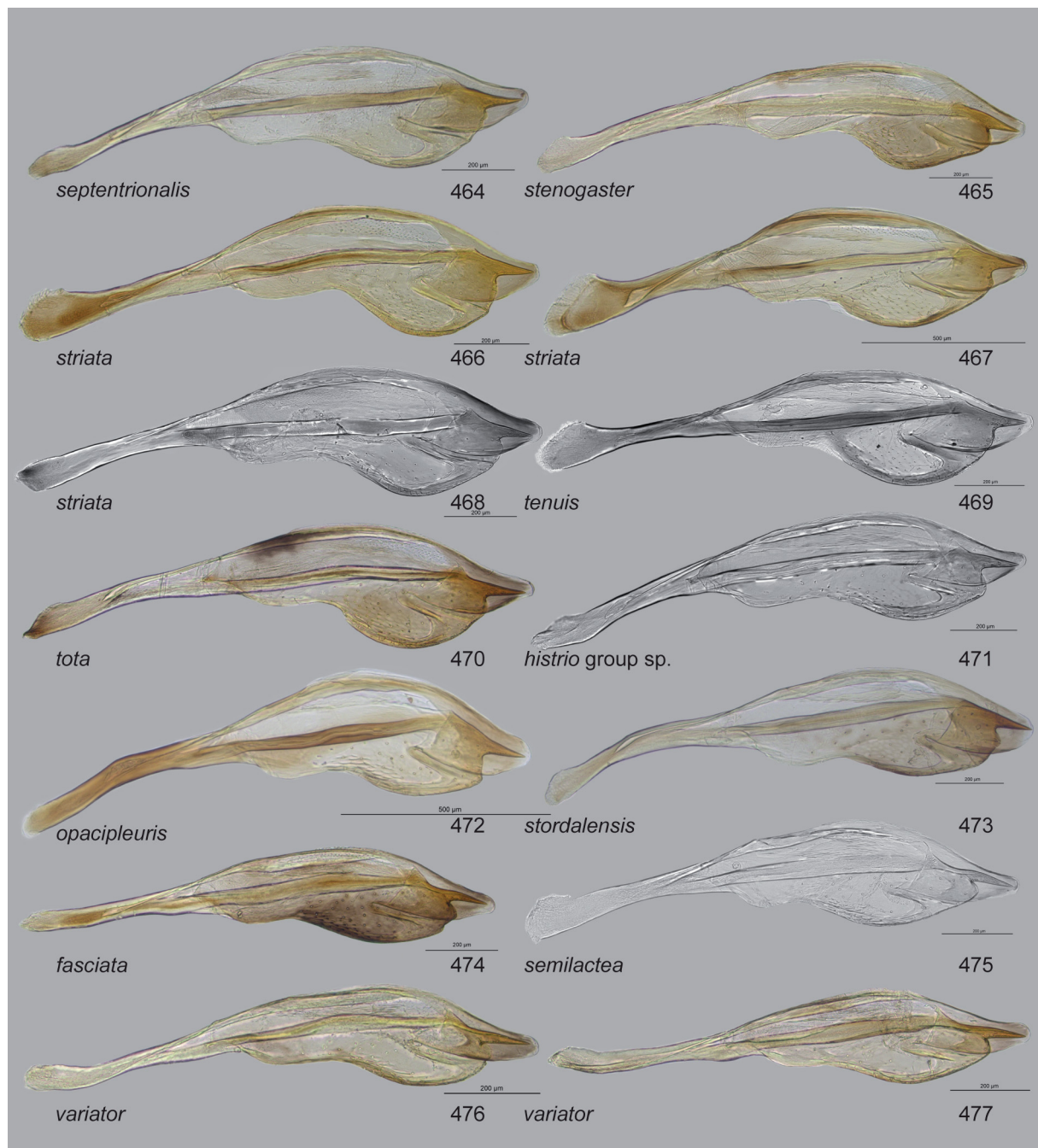
Figs 422–435. Penis valves of *Euura* Newman, 1837. **422.** *melanocephalus* (Hartig, 1837) DEI-GISHym18642. **423.** *miliaris* (Panzer, 1797) ZMUO.029496. **424.** *nigricornis*? (Serville, 1823) Nr.18. **425.** *miltonota* (Zaddach, 1883) DEI-GISHym13852. **426.** *nimbus* (Benson, 1960) DEI-GISHym84209. **427.** *sagmarius* (Konow, 1895) DEI-GISHym84692. **428.** *halo* Prous, Liston & Mutanen sp. nov., paratype ZMUO.067421. **429.** *dissimilis* (Förster, 1854) DEI-GISHym83932. **430.** *hypoxantha* (Förster, 1854) DEI-GISHym3301. **431.** *jugicola* (Thomson, 1871) DEI-GISHym88731 (Sweden). **432.** *jugicola* DEI-GISHym15270 (Canada). **433.** *myosotidis* (Fabricius, 1804) DEI-GISHym12003. **434.** *myosotidis* ZMUO.058149. **435.** *platystigma* (Lindqvist, 1949) DEI-GISHym83672.



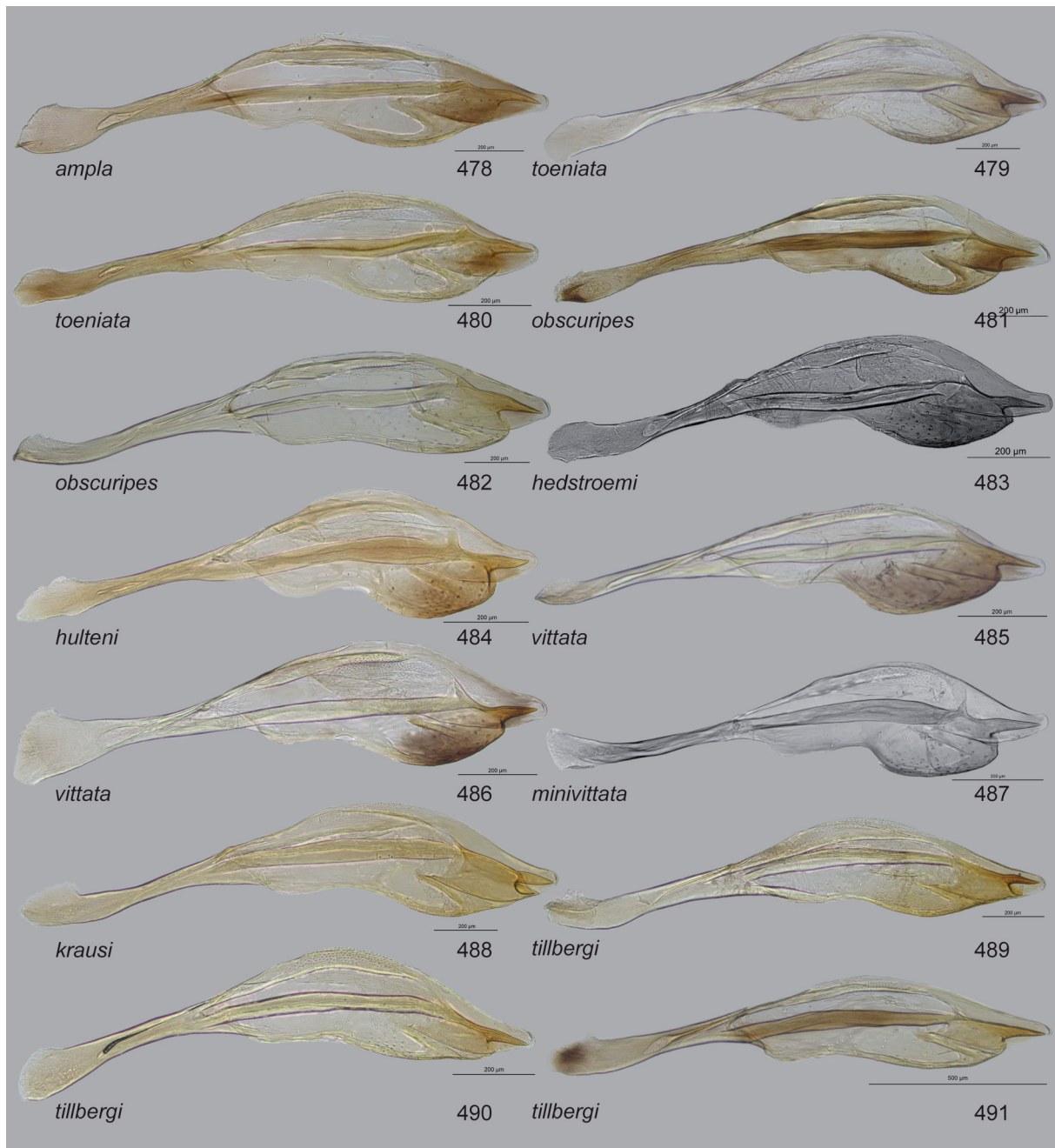
Figs 436–449. Penis valves of *Euura* Newman, 1837. **436.** *semiopaca* (Lindqvist, 1958) DEI-GISHym88881. **437.** *semiopaca*? PR.566VV. **438.** *tibialis* (Newman, 1837) DEI-GISHym12515. **439.** *frenalis* (Thomson, 1888) DEI-GISHym12057. **440.** *oligospila* (Förster, 1854) DEI-GISHym21395. **441.** *montana* (Zaddach, 1883) DEI-GISHym84264. **442.** *pallescens* (Hartig, 1837) DEI-GISHym12148. **443.** *styx* (Benson, 1958) <http://id.luomus.fi/NG.1551>. **444.** *styx* paratype. **445.** *papillosa* (Retzius, 1783) ZMUO.040796. **446.** *pavida* (Serville, 1823) DEI-GISHym83970. **447.** *pavida* ZMUO.030817. **448.** *amentorum* (Förster, 1854) <http://id.luomus.fi/GP.110189>. **449.** *dahlbomi* (Thomson, 1871) <http://id.luomus.fi/GP.110190>.



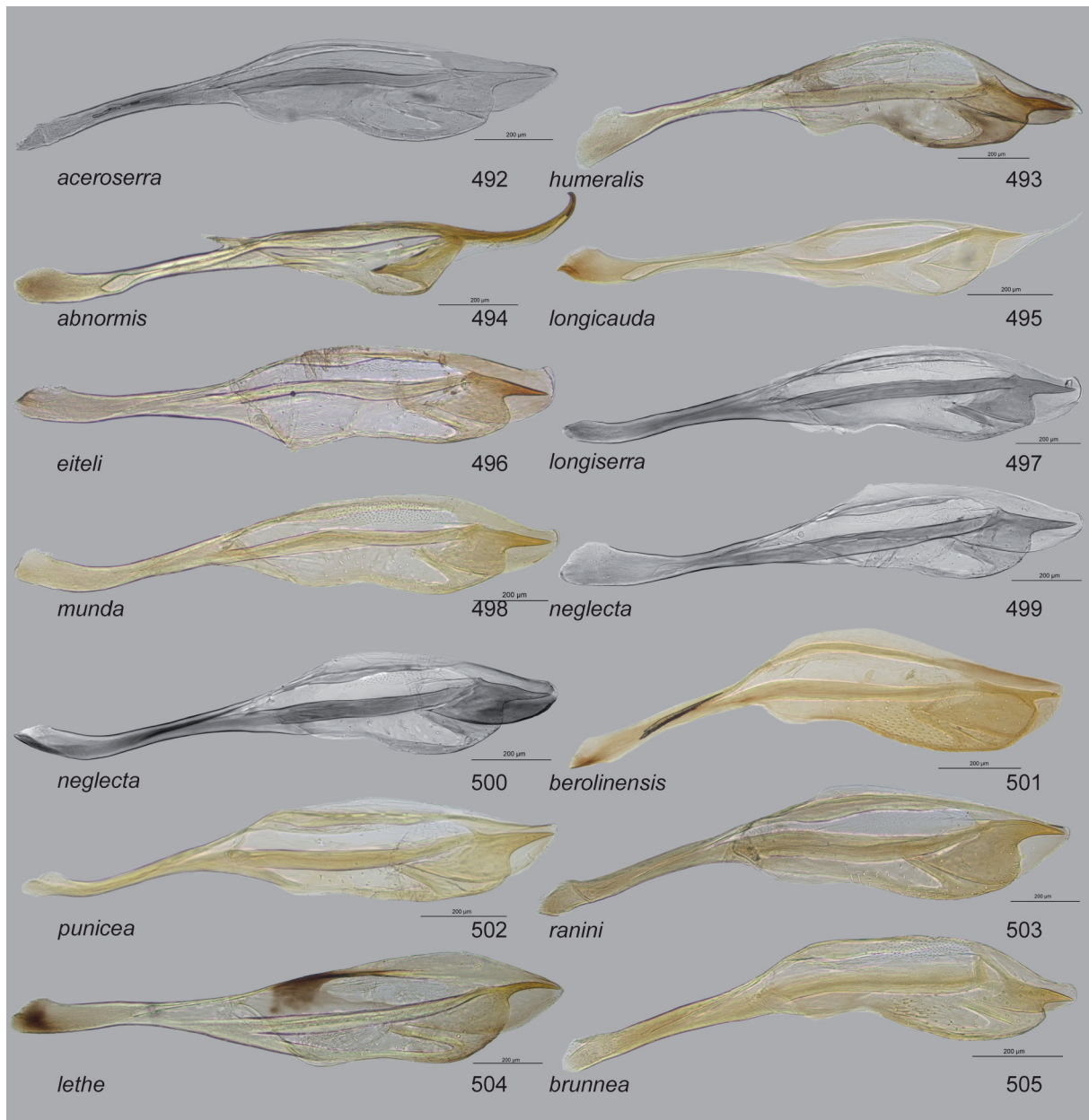
Figs 450–463. Penis valves of *Euura* Newman, 1837. **450.** *microphyes* (Förster, 1854) 200244_KTP. **451.** *freyja* (Liston, Taeger & Blank, 2009) 200693_BSP. **452.** *freyja* ZMUO.058316. **453.** *pohjola* Liston *et al.* 2023 ZMUO.030821. **454.** *aegra* (Konow, 1895) ZMUO.031785. **455.** *hebes* (Konow, 1907) ZMUO.045039. **456.** *sempersolis* (Kiaer, 1898) DEI-GISHym12583. **457.** *lindqvisti* (Hellén, 1951) ZMUO.038829. **458.** *amicula* (Saarinen, 1950) DEI-GISHym84454. **459.** *histrion* (Serville, 1823) ZMUO.037218. **460.** *nuorbinjargi* (Saarinen, 1949) DEI-GISHym12565. **461.** *rufa* (Konow, 1896) DEI-GISHym12520 (Primorsky Kray, Russia). **462.** *rufa* ZMUO.058416 (Finland). **463.** *schlueteri* (Enslin, 1915) DEI-GISHym84243.



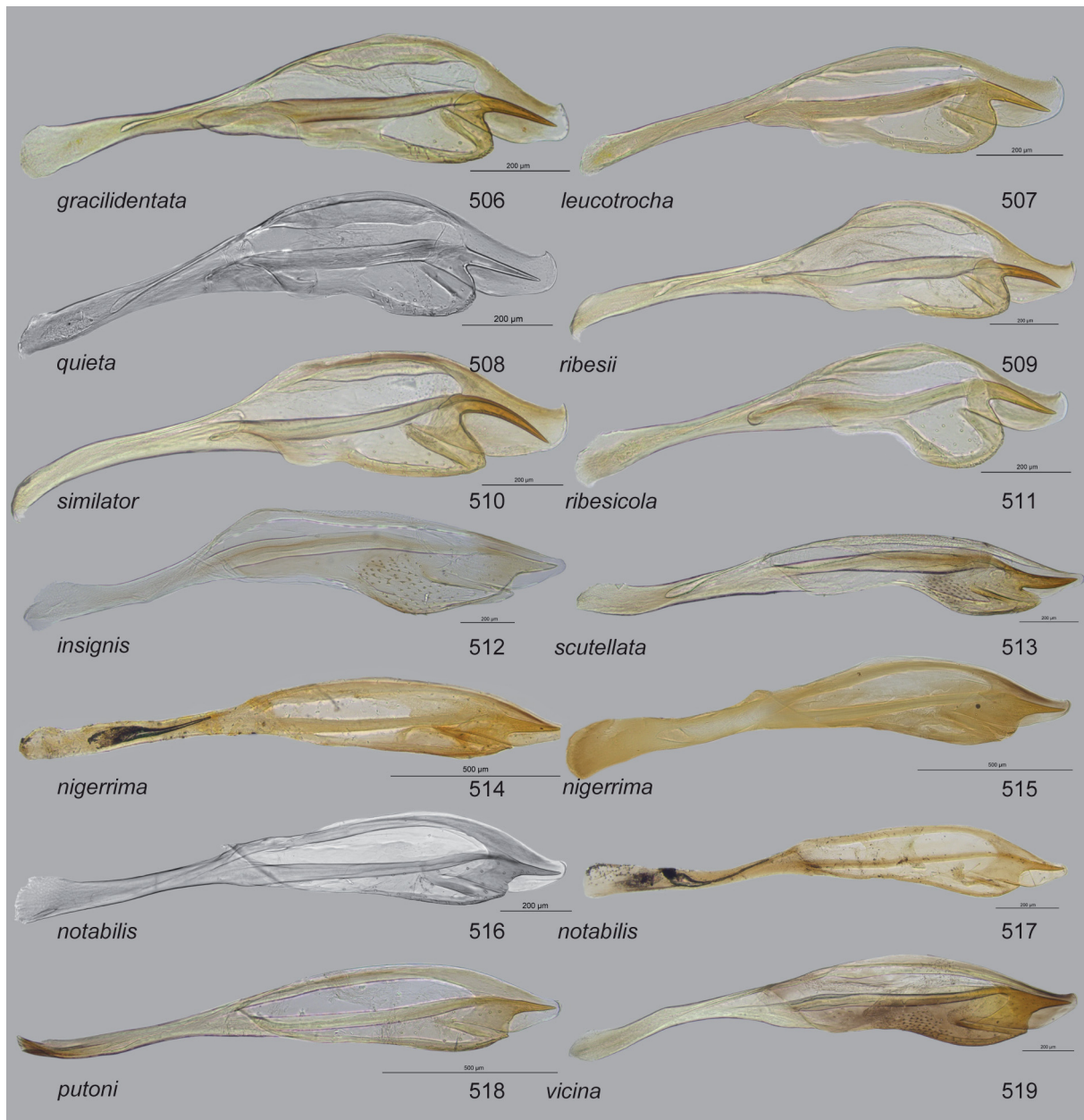
Figs 464–477. Penis valves of *Euura* Newman, 1837. **464.** *septentrionalis* (Saarinen, 1950) DEI-GISHym12060. **465.** *stenogaster* (Förster, 1854) ZMUO.030816. **466.** *striata* (Hartig, 1837) DEI-GISHym84228. **467.** *striata* DEI-GISHym84233. **468.** *striata* ZMUO.058015. **469.** *tenuis* (Schmidt, 1997) ZMUO.045038. **470.** *tota* (Saarinen, 1950) DEI-GISHym84216. **471.** *histrio* group sp. ZMUO.067381. **472.** *opacipleuris* (Konow, 1895) DEI-GISHym12562. **473.** *stordalensis* (Strand, 1905) DEI-GISHym12097. **474.** *fasciata* (Konow, 1897) DEI-GISHym80666. **475.** *semilactea* (Zaddach, 1883) DEI-GISHym12371. **476.** *variator* (Ruthe, 1859) DEI-GISHym83701. **477.** *variator* DEI-GISHym84189.



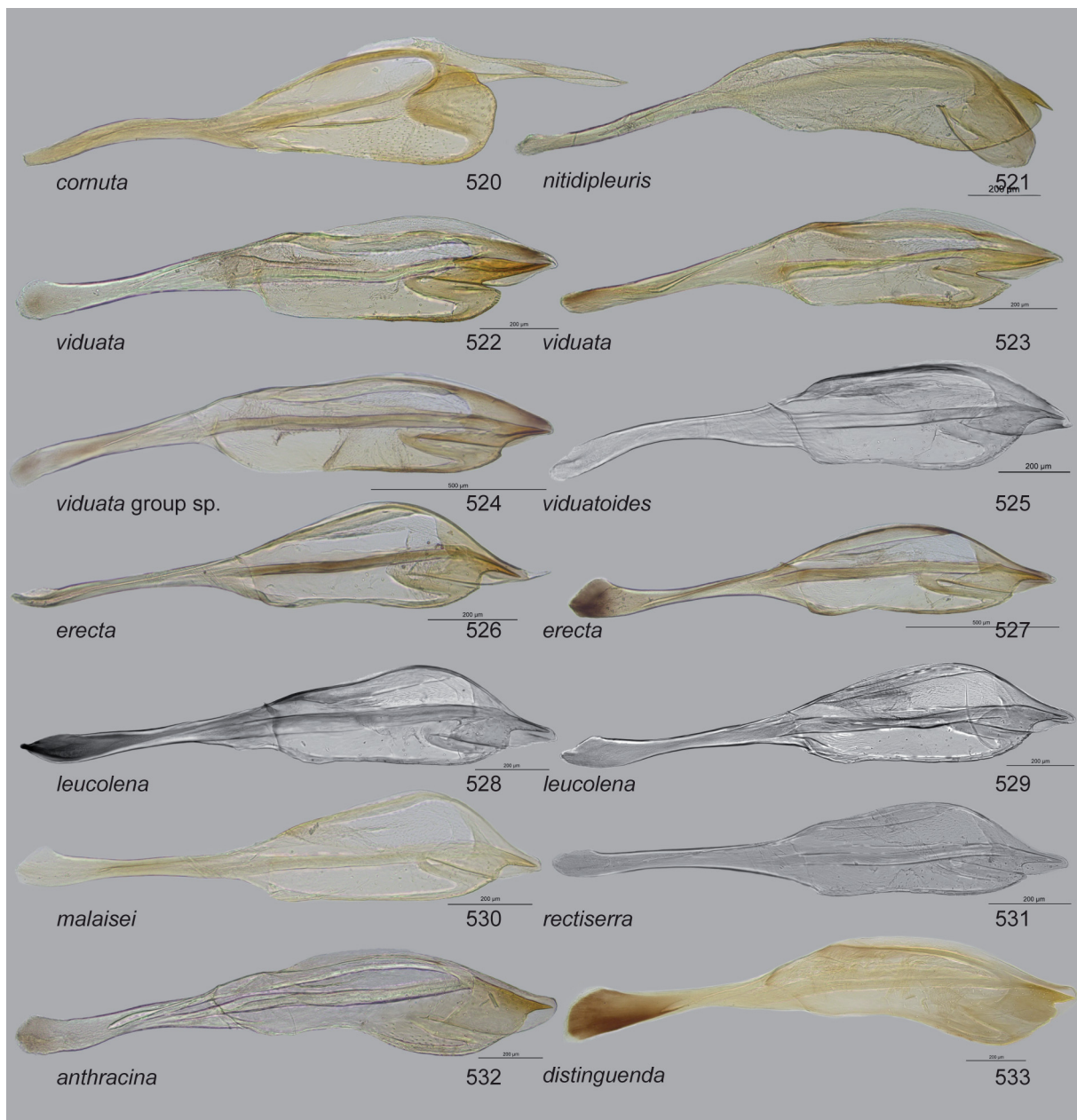
Figs 478–491. Penis valves of *Euura* Newman, 1837. **478.** *ampla* (Konow, 1895) ZMUO.030818. **479.** *toeniata* (Serville, 1823) DEI-GISHym31847. **480.** *toeniata* ZMUO.030820. **481.** *obscuripes* (Holmgren, 1883) DEI-GISHym84492. **482.** *obscuripes* ZMUO.037203. **483.** *hedstroemi* (Malaise, 1931) ZMUO.067447. **484.** *hulteni* (Malaise, 1931) ZMUO.033760. **485.** *vittata* (Serville, 1823) DEI-GISHym31870. **486.** *vittata* DEI-GISHym84172. **487.** *minivittata* Prous & Mutanen sp. nov. ZMUO.035848. **488.** *krausi* (Taeger & Blank, 1998) ZMUO.031296. **489.** *tillbergi* (Malaise, 1921) DEI-GISHym80836. **490.** *tillbergi* ZMUO.030857. **491.** *tillbergi* DEI-GISHym12036.



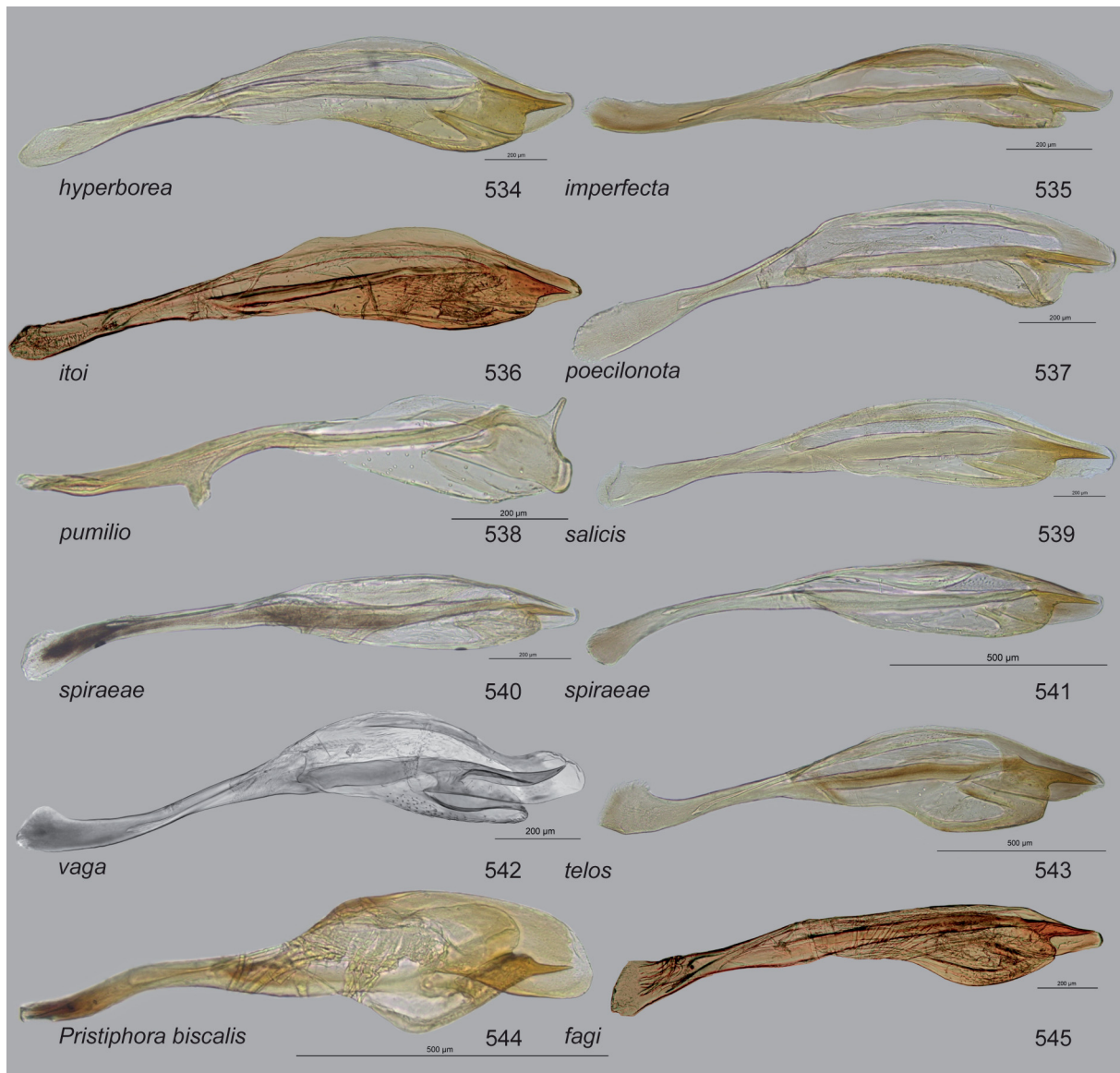
Figs 492–505. Penis valves of *Euura* Newman, 1837. **492.** *aceroserra* Taeger & Blank, 2014 ZMUO.041897. **493.** *humeralis* (Serville, 1823) DEI-GISHym80261. **494.** *abnormis* (Holmgren, 1883) DEI-GISHym83979. **495.** *longicauda* (Hellén, 1948) PR.283VV. **496.** *eiteli*? (Saarinen, 1948) DEI-GISHym84213. **497.** *longiserra* (Thomson, 1863) ZMUO.060507. **498.** *munda* (Konow, 1895) ZMUO.030853. **499.** *neglecta* (W.F. Kirby, 1882) ZMUO.060325. **500.** *neglecta* ZMUO.060332. **501.** *berolinensis* (Muche, 1970) PR.553VV. **502.** *punicea* (Christ, 1791) ZMUO.037176. **503.** *ranini* (Lindqvist, 1960) DEI-GISHym80659. **504.** *lethe* Prous & Liston, 2014 DEI-GISHym80762. **505.** *brunnea* (Norton, 1864) ZMUO.033261.



Figs 506–519. Penis valves of *Euura* Newman, 1837. **506.** *gracilidentata* (Viitasaari, 1980) DEI-GISHym80085. **507.** *leucotrocha* (Hartig, 1837) ZMUO.030860. **508.** *quieta* (Eversmann, 1847) ZMUO.032101. **509.** *ribesii* (Scopoli, 1763) DEI-GISHym88577. **510.** *similator* (Förster, 1854) DEI-GISHym88551. **511.** *ribesicola*? (Lindqvist, 1949) DEI-GISHym86112. **512.** *insignis* (Hartig, 1840) 170127-5. **513.** *scutellata* (Hartig, 1837) DEI-GISHym80058. **514.** *nigerrima* (Konow, 1903). *Pachynematus nigerrimus* Konow, 1903, lectotype GBIF-GISHym3883. **515.** *nigerrima*, *Nematus fumosus* Lacourt, 1991, holotype DEI-GISHym12672. **516.** *notabilis* (Konow, 1903) DEI-GISHym13871. **517.** *notabilis*, *Pteronus notabilis* Konow, 1903, lectotype GBIF-GISHym3862. **518.** *putoni* (Konow, 1903) DEI-GISHym16241. **519.** *vicina* (Serville, 1823) DEI-GISHym88484.



Figs 520–533. Penis valves of *Euura* Newman, 1837. **520.** *cornuta* (Lindqvist, 1962), *Amauronematus cornutus* Lindqvist, 1962, holotype <http://id.luomus.fi/GL.2466>. **521.** *nitidipleuris* (Malaise, 1931) <http://id.luomus.fi/GP.110187>. **522.** *viduata* (Zetterstedt, 1838) DEI-GISHym12011. **523.** *viduata* DEI-GISHym12511. **524.** *viduata* group sp. DEI-GISHym31865. **525.** *viduatoides*? (Lindqvist, 1960) ZMUO.032626. **526.** *erecta* (Lindqvist, 1945) DEI-GISHym12074. **527.** *erecta* DEI-GISHym12062. **528.** *leucolena* (Brischke, 1883) ZMUO.038728. **529.** *leucolena* ZMUO.060514. **530.** *malaisei* (Hellén, 1970) ZMUO.033815. **531.** *rectiserra* (Lindqvist, 1971) ZMUO.043842. **532.** *anthracina* (Lindqvist, 1959) 1e. **533.** *distinguenda* (Enslin, 1915) PR.620VV.



Figs 534–545. Penis valves of *Euura* Newman, 1837 (534–543, 545) and *Pristiphora* Latreille, 1810 (544). **534.** *hyperborea* (Thomson, 1871) DEI-GISHym31674. **535.** *imperfecta* (Zaddach, 1876) ZMUO.030832. **536.** *itoi* (Okutani, 1955) DEI-GISHym13850. **537.** *poecilonota* (Zaddach, 1876) DEI-GISHym12527. **538.** *pumilio* (Konow, 1903) DEI-GISHym31087. **539.** *salicis* (Linnaeus, 1758) DEI-GISHym17954. **540.** *spiraeae* (Zaddach, 1883) DEI-GISHym14075 (Switzerland). **541.** *spiraeae* DEI-GISHym1916 (China). **542.** *vaga* (Fabricius, 1781) DEI-GISHym13874. **543.** *telos* Liston & Prous nom. nov. DEI-GISHym80794. **544.** *Pristiphora biscalis* (Förster, 1854), *Nematus meridionalis* André, 1880, lectotype DEI-GISHym89376. **545.** *fagi* Zaddach, 1876 DEI-GISHym13853.

Table 4 (continued on next thirty one pages). List of treated names, their status and new lectotype designations (LT) marked with X. The valid name of the taxa treated in full for which the ending of the species epithet changes depending on the genus name is given both as in the original and current combination. Species epithets of taxa treated as synonyms are as in the original combination.

Name	Name status	LT	Valid name	Group	Number
<i>abnormis</i> Holmgren, 1883			<i>Euura abnormis</i> (Holmgren, 1883)	<i>longiserra</i>	236
<i>abstrusus</i> Lindqvist, 1949	synonym		<i>Euura parvilabris</i> (Thomson, 1863)	<i>bipartita</i>	123
<i>aceris</i> Rohwer, 1915	synonym		<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>aceroserra</i> Taeger & Blank, 2014			<i>Euura aceroserra</i> Taeger & Blank, 2014	<i>humeralis</i>	233
<i>acuminalis</i> Vikberg, 1982			<i>Euura acuminalis</i> (Vikberg, 1982)	<i>bipartita</i>	103
<i>acuminata</i> Lindqvist, 1968			<i>Euura acuminata</i> (Vikberg, 1982)	<i>bipartita</i>	103
<i>acutifoliae</i> Zinovjev, 1985			<i>Euura acutifoliae</i> (Zinovjev, 1985)	<i>viminalis</i>	64
<i>acutiserra</i> Lindqvist, 1949			<i>Euura acutiserra</i> (Lindqvist, 1949)	<i>oblita</i>	39
<i>acutiserra</i> Lindqvist, 1974			<i>Euura aceroserra</i> Taeger & Blank, 2014	<i>humeralis</i>	233
<i>acutiventris</i> Hellén, 1948	syn. nov.	X	<i>Euura uda</i> (Holmgren, 1883)	<i>bipartita</i>	133
<i>aeger</i> Konow, 1895	synonym		<i>Euura aegra</i> (Konow, 1895)	<i>aegra</i>	202
<i>aegra</i> (Konow, 1895)			<i>Euura aegra</i> (Konow, 1895)	<i>aegra</i>	202
<i>aegra</i> group					201
<i>aemulus</i> Konow, 1895		X	<i>Euura toeniata</i> (Serville, 1823)	<i>toeniata</i>	252
<i>aequalis</i> Lindqvist, 1974	syn. nov.		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>alberich</i> Benson, 1934	syn. nov.		<i>Euura lienterica</i> (Holmgren, 1883)	<i>flavescens</i>	157
<i>albipennis</i> Hartig, 1837		X	<i>Euura albipennis</i> (Hartig, 1837)	<i>bipartita</i>	104
<i>albiventris</i> Lindqvist, 1959	syn. nov.		<i>Euura fuscodorsata</i> (Lindqvist, 1949)	<i>bipartita</i>	112
<i>albomarginata</i> Lindqvist, 1974	syn. nov.		<i>Euura hebes</i> (Konow, 1907)	<i>aegra</i>	203
<i>alni</i> Newman, 1869	incertae sedis		<i>Euura alni</i> Newman, 1869		304
<i>alpicola</i> Konow, 1895	synonym	X	<i>Euura toeniata</i> (Serville, 1823)	<i>toeniata</i>	252
<i>alpinae</i> Vikberg, 2003			<i>Euura alpinae</i> (Vikberg, 2003)	<i>viminalis</i>	65
<i>alsius</i> Benson, 1935	synonym		<i>Euura reticulata</i> (Holmgren, 1883)	<i>flavescens</i>	162
<i>alticola</i> Muche, 1973	synonym		<i>Euura caucasica</i> (Liston, Taeger & Blank, 2009)	<i>bipartita</i>	107
<i>amaurus</i> Vikberg, 1982	synonym		<i>Euura leionota</i> (Benson, 1933)	<i>bipartita</i>	117

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>ambiguus</i> Förster, 1854	synonym		<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>amentorum</i> Förster, 1854			<i>Euura amentorum</i> (Förster, 1854)	<i>amentorum</i>	207
<i>amentorum</i> group					206
<i>amerinae</i> group					1
<i>amerinae</i> Linnaeus, 1758			<i>Euura amerinae</i> (Linnaeus, 1758)	<i>amerinae</i>	2
<i>amicula</i> Saarinen, 1950			<i>Euura amicula</i> (Saarinen, 1950)	<i>histrio</i>	216
<i>ampla</i> (Konow, 1895)			<i>Euura ampla</i> (Konow, 1895)	<i>toeniata</i>	250
<i>amplus</i> Konow, 1895	synonym		<i>Euura ampla</i> (Konow, 1895)	<i>toeniata</i>	250
<i>analis</i> Konow, 1897	synonym		<i>Euura stenogaster</i> (Förster, 1854)	<i>histrio</i>	227
<i>anceps</i> Holmgren, 1883	synonym	X	<i>Euura reticulata</i> (Holmgren, 1883)	<i>flavescens</i>	162
<i>anglica</i> (Cameron, 1877)			<i>Euura anglica</i> (Cameron, 1877)	<i>oblita</i>	40
<i>angustatus</i> Lindqvist, 1949	syn. nov.		<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142
<i>angustiserra</i> Lindqvist, 1969	syn. nov.		<i>Euura oligospila</i> (Förster, 1854)	<i>oligospila</i>	193
<i>annulata</i> (Gimmerthal, 1834)			<i>Euura annulata</i> (Gimmerthal, 1834)	<i>bipartita</i>	105
<i>annulatus</i> Gimmerthal, 1834	synonym		<i>Euura annulata</i> (Gimmerthal, 1834)	<i>bipartita</i>	105
<i>anomalopecta</i> (Förster, 1854)	synonym		<i>Euura anomalopecta</i> (Förster, 1854)	<i>anomalopecta</i>	22
<i>anomalopecta</i> group					21
<i>anthracina</i> (Lindqvist, 1959)			<i>Euura anthracina</i> (Lindqvist, 1959)		293
<i>anthracinus</i> Lindqvist, 1959	synonym		<i>Euura anthracina</i> (Lindqvist, 1959)		293
<i>apicalis</i> Hartig, 1837	synonym		<i>Euura lichtwardti</i> (Konow, 1903)	<i>clitellata</i>	143
<i>apiciserra</i> Malaise, 1931	syn. nov.	X	<i>Euura sagmarius</i> (Konow, 1895)	<i>miltonota</i>	181
<i>approximatus</i> Förster, 1854	synonym		<i>Euura leucotrocha</i> (Hartig, 1837)	<i>ribesii</i>	270
<i>aquilonis</i> Benson, 1941			<i>Euura aquilonis</i> (Benson, 1941)	<i>viminalis</i>	66
<i>arapahonum</i> Cockerell, 1906	synonym		<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>arbusculae</i> Benson, 1941			<i>Euura arbusculae</i> (Benson, 1941)	<i>viminalis</i>	67
<i>arctica</i> Dalla Torre, 1894	synonym		<i>Euura reticulata</i> (Holmgren, 1883)	<i>flavescens</i>	162
<i>arctica</i> Enslin, 1915			<i>Euura reticulata</i> (Holmgren, 1883)	<i>flavescens</i>	162

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>arcticus</i> Holmgren, 1869	synonym	X	<i>Euura villosa</i> (Thomson, 1863)	<i>caeruleocarpus</i>	138
<i>arcticus</i> Thomson, 1871	synonym	X	<i>Euura reticulata</i> (Holmgren, 1883)	<i>flavescens</i>	162
<i>arvii</i> Vikberg, 1982	synonym		<i>Euura hartigi</i> (Saarinen, 1950)	<i>histrio</i>	219
<i>aspera</i> Lindqvist, 1959	syn. nov.		<i>Euura sordidiapex</i> (Lindqvist, 1959)	<i>bipartita</i>	130
<i>atra</i> (Jurine, 1807)			<i>Euura atra</i> (Jurine, 1807)	<i>amerinae</i>	3
<i>atratus</i> Lindqvist, 1961	synonym		<i>Euura lethe</i> Prous & Liston, 2014	<i>tunicata</i>	254
<i>atriceps</i> Marlatt, 1896	syn. nov.		<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>aulatus</i> MacGillivray, 1919	synonym		<i>Euura abnormis</i> (Holmgren, 1883)	<i>longiserra</i>	236
<i>aurantiacus</i> Hartig, 1837	synonym	X	<i>Euura bipartita</i> (Serville, 1823)	<i>bipartita</i>	106
<i>auritae</i> Kopelke, 2000			<i>Euura auritae</i> Kopelke, 2000	<i>amerinae</i>	4
<i>balticus</i> Enderlein, 1908	incertae sedis		<i>Euura baltica</i> (Enderlein, 1908)		305
<i>basalis</i> Costa, 1859	synonym		<i>Euura miliaris</i> (Panzer, 1797)	<i>miliaris</i>	176
<i>bavarica</i> Blank & Liston, 2014	synonym		<i>Euura obscuripes</i> (Holmgren, 1883)	<i>toeniata</i>	251
<i>bergmani</i> Malaise, 1931	syn. nov.	X	<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265
<i>bergmanni</i> Dahlbom, 1835			<i>Euura bergmanni</i> (Dahlbom, 1835)	<i>bergmanni</i>	93
<i>bergmanni</i> group					92
<i>bergmanni</i> group sp. 1				<i>bergmanni</i>	101
<i>berolinensis</i> Muche, 1970			<i>Euura berolinensis</i> (Muche, 1970)	<i>punicea</i>	246
<i>bertilpoppii</i> Heibo & Liston, 2014	synonym		<i>Euura obscuripes</i> (Holmgren, 1883)	<i>toeniata</i>	251
<i>betulae</i> Schmidt, 1997			<i>Euura betulae</i> (Schmidt, 1997)	<i>histrio</i>	217
<i>bey-bienkoi</i> Skorikova, 1952	synonym		<i>Euura ribesicola</i> (Lindqvist, 1949)	<i>ribesii</i>	272
<i>biannulatus</i> Costa, 1890	synonym		<i>Euura nigricornis</i> (Serville, 1823)	<i>miliaris</i>	177
<i>bigallae</i> Vikberg & Zinovjev, 2014			<i>Euura bigallae</i> (Vikberg & Zinovjev, 2014)	<i>dolichura</i>	29
<i>bipartita</i> (Serville, 1823)			<i>Euura bipartita</i> (Serville, 1823)	<i>bipartita</i>	106
<i>bipartita</i> group					102
<i>bipartita</i> group sp. 1				<i>bipartita</i>	134
<i>bipartitus</i> Serville, 1823	synonym		<i>Euura bipartita</i> (Serville, 1823)	<i>bipartita</i>	106

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>bipicta</i> Lindqvist, 1959	synonym		<i>Euura leucopyga</i> (Lindqvist, 1949)	<i>bipartita</i>	119
<i>birulae</i> Konow, 1907	syn. nov.	X	<i>Euura parvilabris</i> (Thomson, 1863)	<i>bipartita</i>	123
<i>biscalis</i> Förster, 1854			<i>Pristiphora biscalis</i> (Förster, 1854)	<i>Pristiphora</i>	337
<i>bohemani</i> Thomson, 1871		X	<i>Euura bohemani</i> (Thomson, 1871)	<i>melanocephalus</i>	169
<i>boreophila</i> Lindqvist, 1971	syn. nov.		<i>Euura flavescens</i> (Stephens, 1835)	<i>flavescens</i>	155
<i>boulderensis</i> Rohwer, 1920	synonym		<i>Euura obducta</i> (Hartig, 1837)	<i>clitellata</i>	145
<i>brachyacanthus</i> Thomson, 1863	synonym	X	<i>Euura caeruleocarpus</i> (Hartig, 1837)	<i>caeruleocarpus</i>	137
<i>brachycercus</i> Hartig, 1840	syn. nov.		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>brachyotus</i> Förster, 1854	synonym		<i>Euura viduata</i> (Zetterstedt, 1838)	<i>viduata</i>	291
<i>branderi</i> Lindqvist, 1969	syn. nov.		<i>Euura viduatoides</i> (Lindqvist, 1960)	<i>viduata</i>	292
<i>brevicornis</i> Förster, 1854			<i>Euura brevicornis</i> (Förster, 1854)	<i>viminalis</i>	69
<i>breviserratae</i> Kopelke, 1989			<i>Euura breviserratae</i> (Kopelke, 1989)	<i>viminalis</i>	70
<i>brevispinis</i> Förster, 1854		X	<i>Euura caeruleocarpus</i> (Hartig, 1837)	<i>caeruleocarpus</i>	137
<i>breviusculus</i> Eversmann, 1847	syn. nov.	X	<i>Nematus umbratus</i> Thomson, 1871	<i>Nematus</i>	335
<i>brevivalvis</i> Thomson, 1871			<i>Euura brevisvalvis</i> (Thomson, 1871)	<i>bergmanni</i>	94
<i>bridgmanii</i> Cameron, 1883			<i>Euura bridgmanii</i> (Cameron, 1883)	<i>proxima</i>	60
<i>brunnea</i> (Norton, 1864)			<i>Euura brunnea</i> (Norton, 1864)	<i>punicea</i>	267
<i>brunnea</i> Lindqvist, 1971	syn. nov.		<i>Euura fahraei</i> (Thomson, 1863)	<i>fahraei</i>	150
<i>brunneipicta</i> (Lindqvist, 1975)			<i>Euura brunneipicta</i> (Lindqvist, 1975)		322
<i>brunneipictus</i> Lindqvist, 1975	synonym		<i>Euura brunneipicta</i> (Lindqvist, 1975)		322
<i>brunnescens</i> Vikberg, 1982	synonym		<i>Euura fahraei</i> (Thomson, 1863)	<i>fahraei</i>	150
<i>brunneus</i> Norton, 1864	synonym		<i>Euura brunnea</i> (Norton, 1864)	<i>punicea</i>	267
<i>brunnicornis</i> Zaddach, 1883	synonym		<i>Euura papillosa</i> (Retzius, 1783)	<i>papillosa</i>	199
<i>cadderensis</i> Cameron, 1875			<i>Euura cadderensis</i> (Cameron, 1875)	<i>melanocephalus</i>	170
<i>caeruleocarpus</i> group					136
<i>caeruleocarpus</i> Hartig, 1837			<i>Euura caeruleocarpus</i> (Hartig, 1837)	<i>caeruleocarpus</i>	137
<i>calicola</i> Benson, 1948	synonym		<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>californicus</i> Marlatt, 1896	syn. nov.		<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>cameroni</i> Perkins, 1929	syn. nov.		<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265
<i>cameronii</i> Dalla Torre, 1894	synonym		<i>Euura pavida</i> (Serville, 1823)	<i>papillosa</i>	200
<i>capito</i> Konow, 1903	synonym		<i>Euura declinata</i> (Förster, 1854)	<i>bipartita</i>	109
<i>capreae</i> Linnaeus, 1758	synonym		<i>Euura salicis</i> (Linnaeus, 1758)		301
<i>carbonarius</i> Hellén, 1951	syn. nov.		<i>Euura obscuripes</i> (Holmgren, 1883)	<i>toeniata</i>	251
<i>carelicus</i> Hellén, 1948	syn. nov.		<i>Euura fuscomaculata</i> (Förster, 1854)	<i>bipartita</i>	113
<i>carinalis</i> Vikberg, 1982	synonym		<i>Euura linteraica</i> (Holmgren, 1883)	<i>flavescens</i>	157
<i>carinata</i> Lindqvist, 1969	syn. nov.		<i>Euura linteraica</i> (Holmgren, 1883)	<i>flavescens</i>	157
<i>catachloris</i> Snellen van Vollenhoven, 1869	synonym		<i>Euura tibialis</i> (Newman, 1837)	<i>myosotidis</i>	190
<i>caucasica</i> (Liston, Taeger & Blank, 2009)			<i>Euura caucasica</i> (Liston, Taeger & Blank, 2009)	<i>bipartita</i>	107
<i>caucasicus</i> Liston, Taeger & Blank, 2009	synonym		<i>Euura caucasica</i> (Liston, Taeger & Blank, 2009)	<i>bipartita</i>	107
<i>caudalis</i> Eversmann, 1847	syn. nov.	X	<i>Euura leucotrocha</i> (Hartig, 1837)	<i>ribesii</i>	270
<i>caudalis</i> Lindqvist, 1968	synonym		<i>Euura squamicauda</i> (Vikberg, 1982)	<i>flavescens</i>	164
<i>chambersi</i> Benson, 1948	synonym		<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142
<i>chlorogaster</i> Zaddach, 1884	syn. nov.		<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>chromata</i> Rohwer, 1925	comb. nov.		<i>Euura chromata</i> (Rohwer, 1925)	<i>bergmanni</i>	323
<i>cinereus</i> Eversmann, 1847	syn. nov.	X	<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>circumscriptus</i> Förster, 1854	synonym		<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142
<i>citreus</i> André, 1880	synonym		<i>Euura papillosa</i> (Retzius, 1783)	<i>papillosa</i>	199
<i>claristernis</i> Enslin, 1916	synonym	X	<i>Euura imperfecta</i> (Zaddach, 1876)		296
<i>clavicerus</i> Lindqvist, 1958	syn. nov.		<i>Euura leionota</i> (Benson, 1933)	<i>bipartita</i>	117
<i>clibrichella</i> (Cameron, 1878)			<i>Euura clibrichella</i> (Cameron, 1878)	<i>clitellata</i>	140
<i>clibrichellus</i> Cameron, 1878	synonym		<i>Euura clibrichella</i> (Cameron, 1878)	<i>clitellata</i>	140
<i>clitellata</i> (Serville, 1823)			<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>clitellata</i> group					139
<i>clitellata</i> group sp. 1				<i>clitellata</i>	146

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>clitellatus</i> Serville, 1823	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>chypeatus</i> Lindqvist, 1975	syn. nov.		<i>Euura berolinensis</i> (Muche, 1970)	<i>punicea</i>	246
<i>cogitatus</i> MacGillivray, 1919	synonym		<i>Euura stordalensis</i> (Strand, 1905)	<i>opacipleuris</i>	244
<i>cognata</i> Lindqvist, 1958	synonym		<i>Euura leucotrocha</i> (Hartig, 1837)	<i>ribesii</i>	270
<i>collactanea</i> (Förster, 1854)			<i>Euura collactanea</i> (Förster, 1854)	<i>viminalis</i>	71
<i>compactus</i> Bogacheva, 1977	syn. nov.		<i>Euura obscuripes</i> (Holmgren, 1883)	<i>toeniata</i>	251
<i>conductus</i> Ruthe, 1859	synonym	X	<i>Euura obducta</i> (Hartig, 1837)	<i>clitellata</i>	145
<i>confusus</i> Förster, 1854	synonym	X	<i>Euura bipartita</i> (Serville, 1823)	<i>bipartita</i>	106
<i>connecta</i> (Lindqvist, 1958)			<i>Euura connecta</i> (Lindqvist, 1958)	<i>bipartita</i>	108
<i>consobrinus</i> Snellen van Vollenhoven, 1871	synonym		<i>Euura leucotrocha</i> (Hartig, 1837)		270
<i>continuus</i> Eversmann, 1847	syn. nov.	X	<i>Euura poecilonota</i> (Zaddach, 1876)	<i>ribesii</i>	299
<i>contractus</i> Eversmann, 1847	synonym	X	<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>coracinus</i> Lindqvist, 1959	synonym		<i>Euura hyperborea</i> (Thomson, 1871)		295
<i>cornuta</i> (Lindqvist, 1962)			<i>Euura cornuta</i> (Lindqvist, 1962)	<i>viduata</i>	285
<i>cornutus</i> Lindqvist, 1962	synonym		<i>Euura cornuta</i> (Lindqvist, 1962)	<i>viduata</i>	285
<i>corticoidus</i> MacGillivray, 1901	synonym		<i>Euura vaga</i> (Fabricius, 1781)		303
<i>crassidens</i> Lindqvist, 1970			<i>Euura crassidens</i> (Lindqvist, 1970)	<i>vittata</i>	324
<i>crassipes</i> Thomson, 1871			<i>Euura crassipes</i> (Thomson, 1871)	<i>viminalis</i>	72
<i>crassiserra</i> Lindqvist, 1960	syn. nov.		<i>Euura leucopyga</i> (Lindqvist, 1949)	<i>bipartita</i>	119
<i>crassispina</i> Thomson, 1871			<i>Euura crassispina</i> (Thomson, 1871)	<i>anomalopecta</i>	23
<i>crispus</i> Benson, 1948	synonym		<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265
<i>crocea</i> Fabricius, 1804	synonym		<i>Euura punicea</i> (Christ, 1791)	<i>punicea</i>	247
<i>curticornis</i> Lindqvist, 1969	syn. nov.		<i>Euura leptostigma</i> (Lindqvist, 1958)	<i>bipartita</i>	118
<i>cylindricus</i> Hartig, 1840	syn. nov.	X	<i>Euura pavida</i> (Serville, 1823)	<i>papillosa</i>	200
<i>cyrnea</i> Liston, 2005			<i>Euura cyrnea</i> (Liston, 2005)	<i>anomalopecta</i>	24
<i>dahlbomi</i> Thomson, 1871			<i>Euura dahlbomi</i> (Thomson, 1871)	<i>amentorum</i>	208
<i>dalecarlicus</i> Malaise, 1921	synonym		<i>Euura aegra</i> (Konow, 1895)	<i>aegra</i>	202

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>daphnoidica</i> Kopelke, 2001			<i>Euura daphnoidica</i> Kopelke, 2001	<i>amerinae</i>	11
<i>decipiens</i> W.F. Kirby, 1882	synonym		<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>declinata</i> (Förster, 1854)			<i>Euura declinata</i> (Förster, 1854)	<i>bipartita</i>	109
<i>declinatus</i> Förster, 1854	synonym		<i>Euura declinata</i> (Förster, 1854)	<i>bipartita</i>	109
<i>decrepita</i> MacGillivray, 1921	synonym		<i>Euura gregaria</i> (Marlatt, 1896)	<i>gregaria</i>	167
<i>degeeri</i> Dufour, 1847	incertae sedis		<i>Euura degeeri</i> (Dufour, 1847)		306
<i>dengi</i> Wei, 2003	syn. nov.		<i>Euura spiraeae</i> (Zaddach, 1883)		302
<i>dentatus</i> Lindqvist, 1937	syn. nov.	X	<i>Euura gregaria</i> (Marlatt, 1896)	<i>gregaria</i>	167
<i>destricta</i> MacGillivray, 1923			<i>Euura destricta</i> (MacGillivray, 1923)	<i>oblita</i>	41
<i>diaphanus</i> Eversmann, 1847	synonym	X	<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>dilutus</i> Brischke, 1883	synonym		<i>Euura flavescens</i> (Stephens, 1835)	<i>flavescens</i>	155
<i>dimidiatus</i> Serville, 1823	synonym		<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>dispar</i> Zaddach, 1876			<i>Euura dispar</i> (Zaddach, 1876)	<i>bergmanni</i>	95
<i>dissimilis</i> Förster, 1854			<i>Euura dissimilis</i> (Förster, 1854)	<i>myosotidis</i>	184
<i>distinguenda</i> (Enslin, 1915)			<i>Euura distinguenda</i> (Enslin, 1915)		294
<i>distinguendus</i> Enslin, 1915	synonym	X	<i>Euura distinguenda</i> (Enslin, 1915)		294
<i>dolichura</i> (Thomson, 1871)			<i>Euura dolichura</i> (Thomson, 1871)	<i>dolichura</i>	30
<i>dolichura</i> group					28
<i>dorsalis</i> Serville, 1823	synonym		<i>Euura militaris</i> (Panzer, 1797)	<i>militaris</i>	176
<i>dorsata</i> (Cameron, 1875)			<i>Euura dorsata</i> (Cameron, 1875)	<i>flavescens</i>	153
<i>dorsatus</i> Cameron, 1875	synonym		<i>Euura dorsata</i> (Cameron, 1875)	<i>flavescens</i>	153
<i>dossuarius</i> Konow, 1904	synonym	X	<i>Euura fuscomaculata</i> (Förster, 1854)	<i>bipartita</i>	113
<i>duplex</i> Serville, 1823	incertae sedis		<i>Euura duplex</i> (Serville, 1823)		307
<i>edentatus</i> Lindqvist, 1975	syn. nov.		<i>Pristiphora wesmaeli</i> (Tischbein, 1853)	<i>erichsonii</i>	339
<i>edenticulatus</i> Lindqvist, 1970	syn. nov.		<i>Euura lindqvisti</i> (Hellén, 1951)	<i>aegra</i>	204
<i>egeria</i> MacGillivray, 1923	synonym		<i>Euura leucolena</i> (Brischke, 1883)	<i>viduata</i>	287
<i>einersbergensis</i> Hartig, 1840	syn. nov.		<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>eiteli</i> Saarinen, 1948			<i>Euura eiteli</i> (Saarinen, 1948)	<i>longiserra</i>	237
<i>elaegnocola</i> Kopelke, 1994			<i>Euura elaegnocola</i> (Kopelke, 1994)	<i>dolichura</i>	31
<i>elaegnus</i> Kopelke, 1996			<i>Euura elaegnus</i> Kopelke, 1996	<i>amerinae</i>	5
<i>elbrus</i> Sundukov, 2017			<i>Euura elbrus</i> Sundukov, 2017	<i>histrio</i>	218
<i>elongatula</i> (Lacourt, 1996)			<i>Euura elongatula</i> (Lacourt, 1996)	<i>flavescens</i>	154
<i>elongatulus</i> Lacourt, 1996			<i>Euura elongatula</i> (Lacourt, 1996)	<i>flavescens</i>	154
<i>emarginatus</i> André, 1880			<i>Platycampus luridiventris</i> (Fallén, 1808)	<i>Platycampus</i>	336
<i>emarginatus</i> Förster, 1854		X	<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142
<i>enslini</i> Lindqvist, 1959			<i>Euura obscuripes</i> (Holmgren, 1883)	<i>toeniata</i>	251
<i>epilosa</i> group					147
<i>epilosa</i> Lindqvist, 1970			<i>Euura epilosa</i> (Lindqvist, 1970)	<i>epilosa</i>	148
<i>epimeris</i> Lindqvist, 1969			<i>Euura fuscarina</i> (Benson, 1933)	<i>bipartita</i>	111
<i>equatia</i> MacGillivray, 1923			<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>erecta</i> (Lindqvist, 1945)			<i>Euura erecta</i> (Lindqvist, 1945)	<i>viduata</i>	286
<i>erectus</i> Lindqvist, 1945			<i>Euura erecta</i> (Lindqvist, 1945)	<i>viduata</i>	286
<i>erythropareus</i> Zaddach, 1884			<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142
<i>erythropus</i> Lindqvist, 1975			<i>Euura putoni</i> (Konow, 1903)	<i>vicina</i>	282
<i>eupodius</i> Hartig, 1840			<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142
<i>eurysternus</i> Zaddach, 1883			<i>Euura similator</i> (Förster, 1854)	<i>ribesii</i>	274
<i>eversmanni</i> Förster, 1854			<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142
<i>excellens</i> Forsius, 1921		X	<i>Euura punicea</i> (Christ, 1791)	<i>punicea</i>	247
<i>excisa</i> (Thomson, 1863)			<i>Euura excisa</i> (Thomson, 1863)	<i>bipartita</i>	110
<i>excisus</i> Thomson, 1863		X	<i>Euura excisa</i> (Thomson, 1863)	<i>bipartita</i>	110
<i>exoletus</i> Eversmann, 1847		X	<i>Euura rufa</i> (Konow, 1896)	<i>histrio</i>	224
<i>facialis</i> Lindqvist, 1969			<i>Euura lienterica</i> (Holmgren, 1883)	<i>flavescens</i>	157
<i>fagi</i> Zaddach, 1876			<i>Euura fagi</i> (Zaddach, 1876)	<i>miliaris</i>	175
<i>fahraei</i> group					149

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>fahraei</i> Thomson, 1863		X	<i>Euura fahraei</i> (Thomson, 1863)	<i>fahraei</i>	150
<i>fallaciosus</i> Konow, 1903	synonym	X	<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>fallax</i> Serville, 1823			<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142
<i>falonus</i> Ross, 1945	synonym		<i>Euura moerens</i> (Förster, 1854)	<i>clitellata</i>	144
<i>fasciata</i> (Konow, 1897)			<i>Euura fasciata</i> (Konow, 1897)	<i>variator</i>	257
<i>fasciatus</i> Konow, 1897	synonym		<i>Euura fasciata</i> (Konow, 1897)	<i>variator</i>	257
<i>feminina</i> Enslin, 1916	synonym	X	<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>femoralis</i> Cameron, 1876			<i>Euura femoralis</i> (Cameron, 1876)	<i>dolichura</i>	32
<i>fennicus</i> André, 1880	synonym		<i>Platycampus luridiventris</i> (Fallén, 1808)	<i>Platycampus</i>	336
<i>ferruginea</i> (Förster, 1854)			<i>Euura ferruginea</i> (Förster, 1854)	<i>melanocephalus</i>	171
<i>ferrugineus</i> Förster, 1854	synonym	X	<i>Euura ferruginea</i> (Förster, 1854)	<i>melanocephalus</i>	171
<i>festivus</i> Saarinen, 1950	synonym		<i>Euura stenogaster</i> (Förster, 1854)	<i>histrio</i>	227
<i>filiformis</i> Lindqvist, 1975			<i>Euura filiformis</i> (Lindqvist, 1975)	<i>bergmanni</i>	325
<i>flavescens</i> group					152
<i>flavescens</i> Stephens, 1835		X	<i>Euura flavescens</i> (Stephens, 1835)	<i>flavescens</i>	155
<i>flavipennis</i> Cameron, 1876	synonym		<i>Euura annulata</i> (Gimmerthal, 1834)	<i>bipartita</i>	105
<i>flavipes</i> Hartig, 1840	synonym	X	<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>flavipes</i> Matsumura, 1912	synonym		<i>Euura vicina</i> (Serville, 1823)	<i>vicina</i>	283
<i>flavissimus</i> Enslin, 1916	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>flaviventris</i> Gmelin, 1790	synonym		<i>Euura vaga</i> (Fabricius, 1781)		303
<i>flaviventris</i> Hartig, 1840	synonym	X	<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>flavominutissimus</i> Haris, 2001	incertae sedis		<i>Euura flavominutissima</i> (Haris, 2001)		308
<i>foetidae</i> Kopelke, 1989			<i>Euura foetidae</i> (Kopelke, 1989)	<i>viminalis</i>	73
<i>foetidatumida</i> Kopelke, 2014			<i>Euura foetidatumida</i> Kopelke, 2014	<i>viminalis</i>	74
<i>forsiusi</i> Enslin, 1915, <i>Amauronematus</i>	synonym	X	<i>Euura tunicata</i> (Zaddach, 1883)	<i>tunicata</i>	255
<i>forsiusi</i> Enslin, 1915, <i>Pontania</i>	synonym		<i>Euura reticulata</i> (Holmgren, 1883)	<i>flavescens</i>	162
<i>foveifrons</i> Malaise, 1921		X	<i>Euura tillbergi</i> (Malaise, 1921)	<i>vittata</i>	264

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>foveolatus</i> Konow, 1903	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>frenalis</i> Thomson, 1888			<i>Euura frenalis</i> (Thomson, 1888)	<i>oligospila</i>	192
<i>freji</i> Lindqvist, 1949	syn. nov.	X	<i>Euura gehrsi</i> (Konow, 1903)	<i>bipartita</i>	115
<i>frejja</i> Liston, Taeger & Blank, 2009			<i>Euura frejja</i> (Liston, Taeger & Blank, 2009)	<i>amentorum</i>	209
<i>fruticum</i> Eversmann, 1847	syn. nov.	X	<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>fulvescens</i> Lindqvist, 1949	syn. nov.		<i>Euura flavescens</i> (Stephens, 1835)	<i>flavescens</i>	155
<i>fulviventris</i> Lindqvist, 1958	syn. nov.		<i>Euura bipartita</i> (Serville, 1823)	<i>bipartita</i>	106
<i>fulvus</i> Hartig, 1837	synonym		<i>Euura miliaris</i> (Panzer, 1797)	<i>miliaris</i>	176
<i>fumosus</i> Lacourt, 1991	syn. nov.		<i>Euura nigerrima</i> (Konow, 1903)	<i>vicina</i>	280
<i>fur</i> Walsh, 1866	synonym		<i>Euura histrio</i> (Serville, 1823)	<i>histrio</i>	220
<i>fuscарima</i> Benson, 1933	comb. Nov.		<i>Euura fuscарima</i> (Benson, 1933)	<i>bipartita</i>	111
<i>fuscata</i> Christ, 1791	synonym		<i>Euura papillosa</i> (Retzius, 1783)	<i>papillosa</i>	199
<i>fuscinervis</i> Lindqvist, 1959	synonym		<i>Euura bohemani</i> (Thomson, 1871)	<i>melanocephalus</i>	169
<i>fuscodorsata</i> Lindqvist, 1949	comb. nov.		<i>Euura fuscodorsata</i> (Lindqvist, 1949)	<i>bipartita</i>	112
<i>fuscomaculata</i> (Förster, 1854)			<i>Euura fuscomaculata</i> (Förster, 1854)	<i>bipartita</i>	113
<i>fuscomaculatus</i> Förster, 1854	synonym	X	<i>Euura fuscomaculata</i> (Förster, 1854)	<i>bipartita</i>	113
<i>fuscula</i> Lindqvist, 1958			<i>Euura fuscula</i> (Lindqvist, 1958)	<i>bipartita</i>	114
<i>galbiventris</i> Lindqvist, 1960	syn. nov.		<i>Euura variator</i> (Ruthe, 1859)	<i>variator</i>	259
<i>gehrsi</i> Konow, 1903			<i>Euura gehrsi</i> (Konow, 1903)	<i>bipartita</i>	115
<i>gelidus</i> W.F. Kirby, 1882	synonym		<i>Euura villosa</i> (Thomson, 1863)	<i>caeruleocarpus</i>	138
<i>gemmafoetidae</i> Kopelke, 2001			<i>Euura gemmafoetidae</i> Kopelke, 2001	<i>amerinae</i>	12
<i>gemmahelveticae</i> Kopelke, 2001			<i>Euura gemmahelveticae</i> Kopelke, 2001	<i>amerinae</i>	13
<i>glabriceps</i> Lindqvist, 1949	syn. nov.		<i>Euura punctifrons</i> (Malaise, 1921)	<i>bipartita</i>	128
<i>glabrifrons</i> Benson, 1960			<i>Euura glabrifrons</i> (Benson, 1960)	<i>viminalis</i>	75
<i>glacialis</i> Jakowlew, 1891	syn. nov.		<i>Euura abnormis</i> (Holmgren, 1883)	<i>longiserra</i>	236
<i>glacialis</i> Saarinen, 1950	syn. nov.		<i>Euura hartigi</i> (Saarinen, 1950)	<i>histrio</i>	219
<i>glaucae</i> Kopelke, 1994			<i>Euura glaucae</i> (Kopelke, 1994)	<i>dolichura</i>	33

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>glenigenis</i> Cameron, 1882	synonym		<i>Euura histrio</i> (Serville, 1823)	<i>histrio</i>	220
<i>glesipennis</i> Konow, 1903	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>glinka</i> Kincaid, 1900	synonym		<i>Euura reticulata</i> (Holmgren, 1883)	<i>flavescens</i>	162
<i>glottianus</i> Cameron, 1882	synonym		<i>Euura ferruginea</i> (Förster, 1854)	<i>melanocephalus</i>	171
<i>glutinosae</i> Cameron, 1882			<i>Euura glutinosae</i> (Cameron, 1882)	<i>bergmanni</i>	96
<i>godmani</i> Benson, 1955	syn. nov.		<i>Euura variator</i> (Ruthe, 1859)	<i>variator</i>	259
<i>gotarus</i> Kincaid, 1900	synonym		<i>Euura clibrichella</i> (Cameron, 1878)	<i>clitellata</i>	140
<i>gracilicornis</i> Lindqvist, 1962	syn. nov.		<i>Euura poppii</i> (Konow, 1904)	<i>bipartita</i>	127
<i>gracilidentata</i> Viitasaari, 1980			<i>Euura gracilidentata</i> (Viitasaari, 1980)	<i>ribesii</i>	269
<i>gracilis</i> Gimmerthal, 1834	incertae sedis		<i>Nematus gracilis</i> Gimmerthal, 1834		310
<i>gracilis</i> Jakowlew, 1891	incertae sedis		<i>Euura gracilis</i> (Jakowlew, 1891)		309
<i>graminis</i> Cameron, 1874	synonym		<i>Euura obducta</i> (Hartig, 1837)	<i>clitellata</i>	145
<i>gregaria</i> (Marlatt, 1896)			<i>Euura gregaria</i> (Marlatt, 1896)	<i>gregaria</i>	167
<i>gregaria</i> group					166
<i>gregarius</i> Marlatt, 1896	synonym		<i>Euura gregaria</i> (Marlatt, 1896)	<i>gregaria</i>	167
<i>griseus</i> Eversmann, 1847	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>groenlandica</i> (Malaise, 1933)			<i>Euura groenlandica</i> (Malaise, 1933)	<i>punicea</i>	326
<i>groenlandicus</i> Malaise, 1933	synonym		<i>Euura groenlandica</i> (Malaise, 1933)	<i>punicea</i>	326
<i>grossulariae</i> Dahlbom, 1835	synonym		<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>grossulariae</i> Fischer von Waldheim, 1843	synonym		<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>grossulariatus</i> Dahlbom, 1835	synonym		<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>haemorrhoidalis</i> Spinola, 1808	incertae sedis				320
<i>haemorrhoidalis</i> Hartig, 1840	syn. nov.		<i>Euura leucotrocha</i> (Hartig, 1837)	<i>ribesii</i>	270
<i>halo</i> Prous, Liston & Mutanen sp. nov.	sp. nov.		<i>Euura halo</i> Prous, Liston & Mutanen sp. nov.	<i>miltonota</i>	182
<i>harpicola</i> Bogacheva, 1977	syn. nov.		<i>Euura hebes</i> (Konow, 1907)	<i>aegra</i>	203
<i>hartigi</i> Saarinen, 1950			<i>Euura hartigi</i> (Saarinen, 1950)	<i>histrio</i>	219
<i>hastatae</i> Malaise, 1921			<i>Euura hastatae</i> Malaise, 1921	<i>amerinae</i>	14

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>hastatavora</i> Vikberg, 2014			<i>Euura hastatavora</i> Vikberg, 2014	<i>viminalis</i>	76
<i>hebes</i> Konow, 1907			<i>Euura hebes</i> (Konow, 1907)	<i>aegra</i>	203
<i>hedstroemi</i> Malaise, 1931		X	<i>Euura hedstroemi</i> (Malaise, 1931)	<i>vittata</i>	261
<i>helleni</i> Lindqvist, 1941	syn. nov.		<i>Euura brunnea</i> (Norton, 1864)	<i>punicea</i>	267
<i>helveticæ</i> Kopelke, 1986			<i>Euura helveticæ</i> (Kopelke, 1986)	<i>dolichura</i>	34
<i>hequensis</i> G.R. Xiao, 1990	syn. nov.		<i>Euura trochanterata</i> (Malaise, 1931)		332
<i>herbaceæ</i> Cameron, 1876			<i>Euura herbaceæ</i> (Cameron, 1876)	<i>viminalis</i>	77
<i>hercyniæ</i> Konow, 1896	synonym		<i>Euura miltonota</i> (Zaddach, 1883)	<i>miltonota</i>	179
<i>histriato</i> Prous, Liston & Mutanen sp. nov.	sp. nov.		<i>Euura histriato</i> Prous, Liston & Mutanen sp. nov.	<i>histrio</i>	231
<i>histrio</i> group					215
<i>histrio</i> Serville, 1823			<i>Euura histrio</i> (Serville, 1823)	<i>histrio</i>	220
<i>hokkaido</i> Hara & Shinohara, 2022	syn. nov.		<i>Euura spirææ</i> (Zaddach, 1883)		302
<i>holmgreni</i> Lindqvist, 1968	synonym		<i>Nematus umbratus</i> Thomson, 1871	<i>Nematus</i>	335
<i>hololeucopus</i> Costa, 1890	incertae sedis		<i>Euura hololeucopus</i> (Costa, 1890)		311
<i>hortensis</i> Hartig, 1837	synonym	X	<i>Euura tibialis</i> (Newman, 1837)	<i>mysotidis</i>	190
<i>hubertpschornwalcheri</i> Kopelke, 2014			<i>Euura hubertpschornwalcheri</i> Kopelke, 2014	<i>oblita</i>	53
<i>hulteni</i> Malaise, 1931		X	<i>Euura hulteni</i> (Malaise, 1931)	<i>vittata</i>	265
<i>humeralis</i> group					232
<i>humeralis</i> Serville, 1823			<i>Euura humeralis</i> (Serville, 1823)	<i>humeralis</i>	234
<i>humeralis</i> Zetterstedt, 1838	synonym	X	<i>Euura toeniata</i> (Serville, 1823)	<i>toeniata</i>	252
<i>hungaricus</i> Harris, 2001	incertae sedis		<i>Euura pannonica</i> Harris, 2015		314
<i>hyalinus</i> Marlatt, 1896	synonym		<i>Euura poecilonota</i> (Zaddach, 1876)		299
<i>hyperborea</i> (Thomson, 1871)			<i>Euura hyperborea</i> (Thomson, 1871)		295
<i>hyperboreus</i> Thomson, 1871	synonym		<i>Euura hyperborea</i> (Thomson, 1871)		295
<i>hypoleucus</i> Förster, 1854	synonym	X	<i>Euura vaga</i> (Fabricius, 1781)		303
<i>hypoxantha</i> (Förster, 1854)			<i>Euura hypoxantha</i> (Förster, 1854)	<i>mysotidis</i>	185
<i>hypoxanthus</i> Förster, 1854	synonym	X	<i>Euura hypoxantha</i> (Förster, 1854)	<i>mysotidis</i>	185

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>immaculatus</i> Snellen van Vollenhoven, 1869	synonym		<i>Euura salicis</i> (Linnaeus, 1758)		301
<i>immundus</i> Thomson, 1863	synonym	X	<i>Euura scutellata</i> (Hartig, 1837)	<i>scutellata</i>	278
<i>imperfecta</i> (Zaddach, 1876)			<i>Euura imperfecta</i> (Zaddach, 1876)		296
<i>imperfectus</i> Zaddach, 1876	synonym		<i>Euura imperfecta</i> (Zaddach, 1876)		296
<i>incanus</i> Förster, 1854	synonym	X	<i>Euura humeralis</i> (Serville, 1823)	<i>humeralis</i>	234
<i>incertus</i> W.F. Kirby, 1882	synonym		<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142
<i>incompleteus</i> Förster, 1854	syn. nov.		<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>inconspicuus</i> W.F. Kirby, 1882	synonym		<i>Euura vaga</i> (Fabricius, 1781)		303
<i>infirma</i> (Förster, 1854)			<i>Euura infirma</i> (Förster, 1854)	<i>bipartita</i>	116
<i>infirmus</i> Förster, 1854	synonym		<i>Euura infirma</i> (Förster, 1854)	<i>bipartita</i>	116
<i>inflatus</i> Thomson, 1871	synonym	X	<i>Euura salicis</i> (Linnaeus, 1758)		301
<i>infumatus</i> Marlatt, 1896	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>inopinatus</i> Lindqvist, 1949	syn. nov.		<i>Euura uda</i> (Holmgren, 1883)	<i>bipartita</i>	133
<i>insignis</i> Hartig, 1840		X	<i>Euura insignis</i> (Hartig, 1840)	<i>scutellata</i>	277
<i>insubricus</i> Cobelli, 1892	synonym		<i>Euura caeruleocarpus</i> (Hartig, 1837)	<i>caeruleocarpus</i>	137
<i>intermedius</i> Malaise, 1931	synonym		<i>Euura neglecta</i> (W.F. Kirby, 1882)	<i>longiserra</i>	241
<i>interruptus</i> Serville, 1823	synonym		<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>ischnocera</i> (Thomson, 1863)			<i>Euura ischnocera</i> (Thomson, 1863)	<i>oblita</i>	42
<i>islandica</i> Kincaid, 1900	synonym		<i>Euura polaris</i> (Holmgren, 1883)	<i>bipartita</i>	126
<i>itelmena</i> Malaise, 1931			<i>Euura itelmena</i> (Malaise, 1931)	<i>amentorum</i>	210
<i>itoi</i> Okutani, 1955			<i>Euura itoi</i> (Okutani, 1955)		297
<i>jaroslavensis</i> Jakowlew, 1891	synonym		<i>Euura miltonota</i> (Zaddach, 1883)	<i>miltonota</i>	179
<i>jemilleri</i> Stein, 1894	synonym		<i>Euura montana</i> (Zaddach, 1883)	<i>pallescens</i>	195
<i>jugicola</i> Thomson, 1871		X	<i>Euura jugicola</i> (Thomson, 1871)	<i>myosotidis</i>	186
<i>kamtchatica</i> Lindqvist, 1971	synonym		<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265
<i>kangasi</i> Lindqvist, 1964			<i>Euura kangasi</i> (Lindqvist, 1964)	<i>melanocephalus</i>	172
<i>karvoneni</i> Lindqvist, 1969	synonym		<i>Euura jugicola</i> (Thomson, 1871)	<i>myosotidis</i>	186

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>kevoensis</i> Vikberg, 1980	synonym		<i>Euura berolinensis</i> (Muche, 1970)	<i>punicea</i>	246
<i>kirbyi</i> Dahlbom, 1835	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>klugi</i> Dahlbom, 1835	synonym		<i>Euura salicis</i> (Linnaeus, 1758)		301
<i>knabi</i> Rohwer, 1912	synonym		<i>Euura brunnea</i> (Norton, 1864)	<i>punicea</i>	267
<i>konowi</i> Enslin, 1915	synonym		<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265
<i>konowi</i> Enslin, 1916	synonym	X	<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>konowi</i> Jakowlew, 1891	incertae sedis		<i>Euura konowi</i> (Jakowlew, 1891)		312
<i>kopelkei</i> Lacourt, 1996			<i>Euura kopelkei</i> (Lacourt, 1996)	<i>oblita</i>	43
<i>krausi</i> Taeger & Blank, 1998			<i>Euura krausi</i> (Taeger & Blank, 1998)	<i>vittata</i>	263
<i>kriechbaumeri</i> Konow, 1901			<i>Euura kriechbaumeri</i> (Konow, 1901)	<i>viminalis</i>	78
<i>kubesi</i> Konow, 1905	synonym	X	<i>Euura lichtwardti</i> (Konow, 1903)	<i>clitellata</i>	143
<i>lacteipennis</i> Benson, 1963	synonym		<i>Euura annulata</i> (Gimmerthal, 1834)	<i>bipartita</i>	105
<i>lacteus</i> Thomson, 1871	synonym	X	<i>Euura papillosa</i> (Retzius, 1783)	<i>papillosa</i>	199
<i>laeta</i> (Brischke, 1883)			<i>Euura laeta</i> (Brischke, 1883)	<i>amerinae</i>	15
<i>laetus</i> Enslin, 1915	synonym	X	<i>Euura viduata</i> (Zetterstedt, 1838)	<i>viduata</i>	291
<i>laevis</i> Brischke, 1883	synonym		<i>Euura tunicata</i> (Zaddach, 1883)	<i>tunicata</i>	255
<i>lanatae</i> Malaise, 1921			<i>Euura lanatae</i> Malaise, 1921	<i>amerinae</i>	16
<i>lanceatus</i> Hellén, 1970	syn. nov.	X	<i>Euura nimbus</i> (Benson, 1960)	<i>miltonota</i>	180
<i>lappo</i> Malaise, 1921			<i>Euura lappo</i> Malaise, 1921	<i>amerinae</i>	17
<i>lateralis</i> Konow, 1895	syn. nov.		<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265
<i>latibasis</i> Lindqvist, 1949			<i>Euura latibasis</i> (Lindqvist, 1949)	<i>flavescens</i>	156
<i>latiserra</i> Malaise, 1921			<i>Euura latiserra</i> (Malaise, 1921)	<i>amentorum</i>	211
<i>latisulcatus</i> Malaise, 1931	syn. nov.		<i>Euura tillbergi</i> (Malaise, 1921)	<i>vittata</i>	264
<i>legirupus</i> Konow, 1903	synonym		<i>Euura albipennis</i> (Hartig, 1837)	<i>bipartita</i>	104
<i>leionota</i> Benson, 1933			<i>Euura leionota</i> (Benson, 1933)	<i>bipartita</i>	117
<i>lentus</i> Konow, 1903	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>lepidotus</i> Hartig, 1840	synonym	X	<i>Euura viduata</i> (Zetterstedt, 1838)	<i>viduata</i>	291

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>leptocephalus</i> Thomson, 1863			<i>Euura leptocephalus</i> (Thomson, 1863)	<i>bergmanni</i>	97
<i>leptostigma</i> Lindqvist, 1958			<i>Euura leptostigma</i> (Lindqvist, 1958)	<i>bipartita</i>	118
<i>lethe</i> Prous & Liston, 2014			<i>Euura lethe</i> Prous & Liston, 2014	<i>tunicata</i>	254
<i>leucapsis</i> Tischbein, 1846			<i>Euura leucapsis</i> (Tischbein, 1846)	<i>oblita</i>	44
<i>leucocarpus</i> André, 1880	syn. nov.	X	<i>Euura annulata</i> (Gimmerthal, 1834)	<i>bipartita</i>	105
<i>leucocarpus</i> Hartig, 1840	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>leucodous</i> Zaddach, 1884	synonym		<i>Euura longiserra</i> (Thomson, 1863)	<i>longiserra</i>	239
<i>leucogaster</i> Hartig, 1840	synonym	X	<i>Euura vaga</i> (Fabricius, 1781)		303
<i>leucolena</i> (Brischke, 1883)			<i>Euura leucolena</i> (Brischke, 1883)	<i>viduata</i>	287
<i>leucolenus</i> Brischke, 1883	synonym		<i>Euura leucolena</i> (Brischke, 1883)	<i>viduata</i>	287
<i>leucopyga</i> Lindqvist, 1949			<i>Euura leucopyga</i> (Lindqvist, 1949)	<i>bipartita</i>	119
<i>leucosticta</i> (Hartig, 1837)			<i>Euura leucosticta</i> (Hartig, 1837)	<i>oblita</i>	45
<i>leucotrocha</i> (Hartig, 1837)			<i>Euura leucotrocha</i> (Hartig, 1837)	<i>ribesii</i>	270
<i>leucotrochus</i> Hartig, 1837	synonym	X	<i>Euura leucotrocha</i> (Hartig, 1837)	<i>ribesii</i>	270
<i>lichtwardti</i> Konow, 1903		X	<i>Euura lichtwardti</i> (Konow, 1903)	<i>clitellata</i>	143
<i>lienterica</i> (Holmgren, 1883)			<i>Euura lienterica</i> (Holmgren, 1883)	<i>flavescens</i>	157
<i>lientericus</i> Holmgren, 1883	synonym	X	<i>Euura lienterica</i> (Holmgren, 1883)	<i>flavescens</i>	157
<i>lindbergi</i> Lindqvist, 1958	syn. nov.		<i>Euura poppii</i> (Konow, 1904)	<i>bipartita</i>	127
<i>lindqvisti</i> Hellén, 1951		X	<i>Euura lindqvisti</i> (Hellén, 1951)	<i>aegra</i>	204
<i>lipovskyi</i> D.R. Smith, 1974			<i>Euura lipovskyi</i> (D.R. Smith, 1974)	<i>bipartita</i>	120
<i>loisellei</i> Enslin, 1916	synonym	X	<i>Euura similator</i> (Förster, 1854)	<i>ribesii</i>	274
<i>longicauda</i> Hellén, 1948		X	<i>Euura longicauda</i> (Hellén, 1948)	<i>longiserra</i>	238
<i>longicornis</i> Eschscholtz, 1822	incertae sedis		<i>Nematus longicornis</i> Eschscholtz, 1822		321
<i>longicornis</i> Marlatt, 1896	synonym		<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>longidens</i> Lindqvist, 1962	synonym		<i>Euura variator</i> (Ruthe, 1859)	<i>variator</i>	259
<i>longiserra</i> group					235
<i>longiserra</i> Malaise, 1931	synonym		<i>Euura malaisei</i> (Hellén, 1970)	<i>viduata</i>	288

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>longiserra</i> Thomson, 1863			<i>Euura longiserra</i> (Thomson, 1863)	<i>longiserra</i>	239
<i>longispinis</i> Kriechbaumer, 1885	synonym		<i>Euura vicina</i> (Serville, 1823)	<i>vicina</i>	283
<i>luctuosus</i> Förster, 1854	synonym		<i>Euura viduata</i> (Zetterstedt, 1838)	<i>viduata</i>	291
<i>lugens</i> Enslin, 1915	synonym		<i>Euura viduata</i> (Zetterstedt, 1838)	<i>viduata</i>	291
<i>lundbohmi</i> Malaise, 1921	synonym	X	<i>Euura schlueteri</i> (Enslin, 1915)	<i>histrio</i>	225
<i>luridiventris</i> Fallén, 1808			<i>Platycampus luridiventris</i> (Fallén, 1808)	<i>Platycampus</i>	336
<i>lutescens</i> Enslin, 1916	synonym	X	<i>Euura similator</i> (Förster, 1854)	<i>ribesii</i>	274
<i>macrocerus</i> Hartig, 1840	syn. nov.	X	<i>Euura bergmanni</i> (Dahlbom, 1835)	<i>bergmanni</i>	93
<i>macrophthalmus</i> Lindqvist, 1959	syn. nov.		<i>Euura anthracina</i> (Lindqvist, 1959)		293
<i>macroserata</i> Lindqvist, 1943	synonym	X	<i>Euura cadderensis</i> (Cameron, 1875)	<i>melanocephalus</i>	170
<i>maculifrons</i> Lindqvist, 1960	syn. nov.		<i>Euura ferruginea</i> (Förster, 1854)	<i>melanocephalus</i>	171
<i>maculiger</i> Cameron, 1882	synonym		<i>Euura papillosa</i> (Retzius, 1783)	<i>papillosa</i>	199
<i>maculiventris</i> Hartig, 1840	synonym		<i>Euura leucotrocha</i> (Hartig, 1837)	<i>ribesii</i>	270
<i>maculosa</i> Kopelke, 1989			<i>Euura maculosa</i> (Kopelke, 1989)	<i>viminalis</i>	79
<i>magus</i> Marlatt, 1896	syn. nov.		<i>Euura militaris</i> (Panzer, 1797)	<i>militaris</i>	176
<i>majusculus</i> Lacourt, 1991	syn. nov.		<i>Euura ferruginea</i> (Förster, 1854)	<i>melanocephalus</i>	171
<i>malaisei</i> Hellén, 1970			<i>Euura malaisei</i> (Hellén, 1970)	<i>viduata</i>	288
<i>marginifer</i> Strand, 1905	synonym		<i>Euura stordalensis</i> (Strand, 1905)	<i>opacipleuris</i>	244
<i>maroccana</i> Lacourt, 1997			<i>Euura maroccana</i> (Lacourt, 1997)	<i>oblita</i>	46
<i>meluckieae</i> Benson, 1935	syn. nov.		<i>Euura tillbergi</i> (Malaise, 1921)		
<i>melanaspis</i> Hartig, 1840	synonym	X	<i>Euura papillosa</i> (Retzius, 1783)	<i>papillosa</i>	199
<i>melanocephalus</i> group					168
<i>melanocephalus</i> Hartig, 1837			<i>Euura melanocephalus</i> (Hartig, 1837)	<i>melanocephalus</i>	173
<i>melanocerus</i> Hartig, 1840	synonym		<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142
<i>melanochroa</i> Lindqvist, 1969	syn. nov.		<i>Euura leptostigma</i> (Lindqvist, 1958)	<i>bipartita</i>	118
<i>melanodus</i> Zaddach, 1884	synonym		<i>Euura fahraei</i> (Thomson, 1863)	<i>fahraei</i>	150
<i>melanoleucus</i> Hartig, 1840	synonym	X	<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>melanosternus</i> Hartig, 1840	synonym		<i>Euura dissimilis</i> (Förster, 1854)	<i>mysotidis</i>	184
<i>melanosternus</i> Serville, 1823	synonym		<i>Euura punicea</i> (Christ, 1791)	<i>punicea</i>	247
<i>melanostoma</i> Rohwer, 1920	synonym		<i>Euura nigriventris</i> (Holmgren, 1883)		298
<i>memoriakaszabi</i> Haris, 2002	comb. nov.		<i>Euura memoriakaszabi</i> (Haris, 2002)	<i>bipartita</i>	327
<i>meridionalis</i> André, 1880	syn. nov.	X	<i>Pristiphora biscais</i> (Förster, 1854)	<i>Pristiphora</i>	337
<i>mesothoracica</i> Enslein, 1916	synonym		<i>Euura melanocephalus</i> (Hartig, 1837)	<i>melanocephalus</i>	173
<i>micraulius</i> Förster, 1854	synonym	X	<i>Euura vaga</i> (Fabricius, 1781)		303
<i>microphytes</i> Förster, 1854			<i>Euura microphytes</i> (Förster, 1854)	<i>amentorum</i>	212
<i>microps</i> Förster, 1854	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>microserrata</i> Lindqvist, 1941	syn. nov.		<i>Euura leionota</i> (Benson, 1933)	<i>bipartita</i>	117
<i>miliaris</i> (Panzer, 1797)			<i>Euura miliaris</i> (Panzer, 1797)	<i>miliaris</i>	176
<i>miliaris</i> group					174
<i>miltonota</i> (Zaddach, 1883)			<i>Euura miltionota</i> (Zaddach, 1883)	<i>miltonota</i>	179
<i>miltonota</i> group					178
<i>miltonotus</i> Zaddach, 1883	synonym		<i>Euura miltionota</i> (Zaddach, 1883)	<i>miltonota</i>	179
<i>mimator</i> Schmidt, 2014	synonym		<i>Euura striata</i> (Hartig, 1837)	<i>histrio</i>	228
<i>minus</i> Konow, 1903		X	<i>Euura minus</i> (Konow, 1903)	<i>bipartita</i>	121
<i>minus</i> Schmidt, 1997	syn. nov.		<i>Euura striata</i> (Hartig, 1837)	<i>histrio</i>	228
<i>miniatus</i> Hartig, 1837	synonym	X	<i>Euura nigricornis</i> (Serville, 1823)	<i>miliaris</i>	177
<i>minivittata</i> Prous & Mutanen sp. nov.	sp. nov.		<i>Euura minivittata</i> Prous & Mutanen sp. nov.	<i>vittata</i>	266
<i>moerens</i> Förster, 1854		X	<i>Euura moerens</i> (Förster, 1854)	<i>clitellata</i>	144
<i>mollis</i> Hartig, 1837			<i>Pristiphora mollis</i> (Hartig, 1837)	<i>Pristiphora</i>	338
<i>montana</i> (Zaddach, 1883)			<i>Euura montana</i> (Zaddach, 1883)	<i>pallescens</i>	195
<i>montanus</i> Zaddach, 1883	synonym		<i>Euura montana</i> (Zaddach, 1883)	<i>pallescens</i>	195
<i>monticola</i> Thomson, 1871		X	<i>Euura monticola</i> (Thomson, 1871)	<i>bipartita</i>	122
<i>montivaga</i> Kopelke, 1991	synonym		<i>Euura foetidatunida</i> Kopelke, 2014	<i>viminalis</i>	74
<i>morawitzi</i> Jakowlew, 1891	syn. nov.		<i>Euura ferruginea</i> (Förster, 1854)	<i>melanocephalus</i>	171

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>moricei</i> Konow, 1902	syn. nov.	X	<i>Euura cadderensis</i> (Cameron, 1875)	<i>melanocephalus</i>	170
<i>morionellus</i> Holmgren, 1883	synonym	X	<i>Euura polaris</i> (Holmgren, 1883)	<i>bipartita</i>	126
<i>mucronata</i> (Hartig, 1837)	synonym		<i>Euura mucronata</i> (Hartig, 1837)	<i>amerinae</i>	18
<i>multiplex</i> Zaddach, 1883	synonym		<i>Euura leucotrocha</i> (Hartig, 1837)	<i>ribesii</i>	270
<i>munda</i> (Konow, 1895)			<i>Euura munda</i> (Konow, 1895)	<i>longiserra</i>	240
<i>mundus</i> Konow, 1895	synonym	X	<i>Euura munda</i> (Konow, 1895)	<i>longiserra</i>	240
<i>myosotidis</i> Fabricius, 1804			<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>myosotidis</i> group					183
<i>myrsinifoliae</i> Kopelke, 2001			<i>Euura myrsinifoliae</i> Kopelke, 2001	<i>amerinae</i>	19
<i>myrsiniticola</i> Kopelke, 1991			<i>Euura myrsiniticola</i> (Kopelke, 1991)	<i>viminalis</i>	80
<i>myrtilloides</i> Kopelke, 1996			<i>Euura myrtilloides</i> Kopelke, 1996	<i>amerinae</i>	6
<i>myrtilloidea</i> Kopelke, 1991			<i>Euura myrtilloidea</i> (Kopelke, 1991)	<i>viminalis</i>	81
<i>mysticus</i> Holmgren, 1883	synonym	X	<i>Euura reticulata</i> (Holmgren, 1883)	<i>flavescens</i>	162
<i>neglecta</i> (W.F. Kirby, 1882)			<i>Euura neglecta</i> (W.F. Kirby, 1882)	<i>longiserra</i>	241
<i>neglectus</i> W.F. Kirby, 1882	synonym		<i>Euura neglecta</i> (W.F. Kirby, 1882)	<i>longiserra</i>	241
<i>nigerrima</i> (Konow, 1903)			<i>Euura nigerrima</i> (Konow, 1903)	<i>vicina</i>	280
<i>nigerrimus</i> Konow, 1903	synonym		<i>Euura nigerrima</i> (Konow, 1903)	<i>vicina</i>	280
<i>nigrata</i> Retzius, 1783	synonym		<i>Euura punicea</i> (Christ, 1791)	<i>punicea</i>	247
<i>nigrescens</i> Enslin, 1915	synonym	X	<i>Euura histrio</i> (Serville, 1823)	<i>histrio</i>	220
<i>nigricantis</i> Kopelke, 1986			<i>Euura nigricantis</i> (Kopelke, 1986)	<i>dolichura</i>	35
<i>nigricornis</i> Serville, 1823			<i>Euura nigricornis</i> (Serville, 1823)	<i>miliaris</i>	177
<i>nigridorsis</i> Jakowlew, 1891	syn. nov.		<i>Euura poecilonota</i> (Zaddach, 1876)		299
<i>nigrina</i> (Schmidt, 1997)			<i>Euura nigrina</i> (Schmidt, 1997)	<i>histrio</i>	221
<i>nigrinus</i> Schmidt, 1997	synonym		<i>Euura nigrina</i> (Schmidt, 1997)	<i>histrio</i>	221
<i>nigrita</i> Lindqvist, 1958	syn. nov.		<i>Euura leionota</i> (Benson, 1933)	<i>bipartita</i>	117
<i>nigritarsis</i> André, 1880	synonym	X	<i>Euura viminalis</i> (Linnaeus, 1758)	<i>viminalis</i>	91
<i>nigriventris</i> Holmgren, 1883		X	<i>Euura nigriventris</i> (Holmgren, 1883)		298

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>nigronota</i> Lindqvist, 1958	synonym		<i>Euura hypoxantha</i> (Förster, 1854)	<i>mysotidis</i>	185
<i>nigronotata</i> Enslin, 1916	synonym		<i>Euura miliaris</i> (Panzer, 1797)	<i>miliaris</i>	176
<i>nimbus</i> Benson, 1960			<i>Euura nimbus</i> (Benson, 1960)	<i>miltonota</i>	180
<i>nitens</i> Lindqvist, 1977	syn. nov.		<i>Euura leptostigma</i> (Lindqvist, 1958)	<i>bipartita</i>	118
<i>nitida</i> Lindqvist, 1946	syn. nov.	X	<i>Euura mimus</i> (Konow, 1903)		
<i>nitida</i> Lindqvist, 1969	syn. nov.		<i>Euura connecta</i> (Lindqvist, 1958)	<i>bipartita</i>	108
<i>nitidinota</i> Vikberg, 2010			<i>Euura nitidinota</i> (Vikberg, 2010)	<i>anomalopectera</i>	25
<i>nitidipleuris</i> Malaise, 1931		X	<i>Euura nitidipleuris</i> (Malaise, 1931)	<i>viduata</i>	289
<i>nitidula</i> Prous & Taeger, 2014	synonym		<i>Euura leptostigma</i> (Lindqvist, 1958)	<i>bipartita</i>	118
<i>nivalis</i> Muche, 1973	synonym		<i>Euura elbrus</i> Sundukov, 2017	<i>histris</i>	218
<i>nivalis</i> Vikberg, 1970			<i>Euura nivalis</i> (Vikberg, 1970)	<i>viminalis</i>	82
<i>notabilis</i> Konow, 1903		X	<i>Euura notabilis</i> (Konow, 1903)	<i>vicina</i>	281
<i>notanda</i> Enslin, 1916	synonym	X	<i>Euura pavida</i> (Serville, 1823)	<i>papillosa</i>	200
<i>notata</i> O.F. Müller, 1776	synonym		<i>Euura salicis</i> (Linnaeus, 1758)		301
<i>notatus</i> Förster, 1854	synonym	X	<i>Euura viduata</i> (Zetterstedt, 1838)	<i>viduata</i>	291
<i>nubium</i> Benson, 1935	syn. nov.		<i>Euura parvilabris</i> (Thomson, 1863)	<i>bipartita</i>	123
<i>nudipectus</i> Vikberg, 1965			<i>Euura nudipectus</i> (Vikberg, 1965)	<i>anomalopectera</i>	26
<i>nuorbinjargi</i> Saarinen, 1949			<i>Euura nuorbinjargi</i> (Saarinen, 1949)	<i>histris</i>	222
<i>nuortevai</i> Lindqvist, 1958	syn. nov.		<i>Euura cadderensis</i> (Cameron, 1875)	<i>melanocephalus</i>	170
<i>nylundii</i> Lindqvist, 1969	syn. nov.		<i>Euura huleni</i> (Malaise, 1931)	<i>vittata</i>	262
<i>obducta</i> (Hartig, 1837)			<i>Euura obducta</i> (Hartig, 1837)	<i>clitellata</i>	145
<i>obductus</i> Hartig, 1837	synonym	X	<i>Euura obducta</i> (Hartig, 1837)	<i>clitellata</i>	145
<i>obesus</i> Lindqvist, 1959	syn. nov.		<i>Euura obscuripes</i> (Holmgren, 1883)	<i>toeniata</i>	251
<i>oblita</i> (Serville, 1823)			<i>Euura oblita</i> (Serville, 1823)	<i>oblita</i>	47
<i>oblita</i> group					38
<i>obscuratus</i> Zaddach, 1883	synonym		<i>Euura albipennis</i> (Hartig, 1837)	<i>bipartita</i>	104
<i>obscurior</i> Enslin, 1916	synonym	X	<i>Euura salicis</i> (Linnaeus, 1758)		301

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>obscuripes</i> Holmgren, 1883		X	<i>Euura obscuripes</i> (Holmgren, 1883)	<i>toenata</i>	251
<i>obscurus</i> Lindqvist, 1962	syn. nov.		<i>Euura tillbergi</i> (Malaise, 1921)	<i>vittata</i>	264
<i>obtus</i> Lindqvist, 1958	syn. nov.		<i>Euura minus</i> (Konow, 1903)	<i>bipartita</i>	121
<i>occipitalis</i> Holmgren, 1883	synonym	X	<i>Euura reticulata</i> (Holmgren, 1883)	<i>flavescens</i>	162
<i>ochraceus</i> Hartig, 1837	synonym		<i>Euura pavid</i> a (Serville, 1823)	<i>papillosa</i>	200
<i>ochropus</i> Thomson, 1863	synonym		<i>Euura bipartita</i> (Serville, 1823)	<i>bipartita</i>	106
<i>oehlkei</i> Muche, 1973			<i>Euura oehlkei</i> (Muche, 1973)	<i>bipartita</i>	328
<i>okutaniana</i> Hara & Shinohara, 2022	syn. nov.		<i>Euura spiraeae</i> (Zaddach, 1883)		302
<i>olfaciens</i> Benson, 1953	syn. nov.		<i>Euura quieta</i> (Eversmann, 1847)	<i>ribesii</i>	271
<i>oligospila</i> (Förster, 1854)			<i>Euura oligospila</i> (Förster, 1854)	<i>oligospila</i>	193
<i>oligospila</i> group					191
<i>olivaceus</i> Thomson, 1871	synonym	X	<i>Euura pallescens</i> (Hartig, 1837)	<i>pallescens</i>	196
<i>omega</i> Benson, 1955	syn. nov.	X	<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>opacipleuris</i> group					242
<i>opacipleuris</i> Konow, 1895			<i>Euura opacipleuris</i> (Konow, 1895)	<i>opacipleuris</i>	243
<i>orbitalis</i> Cameron, 1884	synonym		<i>Euura hypoxantha</i> (Förster, 1854)	<i>myosotidis</i>	185
<i>pachycerus</i> Borries, 1896	synonym		<i>Euura pallescens</i> (Hartig, 1837)	<i>pallescens</i>	196
<i>pacificus</i> Malaise, 1931	syn. nov.	X	<i>Euura tillbergi</i> (Malaise, 1921)	<i>vittata</i>	264
<i>pallens</i> Konow, 1903			<i>Euura pallens</i> (Konow, 1903)	<i>bergmanni</i>	329
<i>pallescens</i> group					194
<i>pallescens</i> Hartig, 1837		X	<i>Euura pallescens</i> (Hartig, 1837)	<i>pallescens</i>	196
<i>palliat</i> us Thomson, 1863	synonym	X	<i>Euura hypoxantha</i> (Förster, 1854)	<i>myosotidis</i>	185
<i>palliceps</i> Hartig, 1840	syn. nov.	X	<i>Euura viduata</i> (Zetterstedt, 1838)	<i>viduata</i>	291
<i>pallicercus</i> Hartig, 1837	incertae sedis		<i>Euura pallicercus</i> (Hartig, 1837)		313
<i>pallidinervis</i> Hellén, 1951			<i>Euura pallidinervis</i> (Hellén, 1951)	<i>flavescens</i>	158
<i>pallidior</i> Hellén, 1970			<i>Euura pallidior</i> (Hellén, 1970)		159
<i>palliditarsus</i> Cameron, 1876	synonym		<i>Euura villosa</i> (Thomson, 1863)	<i>caeruleocarpus</i>	138

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>palliventris</i> Cresson, 1880	synonym		<i>Euura obducta</i> (Hartig, 1837)	<i>clitellata</i>	145
<i>pannonica</i> Haris, 2015	incertae sedis		<i>Euura pannonica</i> Haris, 2015		314
<i>papillosa</i> group					198
<i>papillosa</i> Retzius, 1783			<i>Euura papillosa</i> (Retzius, 1783)	<i>papillosa</i>	199
<i>parvilabris</i> Thomson, 1863		X	<i>Euura parvilabris</i> (Thomson, 1863)	<i>bipartita</i>	123
<i>parviserrata</i> Lindqvist, 1944			<i>Euura parviserrata</i> (Lindqvist, 1944)	<i>bipartita</i>	124
<i>parvulus</i> Holmgren, 1883	synonym	X	<i>Euura lenterica</i> (Holmgren, 1883)	<i>flavescens</i>	157
<i>pavida</i> (Serville, 1823)			<i>Euura pavida</i> (Serville, 1823)	<i>papillosa</i>	200
<i>pavidus</i> Serville, 1823	synonym		<i>Euura pavida</i> (Serville, 1823)	<i>papillosa</i>	200
<i>pectoralis</i> Snellen van Vollenhoven, 1867	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>pedicellatae</i> Lacourt, 1997			<i>Euura pedicellatae</i> (Lacourt, 1997)	<i>viminalis</i>	83
<i>pedunculi</i> Hartig, 1837			<i>Euura pedunculi</i> (Hartig, 1837)	<i>viminalis</i>	84
<i>peltoneni</i> Lindqvist, 1969	syn. nov.		<i>Euura fuscirima</i> (Benson, 1933)	<i>bipartita</i>	111
<i>penegalensis</i> Enslin, 1911	synonym	X	<i>Pristiphora mollis</i> (Hartig, 1837)	<i>Pristiphora</i>	338
<i>perkinsi</i> Benson, 1933	synonym		<i>Euura fasciata</i> (Konow, 1897)	<i>variator</i>	257
<i>perkioemaekii</i> Lindqvist, 1960	comb. nov.		<i>Euura perkioemaekii</i> (Lindqvist, 1960)	<i>bipartita</i>	125
<i>perspicillaris</i> Hartig, 1840	synonym	X	<i>Euura melanocephalus</i> (Hartig, 1837)	<i>melanocephalus</i>	173
<i>picticollis</i> Holmgren, 1883	synonym		<i>Euura reticulata</i> (Holmgren, 1883)	<i>flavescens</i>	162
<i>piliserra</i> group					57
<i>piliserra</i> Lindqvist, 1943	syn. nov.		<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265
<i>piliserra</i> Thomson, 1863			<i>Euura piliserra</i> (Thomson, 1863)	<i>piliserra</i>	58
<i>plagiata</i> Enslin, 1916	synonym	X	<i>Euura ferruginea</i> (Förster, 1854)	<i>melanocephalus</i>	171
<i>platystigma</i> Lindqvist, 1949			<i>Euura platystigma</i> (Lindqvist, 1949)	<i>myosotidis</i>	188
<i>pleuralis</i> Lindqvist, 1944	synonym		<i>Euura polaris</i> (Holmgren, 1883)	<i>bipartita</i>	126
<i>pleuralis</i> Thomson, 1863	synonym	X	<i>Euura moerens</i> (Förster, 1854)	<i>clitellata</i>	144
<i>plicadaphnoides</i> Kopelke, 2007			<i>Euura plicadaphnoides</i> (Kopelke, 2007)	<i>oblita</i>	48
<i>plicalapponum</i> Kopelke, 2007			<i>Euura plicalapponum</i> (Kopelke, 2007)	<i>oblita</i>	49

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>plicaphylicifolia</i> Kopelke, 2007			<i>Euura plicaphylicifolia</i> (Kopelke, 2007)	<i>oblita</i>	50
<i>poecilonota</i> (Zaddach, 1876)			<i>Euura poecilonota</i> (Zaddach, 1876)		299
<i>poecilonotus</i> Zaddach, 1876	synonym		<i>Euura poecilonota</i> (Zaddach, 1876)		299
<i>pohjola</i> Liston <i>et al.</i> , 2023			<i>Euura pohjola</i> Liston <i>et al.</i> , 2023	<i>amentorum</i>	213
<i>polaris</i> Holmgren, 1883		X	<i>Euura polaris</i> (Holmgren, 1883)	<i>bipartita</i>	126
<i>polepso</i> Prous & Mutanen sp. nov.	sp. nov.		<i>Euura polepso</i> Prous & Mutanen sp. nov.	<i>bipartita</i>	135
<i>polita</i> (Zaddach in Brischke, 1883)			<i>Euura polita</i> (Zaddach, 1883)	<i>oblita</i>	51
<i>polita</i> Lindqvist, 1974	syn. nov.		<i>Euura connecta</i> (Lindqvist, 1958)		
<i>polygoni</i> Benson, 1961	synonym		<i>Euura scotonota</i> (Förster, 1854)	<i>bipartita</i>	129
<i>popofana</i> Kincaid, 1900	synonym		<i>Euura reticulata</i> (Holmgren, 1883)	<i>flavescens</i>	162
<i>poppii</i> Konow, 1904	syn. nov.	X	<i>Euura obscuripes</i> (Holmgren, 1883)	<i>toeniata</i>	251
<i>poppui</i> (Konow, 1904)	comb. nov.		<i>Euura poppii</i> (Konow, 1904)	<i>bipartita</i>	127
<i>praecox</i> Förster, 1854	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>pravus</i> Konow, 1895			<i>Euura pravus</i> (Konow, 1895)	<i>flavescens</i>	160
<i>pribaicalicus</i> Lindqvist, 1970	syn. nov.		<i>Euura hebes</i> (Konow, 1907)	<i>aegra</i>	203
<i>pristiphorinus</i> Malaise, 1921	synonym		<i>Euura hebes</i> (Konow, 1907)	<i>aegra</i>	203
<i>pristiphoroides</i> Lindqvist, 1972	syn. nov.		<i>Euura hebes</i> (Konow, 1907)	<i>aegra</i>	203
<i>propinquator</i> Schmidt, 2014			<i>Euura propinquator</i> Schmidt, 2014	<i>histrio</i>	223
<i>propinquus</i> Dahlbom, 1835	synonym		<i>Euura caeruleocarpus</i> (Hartig, 1837)	<i>caeruleocarpus</i>	137
<i>propinquus</i> Saarinen, 1950	synonym		<i>Euura propinquator</i> Schmidt, 2014	<i>histrio</i>	223
<i>prototypus</i> Förster, 1854	synonym	X	<i>Euura punicea</i> (Christ, 1791)	<i>punicea</i>	247
<i>proxima</i> (Serville, 1823)			<i>Euura proxima</i> (Serville, 1823)	<i>proxima</i>	61
<i>proxima</i> group					59
<i>prussica</i> (Zaddach, 1883)			<i>Euura prussica</i> (Zaddach, 1883)	<i>oblita</i>	52
<i>pschornwalcheri</i> Kopelke, 2007	synonym		<i>Euura hubertpschornwalcheri</i> Kopelke, 2014	<i>oblita</i>	53
<i>pschornwalcheri</i> Muche, 1972	synonym		<i>Euura monticola</i> (Thomson, 1871)	<i>bipartita</i>	122
<i>pseudofasciatus</i> Lindqvist, 1969	syn. nov.		<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>pseudonotabilis</i> Enslin, 1916	synonym	X	<i>Euura bohemani</i> (Thomson, 1871)	<i>melanocephalus</i>	169
<i>pseudopavida</i> Enslin, 1916	synonym		<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>pubescens</i> Marlatt, 1896	synonym		<i>Euura clibrichella</i> (Cameron, 1878)	<i>clitellata</i>	140
<i>pulchellus</i> Cameron, 1882	syn. nov.		<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>pulcher</i> Vikberg, 1982	synonym		<i>Euura notabilis</i> (Konow, 1903)	<i>vicina</i>	281
<i>pullus</i> Konow, 1903	synonym	X	<i>Euura moerens</i> (Förster, 1854)	<i>clitellata</i>	144
<i>pumilio</i> Konow, 1903		X	<i>Euura pumilio</i> (Konow, 1903)		300
<i>punctifrons</i> Malaise, 1921		X	<i>Euura punctifrons</i> (Malaise, 1921)	<i>bipartita</i>	128
<i>punctipleuris</i> Thomson, 1863	synonym	X	<i>Euura vaga</i> (Fabricius, 1781)		303
<i>punctulatus</i> Thomson, 1863	synonym	X	<i>Euura vaga</i> (Fabricius, 1781)		303
<i>punicea</i> Christ, 1791			<i>Euura punicea</i> (Christ, 1791)	<i>punicea</i>	247
<i>punicea</i> group					245
<i>purpureae</i> Cameron, 1884			<i>Euura purpureae</i> (Cameron, 1884)	<i>anomalopectera</i>	27
<i>purus</i> Förster, 1854	synonym	X	<i>Euura miliaris</i> (Panzer, 1797)	<i>miliaris</i>	176
<i>pustulator</i> Forsius, 1923			<i>Euura pustulator</i> (Forsius, 1923)	<i>viminalis</i>	85
<i>pustulatus</i> Lindqvist, 1962	syn. nov.		<i>Euura tillbergi</i> (Malaise, 1921)	<i>vittata</i>	264
<i>putoni</i> Konow, 1903			<i>Euura putoni</i> (Konow, 1903)	<i>vicina</i>	282
<i>pygostolus</i> Förster, 1854	synonym		<i>Euura moerens</i> (Förster, 1854)	<i>clitellata</i>	144
<i>pyri</i> Newman, 1869	incertae sedis		<i>Euura pyri</i> Newman, 1869		315
<i>pyrrhonotus</i> Zaddach, 1883	synonym		<i>Euura melanocephalus</i> (Hartig, 1837)	<i>melanocephalus</i>	173
<i>quadrum</i> Costa, 1859	synonym		<i>Euura pavida</i> (Serville, 1823)	<i>papillosa</i>	200
<i>quercus</i> Newman, 1869	incertae sedis		<i>Euura quercus</i> Newman, 1869		316
<i>quieta</i> (Eversmann, 1847)			<i>Euura quieta</i> (Eversmann, 1847)	<i>ribesii</i>	271
<i>quietus</i> Eversmann, 1847	synonym	X	<i>Euura quieta</i> (Eversmann, 1847)	<i>ribesii</i>	271
<i>quinqumontana</i> (Jakowlew, 1891)	incertae sedis		<i>Euura quinqumontana</i> (Jakowlew, 1891)		317
<i>quinqumontanus</i> Jakowlew, 1891	synonym		<i>Euura quinqumontana</i> (Jakowlew, 1891)		317
<i>ranini</i> Lindqvist, 1960			<i>Euura ranini</i> (Lindqvist, 1960)	<i>punicea</i>	248

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>rarus</i> MacGillivray, 1921	synonym		<i>Euura gregaria</i> (Marlatt, 1896)	<i>gregaria</i>	167
<i>rectiserra</i> Lindqvist, 1971			<i>Euura rectiserra</i> (Lindqvist, 1971)	<i>viduata</i>	290
<i>refractarius</i> MacGillivray, 1921	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>renei</i> Lindqvist, 1958			<i>Euura renei</i> (Lindqvist, 1958)	<i>flavescens</i>	161
<i>respondens</i> Förster, 1854			<i>Euura respondens</i> (Förster, 1854)	<i>bergmanni</i>	98
<i>reticulata</i> (Holmgren, 1883)			<i>Euura reticulata</i> (Holmgren, 1883)	<i>flavescens</i>	162
<i>reticulatae</i> Malaise, 1921			<i>Euura reticulatae</i> (Malaise, 1921)	<i>viminalis</i>	86
<i>reticulatus</i> Holmgren, 1883		X	<i>Euura reticulata</i> (Holmgren, 1883)	<i>flavescens</i>	162
<i>retusae</i> Benson, 1960	synonym		<i>Euura retusae</i> (Benson, 1960)	<i>viminalis</i>	87
<i>rex</i> Benson, 1948	syn. nov.		<i>Euura tillbergi</i> (Malaise, 1921)	<i>vittata</i>	264
<i>ribesicola</i> Lindqvist, 1949			<i>Euura ribesicola</i> (Lindqvist, 1949)	<i>ribesii</i>	272
<i>ribesii</i> group					268
<i>ribesii</i> Scopoli, 1763			<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>ribesii</i> Stephens, 1829	synonym		<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>ribis</i> Leduc, 1842	synonym		<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>roberti</i> Lindqvist, 1958	syn. nov.		<i>Euura parvilabris</i> (Thomson, 1863)	<i>bipartita</i>	123
<i>robiniae</i> Forbes, 1885	synonym		<i>Euura tibialis</i> (Newman, 1837)	<i>myosotidis</i>	190
<i>roscidus</i> MacGillivray, 1921	synonym		<i>Euura vaga</i> (Fabricius, 1781)		303
<i>rubidicornis</i> André, 1880	syn. nov.	X	<i>Euura collactanea</i> (Förster, 1854)	<i>viminalis</i>	71
<i>rufa</i> (Konow, 1896)			<i>Euura rufa</i> (Konow, 1896)	<i>histrio</i>	224
<i>rufescens</i> Hartig, 1837	synonym		<i>Euura histrio</i> (Serville, 1823)	<i>histrio</i>	220
<i>ruficeps</i> Zaddach, 1883	synonym		<i>Euura pallescens</i> (Hartig, 1837)	<i>pallescens</i>	196
<i>rufomacula</i> Malaise, 1931	syn. nov.	X	<i>Euura obscuripes</i> (Holmgren, 1883)	<i>toeniata</i>	251
<i>rufus</i> Konow, 1896	synonym		<i>Euura rufa</i> (Konow, 1896)	<i>histrio</i>	224
<i>rugosulus</i> Lindqvist, 1959	syn. nov.		<i>Euura vaga</i> (Fabricius, 1781)		303
<i>rutilipes</i> Lindqvist, 1959	syn. nov.		<i>Euura bipartita</i> (Serville, 1823)	<i>bipartita</i>	106
<i>saarineni</i> Lindqvist, 1945	syn. nov.	X	<i>Euura leucolena</i> (Brischke, 1883)	<i>viduata</i>	287

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>sagmarius</i> Konow, 1895			<i>Euura sagmarius</i> (Konow, 1895)	<i>milnotata</i>	181
<i>salicicola</i> Enslin, 1916	synonym		<i>Euura bipartita</i> (Serville, 1823)	<i>bipartita</i>	106
<i>salicis</i> Linnaeus, 1758			<i>Euura salicis</i> (Linnaeus, 1758)		301
<i>salicis</i> Retzius, 1783	synonym		<i>Euura melanocephalus</i> (Hartig, 1837)	<i>melanocephalus</i>	173
<i>saliciscinereae</i> Retzius, 1783			<i>Euura saliciscinereae</i> (Retzius, 1783)	<i>viminalis</i>	88
<i>salicispurpureae</i> Kopelke, 2014			<i>Euura salicispurpureae</i> Kopelke, 2014	<i>amerinae</i>	7
<i>samolad</i> Malaise, 1921			<i>Euura samolad</i> (Malaise, 1921)	<i>viminalis</i>	89
<i>sannio</i> Konow, 1903		X	<i>Euura albipennis</i> (Hartig, 1837)	<i>bipartita</i>	104
<i>sauterianus</i> Zaddach, 1883			<i>Euura leucotrocha</i> (Hartig, 1837)	<i>ribesii</i>	270
<i>scabrivalvis</i> Thomson, 1871		X	<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265
<i>scandica</i> Vardal & Heibo, 2014			<i>Euura semipaca</i> (Lindqvist, 1958)	<i>myosotidis</i>	189
<i>schlueteri</i> Enslin, 1915			<i>Euura schlueteri</i> (Enslin, 1915)	<i>histrio</i>	225
<i>schmidtii</i> Gimmerthal, 1844			<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142
<i>scotaspis</i> Förster, 1854			<i>Euura scotaspis</i> (Förster, 1854)	<i>oblita</i>	54
<i>scotonota</i> (Förster, 1854)			<i>Euura scotonota</i> (Förster, 1854)	<i>bipartita</i>	129
<i>scotonotus</i> Förster, 1854			<i>Euura scotonota</i> (Förster, 1854)	<i>bipartita</i>	129
<i>scutellata</i> (Hartig, 1837)			<i>Euura scutellata</i> (Hartig, 1837)	<i>scutellata</i>	278
<i>scutellata</i> group					276
<i>scutellatus</i> Hartig, 1837		X	<i>Euura scutellata</i> (Hartig, 1837)	<i>scutellata</i>	278
<i>segmentarius</i> Förster, 1854		X	<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>semilactea</i> (Zaddach, 1883)			<i>Euura semilactea</i> (Zaddach, 1883)	<i>variator</i>	258
<i>semilacteus</i> Zaddach, 1883			<i>Euura semilactea</i> (Zaddach, 1883)	<i>variator</i>	258
<i>semipaca</i> Lindqvist, 1958			<i>Euura semipaca</i> (Lindqvist, 1958)	<i>myosotidis</i>	189
<i>semiorbitalis</i> Förster, 1854			<i>Euura pavida</i> (Serville, 1823)	<i>papillosa</i>	200
<i>semipunctata</i> Lindqvist, 1958			<i>Euura tenuiserra</i> (Lindqvist, 1944)	<i>fahraei</i>	151
<i>sempersolis</i> Kiaer, 1898		X	<i>Euura sempersolis</i> (Kiaer, 1898)	<i>aegra</i>	205
<i>septrionialis</i> Saarinen, 1950			<i>Euura septrionialis</i> (Saarinen, 1950)	<i>histrio</i>	226

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>serela</i> Prous & Mutanen sp. nov.	sp. nov.		<i>Euura serela</i> Prous & Mutanen sp. nov.	<i>flavescens</i>	165
<i>seriepunctata</i> Malaise, 1921		X	<i>Euura seriepunctata</i> (Malaise, 1921)	<i>flavescens</i>	163
<i>shumagensis</i> Kincaid, 1900	synonym		<i>Euura polaris</i> (Holmgren, 1883)	<i>bipartita</i>	126
<i>sibiricus</i> Jakowlew, 1888	synonym		<i>Euura nigricornis</i> (Serville, 1823)	<i>miliaris</i>	177
<i>signata</i> Enslin, 1916	syn. nov.	X	<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>similaris</i> Norton, 1880	synonym		<i>Euura tibialis</i> (Newman, 1837)	<i>myosotidis</i>	190
<i>simulator</i> Förster, 1854			<i>Euura similator</i> (Förster, 1854)	<i>ribesii</i>	274
<i>simplex</i> Forsius, 1921	synonym		<i>Euura bohemani</i> (Thomson, 1871)	<i>melanocephalus</i>	169
<i>sjoeblomi</i> Malaise, 1931	syn. nov.	X	<i>Euura obscuripes</i> (Holmgren, 1883)	<i>toeniata</i>	251
<i>smaragdinus</i> Stein, 1881	syn. nov.		<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>smithae</i> Ross, 1945	syn. nov.		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>solitarius</i> Rohwer, 1908	synonym		<i>Euura tibialis</i> (Newman, 1837)	<i>myosotidis</i>	190
<i>solitarius</i> Zaddach, 1883	synonym		<i>Euura miliaris</i> (Panzer, 1797)	<i>miliaris</i>	176
<i>sollemnis</i> Konow, 1895	synonym		<i>Euura tunicata</i> (Zaddach, 1883)	<i>tunicata</i>	255
<i>sordidiapex</i> Lindqvist, 1959			<i>Euura sordidiapex</i> (Lindqvist, 1959)	<i>bipartita</i>	130
<i>spaehti</i> Liston, 2005	syn. nov.		<i>Euura viduata</i> (Zetterstedt, 1838)	<i>viduata</i>	291
<i>speciosus</i> Hellén, 1951	syn. nov.		<i>Euura stordalensis</i> (Strand, 1905)	<i>opacipleuris</i>	244
<i>spiniserra</i> Malaise, 1921	synonym		<i>Euura neglecta</i> (W.F. Kirby, 1882)	<i>longiserra</i>	241
<i>spiraeae</i> Zaddach, 1883			<i>Euura spiraeae</i> (Zaddach, 1883)		302
<i>spirappendiculata</i> Kopelke, 2007			<i>Euura spirappendiculata</i> (Kopelke, 2007)	<i>oblita</i>	55
<i>spirhelvetica</i> Kopelke, 2007			<i>Euura spirhelvetica</i> (Kopelke, 2007)	<i>oblita</i>	56
<i>squalidus</i> Eversmann, 1847	syn. nov.	X	<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>squamicauda</i> Vikberg, 1982			<i>Euura squamicauda</i> (Vikberg, 1982)	<i>flavescens</i>	164
<i>squamosus</i> Lindqvist, 1959	synonym		<i>Euura schlueteri</i> (Enslin, 1915)	<i>histrio</i>	225
<i>stenogaster</i> Förster, 1854			<i>Euura stenogaster</i> (Förster, 1854)	<i>histrio</i>	227
<i>sternalis</i> Enslin, 1915	synonym		<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265
<i>stichi</i> Enslin, 1913			<i>Euura flavescens</i> (Stephens, 1835)	<i>flavescens</i>	155

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>stordalensis</i> Strand, 1905			<i>Euura stordalensis</i> (Strand, 1905)	<i>opacipleuris</i>	244
<i>stramineipes</i> Lindqvist, 1958	syn. nov.		<i>Euura bipartita</i> (Serville, 1823)	<i>bipartita</i>	106
<i>strandii</i> Konow, 1901		X	<i>Euura excisa</i> (Thomson, 1863)	<i>bipartita</i>	110
<i>striata</i> (Hartig, 1837)			<i>Euura striata</i> (Hartig, 1837)	<i>histrio</i>	228
<i>striatipes</i> Hartig, 1840	syn. nov.	X	<i>Euura viduata</i> (Zetterstedt, 1838)	<i>viduata</i>	291
<i>striatipleuris</i> Lindqvist, 1958	syn. nov.		<i>Euura fuscicornia</i> (Benson, 1933)	<i>bipartita</i>	111
<i>striatus</i> Hartig, 1837	synonym		<i>Euura striata</i> (Hartig, 1837)	<i>histrio</i>	228
<i>strongylogaster</i> Cameron, 1878	synonym		<i>Euura fuscomaculata</i> (Förster, 1854)	<i>bipartita</i>	113
<i>struvei</i> Zirmgiebl, 1939	synonym		<i>Euura similator</i> (Förster, 1854)	<i>ribesii</i>	274
<i>styx</i> Benson, 1958			<i>Euura styx</i> (Benson, 1958)	<i>pallescent</i>	197
<i>subaequalis</i> Förster, 1854	synonym		<i>Euura infirma</i> (Förster, 1854)	<i>bipartita</i>	116
<i>subflava</i> Lindqvist, 1958	syn. nov.		<i>Euura spiraeae</i> (Zaddach, 1883)		302
<i>subfuscus</i> Schmidt, 1997	syn. nov.		<i>Euura striata</i> (Hartig, 1837)	<i>histrio</i>	228
<i>subgemma</i> Liston, 2006			<i>Euura subgemma</i> Liston, 2006	<i>amerinae</i>	20
<i>subnitens</i> Lindqvist, 1958	synonym		<i>Euura poecilonota</i> (Zaddach, 1876)		299
<i>subnitens</i> Saarinen, 1950	syn. nov.		<i>Euura striata</i> (Hartig, 1837)	<i>histrio</i>	228
<i>subpolaris</i> Lindqvist, 1949	synonym		<i>Euura parviserrata</i> (Lindqvist, 1944)	<i>bipartita</i>	124
<i>suguri</i> Hara & Iwasaki, 2021	syn. nov.		<i>Euura ribesicola</i> (Lindqvist, 1949)	<i>ribesii</i>	272
<i>sulcatus</i> Benson, 1948	synonym		<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142
<i>sulciceps</i> Lindqvist, 1959			<i>Euura sulciceps</i> (Lindqvist, 1959)	<i>bipartita</i>	131
<i>sulcipes</i> Hartig, 1837	synonym	X	<i>Euura caeruleocarpus</i> (Hartig, 1837)	<i>caeruleocarpus</i>	137
<i>sulphureus</i> Zaddach, 1876	synonym		<i>Euura papillosa</i> (Retzius, 1783)	<i>papillosa</i>	199
<i>superbus</i> Grادل, 1881	synonym		<i>Euura insignis</i> (Hartig, 1840)	<i>scutellata</i>	277
<i>sveae</i> Lindqvist, 1958	synonym		<i>Euura papillosa</i> (Retzius, 1783)	<i>papillosa</i>	199
<i>sylvestris</i> Cameron, 1884			<i>Euura sylvestris</i> (Cameron, 1884)	<i>bergmanni</i>	99
<i>taegeri</i> Lacourt, 1996			<i>Euura taegeri</i> (Lacourt, 1996)	<i>bipartita</i>	132
<i>taiganus</i> Zhelochovtsev, 1988	synonym		<i>Euura septentrionalis</i> (Saarinen, 1950)	<i>histrio</i>	226

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>tarani</i> Zhelochovtsev, 1976	synonym		<i>Euura oehlkei</i> (Muche, 1973)	<i>bipartita</i>	328
<i>tatricus</i> Roller & Haris, 2008	syn. nov.		<i>Euura imperfecta</i> (Zaddach, 1876)		296
<i>tegularis</i> Lindqvist, 1969	syn. nov.		<i>Euura leptostigma</i> (Lindqvist, 1958)	<i>bipartita</i>	118
<i>telos</i> Liston & Prous nom. nov.	nom. nov.		<i>Euura telos</i> Liston & Prous nom. nov.	<i>humeralis</i>	330
<i>temporalis</i> Hellén, 1970	syn. nov.		<i>Euura nitidipleuris</i> (Malaise, 1931)	<i>viduata</i>	289
<i>tener</i> Zaddach, 1884	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>tenuis</i> Schmidt, 1997			<i>Euura tenuis</i> (Schmidt, 1997)	<i>histrio</i>	229
<i>tenuiserra</i> Lindqvist, 1944			<i>Euura tenuiserra</i> (Lindqvist, 1944)	<i>fahraei</i>	151
<i>tenuiserra</i> Lindqvist, 1949	syn. nov.		<i>Euura semiopaca</i> (Lindqvist, 1958)	<i>myosotidis</i>	189
<i>tenuitarsis</i> Konow, 1901	syn. nov.	X	<i>Euura lenterica</i> (Holmgren, 1883)	<i>flavescens</i>	157
<i>terminalis</i> Malaise, 1931	synonym		<i>Euura telos</i> Liston & Prous nom. nov.	<i>humeralis</i>	330
<i>tessinensis</i> Enslin, 1916	syn. nov.	X	<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>testaceipes</i> Brischke, 1883			<i>Euura testaceipes</i> (Brischke, 1883)	<i>amerinae</i>	8
<i>testaceus</i> Stephens, 1835	synonym		<i>Euura miliaris</i> (Panzer, 1797)	<i>miliaris</i>	176
<i>testaceus</i> Thomson, 1871	synonym		<i>Euura flavescens</i> (Stephens, 1835)	<i>flavescens</i>	155
<i>thomsoni</i> Cameron, 1882	synonym		<i>Euura clibrichella</i> (Cameron, 1878)	<i>clitellata</i>	140
<i>thunebergi</i> Lindqvist, 1959	syn. nov.		<i>Euura leptostigma</i> (Lindqvist, 1958)	<i>bipartita</i>	118
<i>tibialis</i> Newman, 1837			<i>Euura tibialis</i> (Newman, 1837)	<i>myosotidis</i>	190
<i>tiliae</i> Zinovjev, 1998			<i>Euura tiliae</i> (Zinovjev, 1998)		331
<i>tillbergi</i> Malaise, 1921		X	<i>Euura tillbergi</i> (Malaise, 1921)	<i>vittata</i>	264
<i>t-magnum</i> Malaise, 1931	synonym	X	<i>Euura bohemani</i> (Thomson, 1871)	<i>melanocephalus</i>	169
<i>toeniata</i> (Serville, 1823)			<i>Euura toeniata</i> (Serville, 1823)	<i>toeniata</i>	252
<i>toeniata</i> group					249
<i>toeniatius</i> Serville, 1823	synonym		<i>Euura toeniata</i> (Serville, 1823)	<i>toeniata</i>	252
<i>togatus</i> Zaddach, 1876	incertae sedis		<i>Euura togata</i> (Zaddach, 1876)		318
<i>tolli</i> Konow, 1907	synonym		<i>Euura abnormis</i> (Holmgren, 1883)	<i>longiserra</i>	236
<i>torneensis</i> Malaise, 1921	syn. nov.	X	<i>Euura pravus</i> (Konow, 1895)	<i>flavescens</i>	160

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>torridonensis</i> Liston, 1980	synonym		<i>Euura moerens</i> (Förster, 1854)	<i>clitellata</i>	144
<i>tota</i> (Saarinen, 1950)			<i>Euura tota</i> (Saarinen, 1950)	<i>histrio</i>	230
<i>totus</i> Saarinen, 1950	synonym		<i>Euura tota</i> (Saarinen, 1950)	<i>histrio</i>	230
<i>tranquilla</i> Vardal & Prous, 2014	synonym		<i>Euura tilbergi</i> (Malaise, 1921)	<i>vittata</i>	264
<i>transigens</i> Enslin, 1916	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>transversalis</i> Lindqvist, 1977	syn. nov.		<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>trautmanni</i> Enslin, 1919	syn. nov.	X	<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265
<i>triandrae</i> Benson, 1941			<i>Euura triandrae</i> (Benson, 1941)	<i>proxima</i>	62
<i>tridentatus</i> Malaise, 1931	syn. nov.		<i>Euura obscuripes</i> (Holmgren, 1883)	<i>toeniata</i>	251
<i>trifurcatus</i> W.F. Kirby, 1882	synonym		<i>Euura stenogaster</i> (Förster, 1854)	<i>histrio</i>	227
<i>trilineatus</i> Norton, 1867	synonym		<i>Euura tibialis</i> (Newman, 1837)	<i>myosotidis</i>	190
<i>trimaculatus</i> Serville, 1823	synonym		<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>trimaculatus</i> Snellen van Vollenhoven, 1862	synonym		<i>Euura miliaris</i> (Panzer, 1797)	<i>miliaris</i>	176
<i>trisinuatus</i> Förster, 1854	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>tristis</i> Lindqvist, 1959	synonym		<i>Euura sempersolis</i> (Kiaer, 1898)	<i>aegra</i>	205
<i>trochanterata</i> Malaise, 1931			<i>Euura trochanterata</i> (Malaise, 1931)		332
<i>truncatus</i> Benson, 1948	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>truncicornis</i> Vikberg, 1982	synonym		<i>Euura leptostigma</i> (Lindqvist, 1958)	<i>bipartita</i>	118
<i>truncus</i> Vikberg, 1982	synonym		<i>Euura mimus</i> (Konow, 1903)	<i>bipartita</i>	121
<i>tunicata</i> (Zaddach, 1883)			<i>Euura tunicata</i> (Zaddach, 1883)	<i>tunicata</i>	255
<i>tunicata</i> group					253
<i>tunicatus</i> Zaddach, 1883	synonym		<i>Euura tunicata</i> (Zaddach, 1883)	<i>tunicata</i>	255
<i>turgidus</i> Zaddach, 1876	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>uda</i> (Holmgren, 1883)			<i>Euura uda</i> (Holmgren, 1883)	<i>bipartita</i>	133
<i>udus</i> Holmgren, 1883	synonym		<i>Euura uda</i> (Holmgren, 1883)	<i>bipartita</i>	133
<i>ulbrichti</i> Enslin, 1910	synonym		<i>Euura vaga</i> (Fabricius, 1781)		303
<i>uliginosae</i> Malaise, 1921	synonym	X	<i>Euura schlueteri</i> (Enslin, 1915)	<i>histrio</i>	225

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>umbratus</i> Thomson, 1871			<i>Nematus umbratus</i> Thomson, 1871	<i>Nematus</i>	335
<i>umbrinus</i> Zaddach, 1876	synonym		<i>Euura leucotrocha</i> (Hartig, 1837)	<i>ribesii</i>	270
<i>umbripennis</i> Eversmann, 1847	synonym	X	<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>umbrosa</i> Eversmann, 1847	syn. nov.	X	<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>unga</i> Kincaid, 1900	synonym		<i>Euura leucolena</i> (Brischke, 1883)	<i>viduata</i>	287
<i>unigallae</i> Vikberg & Zinovjev, 2014			<i>Euura unigallae</i> (Vikberg & Zinovjev, 2014)	<i>dolichura</i>	36
<i>ursaminor</i> Liston <i>et al.</i> , 2023			<i>Euura ursaminor</i> Liston <i>et al.</i> , 2023	<i>amentorum</i>	214
<i>vaccinii</i> Lindqvist, 1964	syn. nov.		<i>Euura lenterica</i> (Holmgren, 1883)	<i>flavescens</i>	157
<i>vaga</i> Fabricius, 1781			<i>Euura vaga</i> (Fabricius, 1781)		303
<i>vaginosus</i> Konow, 1903	syn. nov.		<i>Euura monticola</i> (Thomson, 1871)	<i>bipartita</i>	122
<i>vagus</i> Zaddach, 1883	synonym		<i>Euura viduata</i> (Zetterstedt, 1838)	<i>viduata</i>	291
<i>valesiacus</i> W.F. Kirby, 1882	synonym		<i>Euura annulata</i> (Gimmerthal, 1834)	<i>bipartita</i>	105
<i>variabilis</i> Malaise, 1931		X	<i>Euura variabilis</i> (Malaise, 1931)	<i>variator</i>	333
<i>varians</i> Lindqvist, 1962	syn. nov.		<i>Euura anthracina</i> (Lindqvist, 1959)		293
<i>varianus</i> MacGillivray, 1919	synonym	X	<i>Euura nigriventris</i> (Holmgren, 1883)		298
<i>variator</i> group					256
<i>variator</i> Ruthe, 1859		X	<i>Euura variator</i> (Ruthe, 1859)	<i>variator</i>	259
<i>variegata</i> Lindqvist, 1958	syn. nov.		<i>Euura flavescens</i> (Stephens, 1835)	<i>flavescens</i>	155
<i>vastatrix</i> Zhelochovtsev, 1935			<i>Euura vastatrix</i> (Zhelochovtsev, 1935)	<i>ribesii</i>	275
<i>ventricosa</i> Bouché, 1834	synonym		<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>ventricosus</i> Hartig, 1837	synonym		<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>venusta</i> (Brischke, 1883)			<i>Euura venusta</i> (Brischke, 1883)	<i>amerinae</i>	9
<i>venustus</i> MacGillivray, 1921	synonym		<i>Euura clibrichella</i> (Cameron, 1878)	<i>clitellata</i>	140
<i>vernalis</i> Hartig, 1840	synonym		<i>Euura albipennis</i> (Hartig, 1837)	<i>bipartita</i>	104
<i>vernus</i> MacGillivray, 1921	synonym		<i>Euura clibrichella</i> (Cameron, 1878)	<i>clitellata</i>	140
<i>verticalis</i> Lindqvist, 1958	syn. nov.		<i>Euura leionota</i> (Benson, 1933)	<i>bipartita</i>	117
<i>vescus</i> MacGillivray, 1921	synonym		<i>Euura stenogaster</i> (Förster, 1854)	<i>histrio</i>	227

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>vesicator</i> Breimi-Wolf, 1849			<i>Euura vesicator</i> (Breimi-Wolf, 1849)	<i>viminalis</i>	90
<i>vicina</i> (Serville, 1823)			<i>Euura vicina</i> (Serville, 1823)	<i>vicina</i>	283
<i>vicina</i> group					279
<i>vicinus</i> Serville, 1823	synonym		<i>Euura vicina</i> (Serville, 1823)	<i>vicina</i>	283
<i>viduata</i> group					284
<i>viduata</i> Zetterstedt, 1838		X	<i>Euura viduata</i> (Zetterstedt, 1838)	<i>viduata</i>	291
<i>viduatinus</i> Malaise, 1931	syn. nov.	X	<i>Euura sagmarius</i> (Konow, 1895)	<i>miltonota</i>	181
<i>viduatooides</i> Lindqvist, 1960			<i>Euura viduatooides</i> (Lindqvist, 1960)	<i>viduata</i>	292
<i>villosa</i> (Thomson, 1863)			<i>Euura villosa</i> (Thomson, 1863)	<i>caeruleocarpus</i>	138
<i>villosus</i> Thomson, 1863	synonym	X	<i>Euura villosa</i> (Thomson, 1863)	<i>caeruleocarpus</i>	138
<i>viminalis</i> group					63
<i>viminalis</i> Linnaeus, 1758			<i>Euura viminalis</i> (Linnaeus, 1758)	<i>viminalis</i>	91
<i>virginalis</i> Liston, 1980	synonym		<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142
<i>viridescens</i> Cameron, 1885	synonym		<i>Euura poecilonota</i> (Zaddach, 1876)		299
<i>viridis</i> Stephens, 1835			<i>Euura viridis</i> (Stephens, 1835)	<i>bergmanni</i>	100
<i>virilis</i> (Zirngiebl, 1955)			<i>Euura virilis</i> (Zirngiebl, 1955)	<i>dolichura</i>	37
<i>vittata</i> (Serville, 1823)			<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265
<i>vittata</i> group					260
<i>vittatus</i> Serville, 1823	synonym		<i>Euura vittata</i> (Serville, 1823)	<i>vittata</i>	265
<i>weiffenbachiella</i> Liston & Vikberg, 2017			<i>Euura weiffenbachiella</i> Liston & Vikberg, 2017	<i>amerinae</i>	10
<i>wesmaeli</i> Tischbein, 1853			<i>Pristiphora wesmaeli</i> (Tischbein, 1853)	<i>erichsonii</i>	339
<i>winteri</i> Lindqvist, 1958	syn. nov.		<i>Euura fuscomaculata</i> (Förster, 1854)	<i>bipartita</i>	113
<i>wolteri</i> Lindqvist, 1958	syn. nov.		<i>Euura poppii</i> (Konow, 1904)	<i>bipartita</i>	127
<i>wtewaalli</i> Snellen van Vollenhoven, 1862	synonym		<i>Euura pavida</i> (Serville, 1823)	<i>papillosa</i>	200
<i>wuyishanicus</i> Wei, 2003	comb. nov.		<i>Euura wuyishanica</i> (Wei, 2003)	<i>bergmanni</i>	334
<i>xanthobaptus</i> Förster, 1854	synonym	X	<i>Euura tibialis</i> (Newman, 1837)	<i>myosotidis</i>	190
<i>xanthocarpus</i> Hartig, 1840	synonym		<i>Euura fallax</i> (Serville, 1823)	<i>clitellata</i>	142

Table 4 (continued).

Name	Name status	LT	Valid name	Group	Number
<i>xanthogaster</i> Förster, 1854	synonym	X	<i>Euura bipartita</i> (Serville, 1823)	<i>bipartita</i>	106
<i>xanthophorus</i> Hartig, 1840	synonym		<i>Euura ribesii</i> (Scopoli, 1763)	<i>ribesii</i>	273
<i>xanthopterius</i> Dahlbom, 1835	synonym		<i>Euura annulata</i> (Gimmerthal, 1834)	<i>bipartita</i>	105
<i>xanthostomus</i> Rohwer, 1910	synonym	X	<i>Euura melanocephalus</i> (Hartig, 1837)	<i>melanocephalus</i>	173
<i>zaddachi</i> Enslin, 1916	synonym		<i>Euura myosotidis</i> (Fabricius, 1804)	<i>myosotidis</i>	187
<i>zaddachi</i> Konow, 1901	synonym		<i>Euura clitellata</i> (Serville, 1823)	<i>clitellata</i>	141
<i>zaitzevi</i> Enslin, 1919			<i>Euura zaitzevi</i> (Enslin, 1919)	<i>punicea</i>	319
<i>zetterstedti</i> Dahlbom, 1835	synonym		<i>Euura nigricornis</i> (Serville, 1823)	<i>miliaris</i>	177
<i>zetterstedti</i> Malaise, 1921	synonym		<i>Euura toeniata</i> (Serville, 1823)	<i>toeniata</i>	252