Forty species of limoniid craneflies new to Norway, with an annotated list of Nordic Pediciidae and Limoniidae, including distributional data (Diptera, Tipuloidea)

KJELL MAGNE OLSEN, PJOTR OOSTERBROEK, LOUIS BOUMANS & HERMAN DE JONG

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This paper presents forty species of limoniid craneflies as new to the Norwegian fauna, and include also an updated and annotated checklist of species occurring in Norway, Sweden, Finland, Denmark and Iceland. For Norway, distributional data are given according to Strand regions. Comments are given on some species with doubtful records from Norway.

Key words: Tipuloidea, Pediciidae, Limoniidae, Norway, new records, checklist.

Kjell Magne Olsen, BioFokus, Gaustadalléen 21, 0349 Oslo, Norway.
E-mail: kjell-magne@biofokus.no

Pjotr Oosterbroek, Naturalis Biodiversity Center, Darwinweg 2, 2333 CR Leiden, The Netherlands.
E-mail: p.oosterbroek@chello.nl

Loius P.C. Boumans, University of Oslo, Natural History Museum, P.O. Box 1172 Blindern, Oslo, Norway. E-mail: louis.boumans@khm.uio.no

Herman de Jong, Naturalis Biodiversity Center, Darwinweg 2, 2333 CR Leiden, The Netherlands.
E-mail: herman.dejong@naturalis.nl

Introduction

The superfamilies Tipuloidea and Trichoceroidea (Trichocheridae) make up the infraorder Tipulomorpha. Tipuloidea includes the families Pediciidae, Cylindrotomidae and Tipulidae, as well as the limoniid craneflies. For reasons of conformity, the latter are generally treated as a family, Limoniidae (and that name will be used below), but recent studies have shown that they constitute a paraphyletic assembly of taxa (for an overview of recent phylogenetic studies, see Kang *et al.* (2017)).

The study of Norwegian Tipulomorpha has a long history, but with varying intensity. Species belonging to the infraorder were first mentioned from Norway already in the 18th century, by Fabricius (1779) and Strøm (1784, 1788), whereas more thorough investigations were conducted in the 19th century, when Zetterstedt (1838, 1851, 1855), Siebke (1863, 1866a,b, 1870, 1872, 1877) and Schøyen (1889) collected large numbers of specimens. However, many of the species mentioned have later been shown to consist of two or more taxa, and some of the old literature data does not fit well with current taxonomy and nomenclature. From about 1900 onwards, there has been a series of dedicated investigators working on the families in question: Storm (1898, 1907), Strand (1913), Lackschewitz (1928, 1933, 1934, 1935a,b, 1936a,b, 1940a,b), Tjeder (1948, 1955, 1959, 1964, 1965b), Dahl (1957, 1967,

1969, 1973), Mendl & Solem (e.g. 1972) and Hofsvang (1972, 1974, 1975, 1979, 1981, 1984, 1987, 1992, 1996, 2010, 2016). A checklist of Norwegian Tipulidae was published by Hofsvang 1992), and only a couple of species have since been added by Skartveit (2006) and Boumans *et al.* (2013). The checklist of Trichoceridae is likewise considered to be reasonably updated with the publication by Hågvar & Krzeminska (2008), but several, yet unpublished, new species for the Norwegian fauna have been found in the last couple of years. The family Cylindrotomidae is species poor and no new species are known, but a separate paper on the Nordic species is in preparation and will be published elsewhere. The available lists of Norwegian and Nordic Pediciidae and Limoniidae, however, lack many recorded species, and therefore this paper includes updated checklists for these families.

Until recently, approximately 270 species of Tipulomorpha were known to occur in Norway (19 species of Trichoceridae, 18 species of Pediciidae, approximately 130 species of Limoniidae, 4 species of Cylindrotomidae and close to 100 species of Tipulidae). Corresponding numbers for the other Nordic countries are: Sweden = 388 (excluding four questionable species: *Dicranomyia imbecilla* Lackschewitz, 1941, *Gonomyia lappona* Oosterbroek, 1992, *Nephrotoma relicta* (Savchenko, 1973 and *Tipula hemiptera* Mannheims, 1953), Finland = 360 (excluding *Cladoneura hirtipenne* (Siebke, 1863), *Trichocera arctica* Lundström, 1915 and *Tipula peliostigma* Schummel, 1833)), Denmark = 275 (excluding *Rhabdomastix laeta* (Loew, 1873), *Pilaria decolour* (Zetterstedt, 1851), *Pilaria nigropunctata* (Agrell, 1945) and *Dicranomyia lutea* (Meigen, 1804)) and Iceland = 19 (excluding *Trichocera mackenziei* (Dahl, 1967), *Dicranota subtilis* Loew, 1871 and *Limonia hercegovinae* (Strobl, 1898)). These numbers are based primarily on Catalogue of the Craneflies of the World (CCW) (Oosterbroek 2017), but also partly on correspondence with experts in the respective countries (Yngve Brodin, Sweden, Jukka Salmela, Finland, David Byriel, Denmark and Gísli Már Gíslason, Iceland). For Sweden, the list in Dyntaxa (ArtDatabanken 2017) has been consulted, and amendments have been made in cooperation with Brodin.

Specimens of Tipulomorpha occur in a wide range of different habitats, but most are tied to more or less moist or wet conditions (de Jong *et al.* 2008). Forests and wetlands, vegetation along brooks and streams, and also salt marshes, hold the majority of the species. Many species occur at high altitudes, even above the tree line. The larvae of many species, probably more than 50 %, are dependent on running or stagnant water. Another large group of craneflies live in decaying wood. The remaining species develop in leaf litter, soil or fungi. Many are specialized in the larval stage, and the species must be sought near the appropriate conditions in order to be recorded. Tipulomorpha spend most of their lifespan in the larval state, living only a few days or weeks as adults.

Material and methods

The presented material has been collected by several entomologists using a number of collecting methods (FIT = flight intercept trap, LT = light trap, MT = Malaise trap, N = netted, PT = pitfall trap, WT = window trap, YPT = yellow pan trap; see Table 1) and in the framework of various projects, as well as private collecting events. Much of the material collected by Kjell Magne Olsen is stored at the National History Museum in Oslo (NHMO), but some specimens of each species are held at his private reference collection. Some specimens have been, or will be, used for DNA barcoding. Material from the Mongstad project, and also other collecting events by John Skartveit are held at The Natural History Collections in Bergen (NZMUB). The material from the Finnmarksprosjektet (see information about the project and it's collecting sites in Ekrem *et al.* (2012)) is housed at NZMUB.

Species new to Norway

During recent investigations on Norwegian Tipulomorpha, a large number of limoniid species were encountered, including no less than

TABLE 1. List of mentioned localities, sorted according to geographic sequence of Strand regions (Økland 1981), then alphabetically by municipality, and finally alphabetically by locality name (including any prefixes indicating celestial orientation). Reg. = Strand region. Meth. = collecting method: FIT = flight intercept trap, LT = light trap, MT = Malaise trap, N = netted, PT = pitfall trap, WT = window trap, YPT = yellow pan trap.

Reg.	Municipality	Locality	Lat.	Long.	Meth.	Ecology
Ø	Fredrikstad	Evenrød	59.2701	10.9485	PT	Large hollow Oak tree, west-facing embankment towards arable land, shady. Figure 1.
Ø	Hobøl	S Risermosan	59.5786	10.9036	N	Small shallow pond / wet meadow at the border of a large clear-fell.
Ø	Hvaler	NW Skipstadkilen	59.0500	10.938	N	Meadow, partly dry, partly wet, near brackish lagoon.
Ø	Moss	Fuglevik NR	59.4667	10.6482	N	Swamp forest near small tarn, with ferns and horsetails.
Ø	Moss	Orebukta	59.5041	10.658	N	Along small, dried out brooklet, running out at small sandy sea beach.
Ø	Rakkestad	N Stiksvannet	59.2552	11.3871	MT	Abandoned sand and gravel pit.
Ø	Råde	Åven	59.3197	10.7384	MT	Drier meadow at the border of wetter area with *Juncus*.
AK	Asker	Brønnøya	59.8572	10.5459	N	Coastal meadow / reedbed.
		Langåra	59.8525	10.5496	N	Dry meadow near sea shore.
AK	Bærum	Storøykilen	59.8945	10.6026	N	Cattle-grazed coastal meadow with grazed reedbed.
AK	Fet	Asplund	59.8796	11.239	N	Relatively open *Prunus padus–Alnus incana* forest along small brook, partly along agricultural field.
AK	Fet	E Søndre Ås	59.8795	11.2313	N	Relatively shady *Prunus padus–Alnus incana* forest along small brook, some dead wood, small area of swamp. Figure 2.
AK	Fet	SE Asplund	59.8785	11.2413	N	Shady *Prunus padus–Alnus incana* forest, partly along agricultural field.
AK	Fet	W Asplund	59.8798	11.2365	N	Relatively shady *Prunus padus–Alnus incana* forest along small brook.
AK	Fet	W Stensrud	59.8771	11.2432	N	Small *Prunus padus–Alnus incana* forest, some ferns.
AK	Frogn	Bonnebukta	59.7211	10.7143	MT	At the border of swamp forest, tree layer dominated by Ash and Alder, but also of Small-leaved lime, Bird cherry, Willow and Elm.
AK	Lørenskog	Øvre Grønliveien	59.9448	10.9826	N	Young *Alnus incana* forest and *Prunus padus–Alnus incana* forest along brook. Figure 3.
AK	Nesodden	Bergerskogen	59.8347	10.6812	MT	Rather dense, mixed forest with *Vaccinium myrtillus*
AK	Nesodden	Blåbærstien	59.8523	10.6698	MT	Easterly faced slope with high diversity of tree and bush species (Small-leaved lime, Aspen, Hazel, Oak, Rowan, Cherry, Rose, Spruce, Pine, Yew and Juniper. Nutritionally poor vegetation, with some garden escapes (*Spiraea*)
AK	Nesodden	Flatebybråten vest	59.8123	10.6249	MT	Shadowy mixed forest with large ferns and Blueberry
AK	Oslo	Alnaelva	59.9525	10.8833	N	Deciduous forest along pond and brook

TABLE 1. *Continued.*

Reg.	Municipality	Locality	Lat.	Long.	Meth.	Ecology
AK	Oslo	Bekkedalen, Tonsen	59.9455	10.8215	N	Deciduous forest along brook
		Gaustad	59.9484	10.7117	MT	Restored hay meadow. Figure 4.
		NW Huken	59.9709	10.8744	N	*Prunus padus–Alnus incana* forest along brook, some Norway spruce and ferns
AK	Ullensaker	Hovinmoen grustak	60.1797	11.1629	N	Abandoned part of sand and gravel pit with lots of red clover
AK	Ås	Pollen	59.7484	10.7613	MT	Meadow next to *Alnus incana* dominated forest. Figure 5.
HEN	Stor-Elvdal	N Krokmyra	61.6058	10.8399	MT	Dry Scots pine lichen woodland, nest to small temporary pond
OS	Lunner	Grindvoll, Vestern	60.3036	10.4695	MT	Dry, calcareous meadow
BØ	Lier	N Ulvenvann	59.8196	10.3512	N	*Prunus padus–Alnus incana* forest along brook, brackens. Rather narrow valley, with some cliffs, blueberry-pine woodland along eastern edge
BØ	Ringerike	Lamyra S	60.1099	10.2546	N	Swamp forest, rather dense. Figure 6.
		Lamyra W	60.1112	10.2438	N	Swamp forest, rather open
		Løkken	60.1245	10.2597	N	Shadowy forest / wet meadow along lake
BV	Ål	Venedokki	60.5896	8.4437	N	Well maintained hay meadow
VE	Larvik	Karto	59.0241	10.205	MT	Partly dry, partly wet meadow near sea shore. Figure 7.
		Nevlungstranda	58.9685	9.8482	MT	Inner part of sea shore, not far from a pond
TEY	Bamble	Langøya E	59.0074	9.7561	MT	Inner part of beach, close to sandy Scots pine forest
		Langøya W	59.0075	9.7521	MT	Dry calcareous meadow with bushes
		Vinjekilen NR	58.9960	9.6736	N	Open seashore meadow with reedbed on the inner part
TEY	Kragerø	Frydensborgtjenna	58.8748	9.3992	MT	Reedbed along vegetation rich pond. Figure 8.
		Tåtøy	58.8544	9.376	N	Mixed habitat sampled, but probably wet meadow
TEY	Skien	N Gravklev	59.1803	9.5512	N	Open, grazed ravine with a small brook at the bottom.
		NE Bjerketvedt	59.1755	9.5505	N	Ravine with moist environment in valley bottom, drier along valley sides. Figure 9.
TEI	Kviteseid	Hustuftin	59.3882	8.4514	MT	Abandoned sand and gravel pit.
TEI	Seljord	Heggenes	59.4403	8.7786	MT	Abandoned road outside tunnel, dry and warm.
TEI	Tokke	Eidsborgtjørna	59.4646	8.0236	N	Small brook and a tarn surrounded by wet meadows.
TEI	Tokke	Gruppebekken	59.4287	8.0924	N	Shady, steep brook with rather dense forest.
TEI	Tokke	Lindeviki	59.4082	8.2891	FIT	Large scree with patches of deciduous forest.
TEI	Tokke	Lårdalsåi	59.4274	8.1797	N	Along small river.
TEI	Tokke	Mågebekken	59.4193	8.2148	MT	Shadowy forest with small brook, some Hazel scrub.
TEI	Tokke	NW Båtstø	59.4208	8.2084	FIT, MT	Small gravel pit, surrounded by dense forest and a large lake. Figure 10.

TABLE 1. *Continued.*

Reg.	Municipality	Locality	Lat.	Long.	Meth.	Ecology
TEI	Tokke	S Bratsberg	59.4246	8.1676	FIT	Small patch of dry meadow on rocky outcrop, surrounded by rather dense forest.
TEI	Tokke	Strandine	59.4218	8.2031	N	Along small gravel road, close to large lake.
AAY	Birkenes	Nordåsen	58.3334	8.2400	LT	Garden.
VAY	Kristiansand	Nedre Timenes	58.1611	8.0993	LT	Forest of mostly Oak and Scots pine, close to lake.
		Tveit prestegård	58.2275	8.1186	WT	In the crown of a large Oak tree.
RY	Finnøy	Sevheim	59.16	5.80	N	Old bog/swamp, regrown by *Betula*.
		Sevheimsheia	59.16	5.80	N	Regrown *Calluna* heath.
		Sevheimsvatnet	59.15	5.80	YPT	Along medium rich lake, with *Myrica*.
HOY	Austrheim	Mongstad I	60.803	5.018	N	Boggy *Calluna* heath, with spruce plantation and young, wet deciduous forest (mainly willow).
HOY	Austrheim	Mongstad II	60.80	5.02	N	Boggy *Calluna* heath, with spruce plantation and young, wet deciduous forest (mainly willow).
HOY	Austrheim	Mongstad III	60.80	5.02	N	Boggy *Calluna* heath, with spruce plantation and young, wet deciduous forest (mainly willow).
HOY	Austrheim	Mongstad IV	60.803	5.018	MT1	Rather wet *Calluna* heath.
		Mongstad V	60.810	5.018	MT2	Moist Willow scrub.
HOI	Jondal	SSW Strondi	60.3292	6.3391	N	Rather dry bog with *Calluna*, *Myrica* and *Narthecium*. Figure 11.
HOI	Kvam	Neshalvøya	60.163	5.936	N	Near sea shore.
HOI	Kvinnherad	Hattebergelva (Rosendal)	59.987	6.030	N	Riverside with deciduous forest in embankment.
HOI	Kvinnherad	Hjortlandstjørn	60.042	5.895	N	Boggy conditions near small tarn.
		Rosendal gjestgiveri	59.987	6.007	N	Garden with alien species.
SFI	Lærdal	Husum	61.0469	7.7903	LT	In Hazel forest close to rock wall / scree, pasture (sheep-grazed) Figure 12.
		Moldabakkane	61.0613	7.5255	LT	Slopy pasture, in Hazel forest below rock wall / scree. Figure 13.
FV	Alta	Gargia fjellstue	69.8053	23.4894	MT	Fast running stream; stony bed; in a forest with Pine (*Pinus sylvestris*), Birch (*Betula pubescens*), Willow and Alder (*Alnus incana*).
FV	Alta	Storeng	69.8228	23.4788	MT	Lake-like broadening of the Gargiaelva river; sandy bed; broad vegetation zone with sedges (*Carex* spp.) and nearby woodland with Birch, Alder and Willow. (Photo in Ekrem *et al.* 2012.).
FN	Porsanger	Rørkulpen	70.1522	24.7669	MT	River, about 10 m wide, moderately fast running, on stony bed; bank with some Willow and Alder; situated in natural pine forest.
FN	Porsanger	Stornes (N feriesenteret)	70.1962	24.9184	N	Coastal salt-marsh; beach; sand, mud and some small ponds.
FØ	Sør-Varanger	Russevann (S 96-høyden)	69.4450	29.8990	MT	Lake, about four hectares large, max 50 m deep; mosaic of Pine forest and blanket bog on bank. (Photo in Ekrem *et al.* 2012.).

FIGURES 1-13. Photos from the localities mentioned in Table 1. **1**. Evenrød in Ø, Fredrikstad, a locality where *Rhipidia uniseriata* was collected in a pitfall trap. Photo Ola M. Wergeland Krog. **2**. East of Søndre Ås in AK, Fet, where *Ormosia affinis* was netted. Photo Kjell Magne Olsen. **3**. Øvre Grønliveien 5 in AK, Oslo. *Cheilotrichia neglecta*, *Dicranomyia fusca*, *Ormosia affinis* and *Paradelphomyia fuscula* were netted here. Photo Kjell Magne Olsen. **4**. Gaustad in AK, Oslo. A newly restored hayfield where *Cheilotrichia neglecta*, *Molophilus curvatus* and *Scleroprocta pentagonalis* were collected in a Malaise trap. Photo (taken 2013) Kjell Magne Olsen. **5**. Pollen in AK, Ås. A Malaise trap here collected *Gonomyia abscondita*, *Molophilus bihamatus*, *Ormosia clavata, Paradelphomyia nigrina* and *Metalimnobia charlesi*. Photo Ole J. Lønnve. **6**. Southern part of Lamyra in BØ, Ringerike, a habitat with *Helius flavus* and *H. longirostris*. Photo Kjell Magne Olsen. **7**. Karto in VE, Larvik. *Limonia stigma* was collected in the Malaise trap. Photo Stefan Olberg. **8**. Frydensborgtjenna in TEY, Kragerø. *Phylidorea bicolor* was collected in a malaise trap. Photo Kjell Magne Olsen. **9**. Northeast of Bjerketvedt in TEY, Skien, where *Eloeophila submarmorata*, *Gonomyia abscondita*, *Helius flavus*, *H. longirostris* and *Ilisia maculata* were netted. Photo Kjell Magne Olsen. **10**. Northwest of Båtstø in TEI, Tokke. Seven of the species reported

new to Norway were collected here: *Gonomyia abscondita*, *G. edwardsi*, *Lipsothrix remota*, *Molophilus corniger*, *Ormosia clavata*, *O. depilata* and *Paradelphomyia fuscula*. Photo Kjell Magne Olsen. **11**. South–southwest of Strondi in HOI, Jondal. *Molophilus occultus* was abundant here. Photo Kjell Magne Olsen. **12**. Husum in SFI, Lærdal. *Gonomyia abscondita*, *Molophilus curvatus*, *Ormosia clavata*, *Dicranomyia imbecilla*, *D. schineriana*, *Limonia stigma* and *Rhipidia uniseriata* were collected in a light trap to the left of the buildings. Photo Rein-Arne Golf. **13**. Moldabakkane in SFI, Lærdal. A light trap here collected *Dicranomyia imbecilla*, *D. schineriana* and *Limonia maculicosta*. Photo Kai Berggren.

40 species not yet known from Norway. Details on these species are presented below. The total number of Norwegian limoniids is now 173.

Collectors and identifiers. AEL = Arne Endre Laugsand, HdJ = Herman de Jong, JK = John Kramer, JSa = Jukka Salmela, JSk = John Skartveit, JSt = Jaroslav Starý, KB = Kai Berggren, KMO = Kjell Magne Olsen, LJS = Lars J. Sundsdal, OJL = Ole Jørgen Lønnve, OMWK = Ola Martin Wergeland Krog, PO = Pjotr Oosterbroek, RAG = Rein-Arne Golf, RB = Roald Bengtson, SOb = Stefan Olberg, SOs = Sondre Olsen, SR = Steffen Roth, SS = Svein Svendsen and ØG = Øivind Gammelmo. Underlined identifier in the species section below indicates the first identified specimen(s).

Counties and Strand regions (see map on page XXX) are arranged in geographical order from south to north in the lists of examined material below.

Information on identification, distribution, biology and period of flight is given for each species, mainly based on the online database Catalogue of the Craneflies of the World (Oosterbroek 2017), and the references cited therein.

Chioneinae

Number of known Norwegian species in this taxon: 78, of which 16 are here presented as new to the Norwegian fauna.

Cheilotrichia (Empeda) neglecta
(Lackschewitz, 1927) (Figure 16)

Material examined: **AK**, Fet: SE Asplund, 1♂, 28.IX.2016, N, leg./det. KMO; Frogn: Bonnebukta, 25♂♂♀♀, 7.X.–7.XI.2010, MT, leg. OJL, det. KMO; Lørenskog: Øvre Grønliveien, 5♂♂, 1.IX.2016, N, leg./det. KMO; Oslo: Gaustad, 1♂, 5.IX.–10.X.2015, MT, leg. KMO a.o., det. KMO, conf. JK; Alnaelva, 2♂♂, 8.IX.2016, N, leg./det. KMO; NW Huken, 1♂, 13.X.2016, N, leg./det. KMO; **OS**, Lunner: Grindvoll, Vestern, 1♂, 21.VIII.–18.IX.1994, MT, leg. OJL, det. KMO.

Identification: Belongs to the group of *Empeda* species with the body coloured dark grey to greyish black and the longest verticils of the male antennae 10 times the length of the respective segments or more. Key and figures for this species in Starý (1987).

Distribution: Known from a few countries in Central, North and East Europe, including Finland and parts of Russia. So far only known from the counties Akershus and Oppland in Norway.

Biology: There is no information on the biology of this species. It may be similar to the biology of *C*. (*E*.) *cinerascens*. Larvae of that species are mainly aquatic, found along the banks of small rivers among roots and leafs (Reusch 1988), but they are also known to breed in leaf mould (Cuthbertson 1926) and cow dung (Skidmore 2010). Adults of *C*. (*E*.) *cinerascens* are found in all types of surroundings including woodland, gardens and hedgerows (Boardman 2016), but predominantly in wet and moist habitats (Salmela & Autio 2007). The period of flight for *E. neglecta* is July–October.

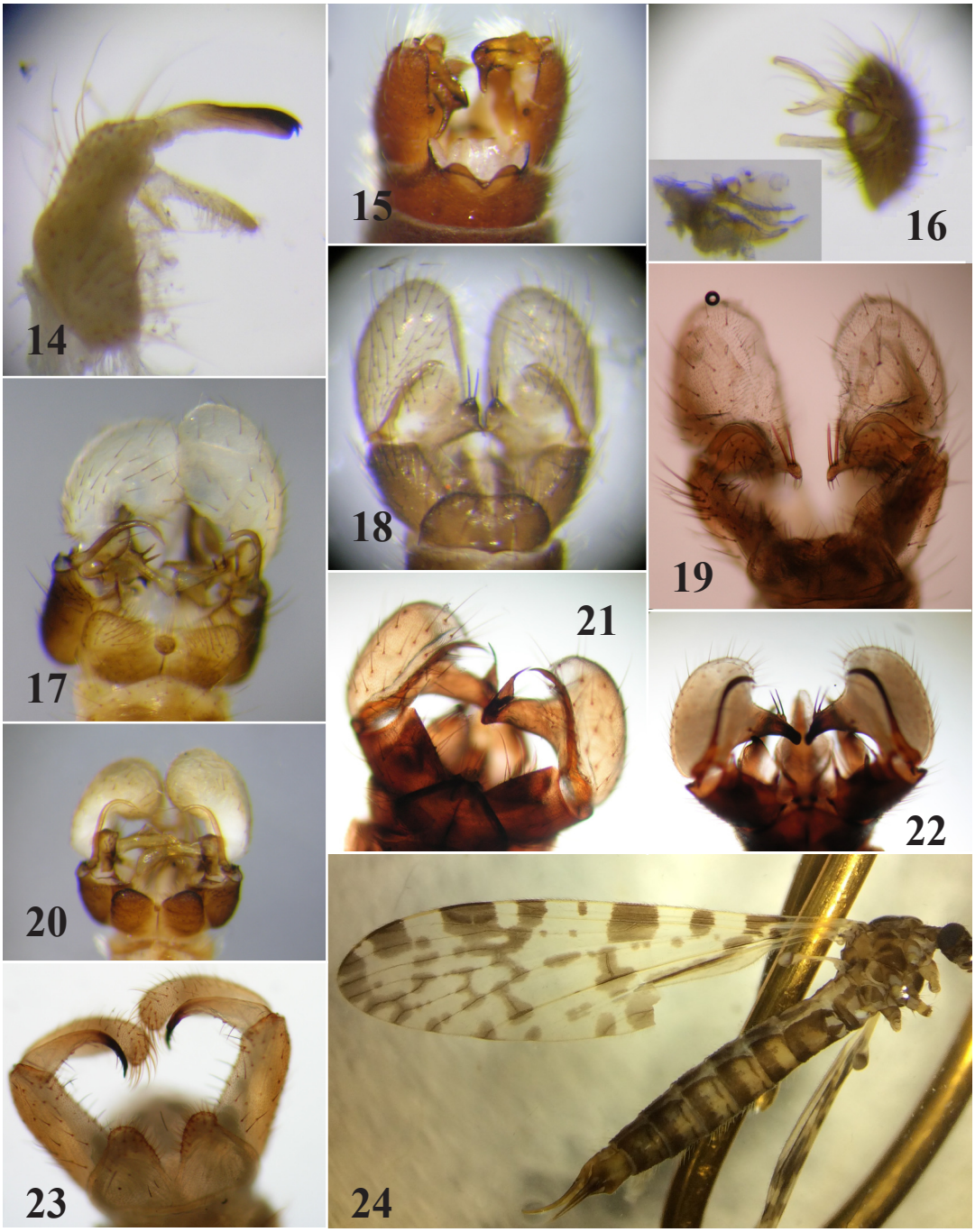
Gonomyia (Gonomyia) abscondita
Lackschewitz, 1935 (Figure 25)

Material examined: **AK**, Ås: Pollen, 1♂, 27.VI.–13.VIII.2016, MT, leg. OJL, det. KMO; **TEY**, Skien: NE Bjerketvedt, 1♂, 22.VI.2016, N, leg./det. KMO; **TEI**, Tokke: NW Båtstø, 1♂, 9.VI.–16.VII.2015, MT, leg. KMO/ØG, det. KMO, conf. JSa; **SFI**, Lærdal: Husum, 1♂, August 2016, LT, leg. KB/RAG, det. KMO, conf. JSt; 3♂♂♀♀, August–September 2016, same LT, leg. KB/RAG, det. KMO.

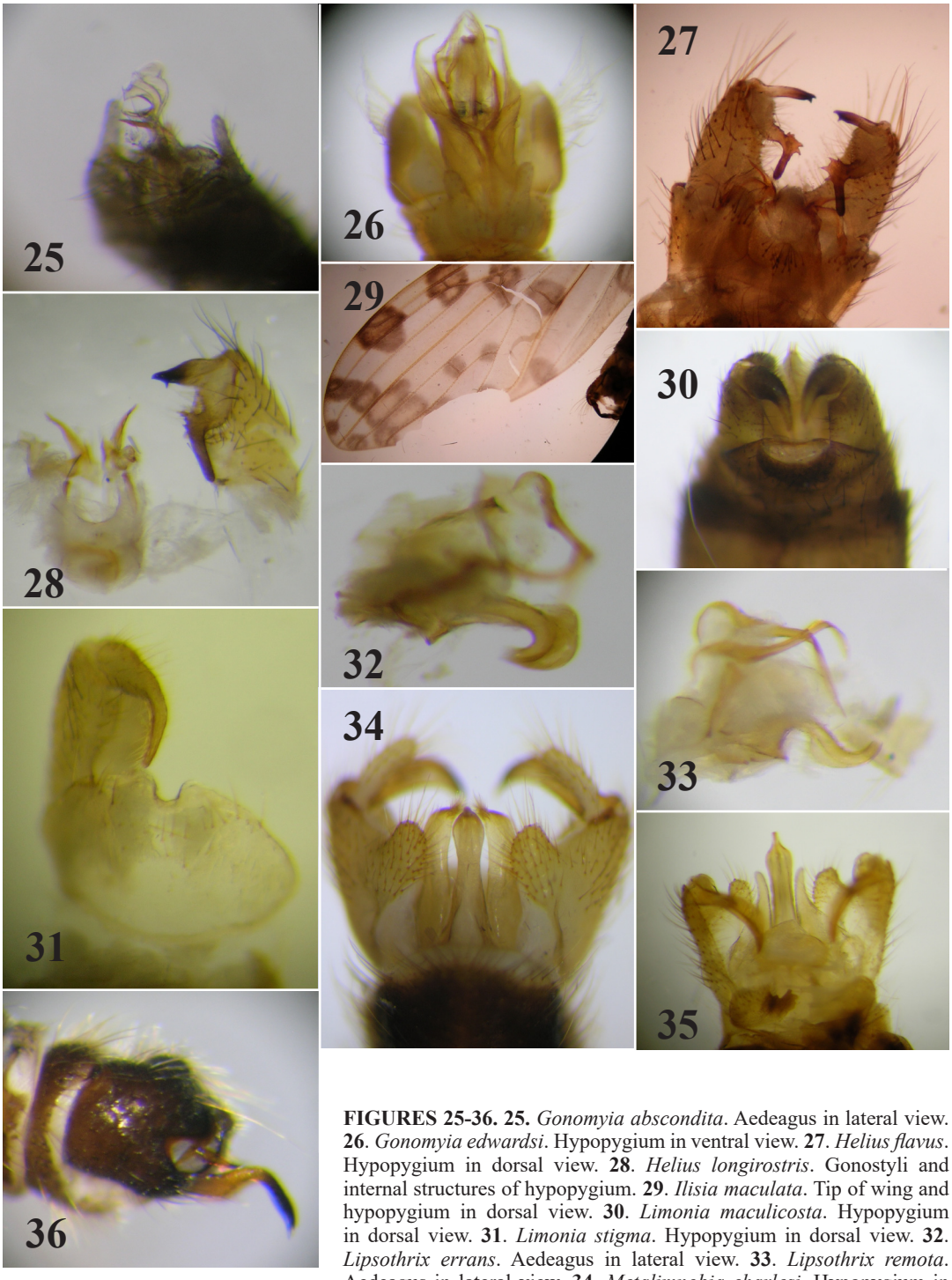
Identification: *Gonomyia abscondita* has the pleuron patterned with brown markings, typically with a distinct central spot on the upper part of the katepisternum. Characters to separate it from similar species are found in the hypopygium, as specified in Starý (2011).

Distribution: Known from a fair number of European countries, including Sweden and Finland. Also, East European Russia and Morocco. Known from several scattered localities in southern Norway.

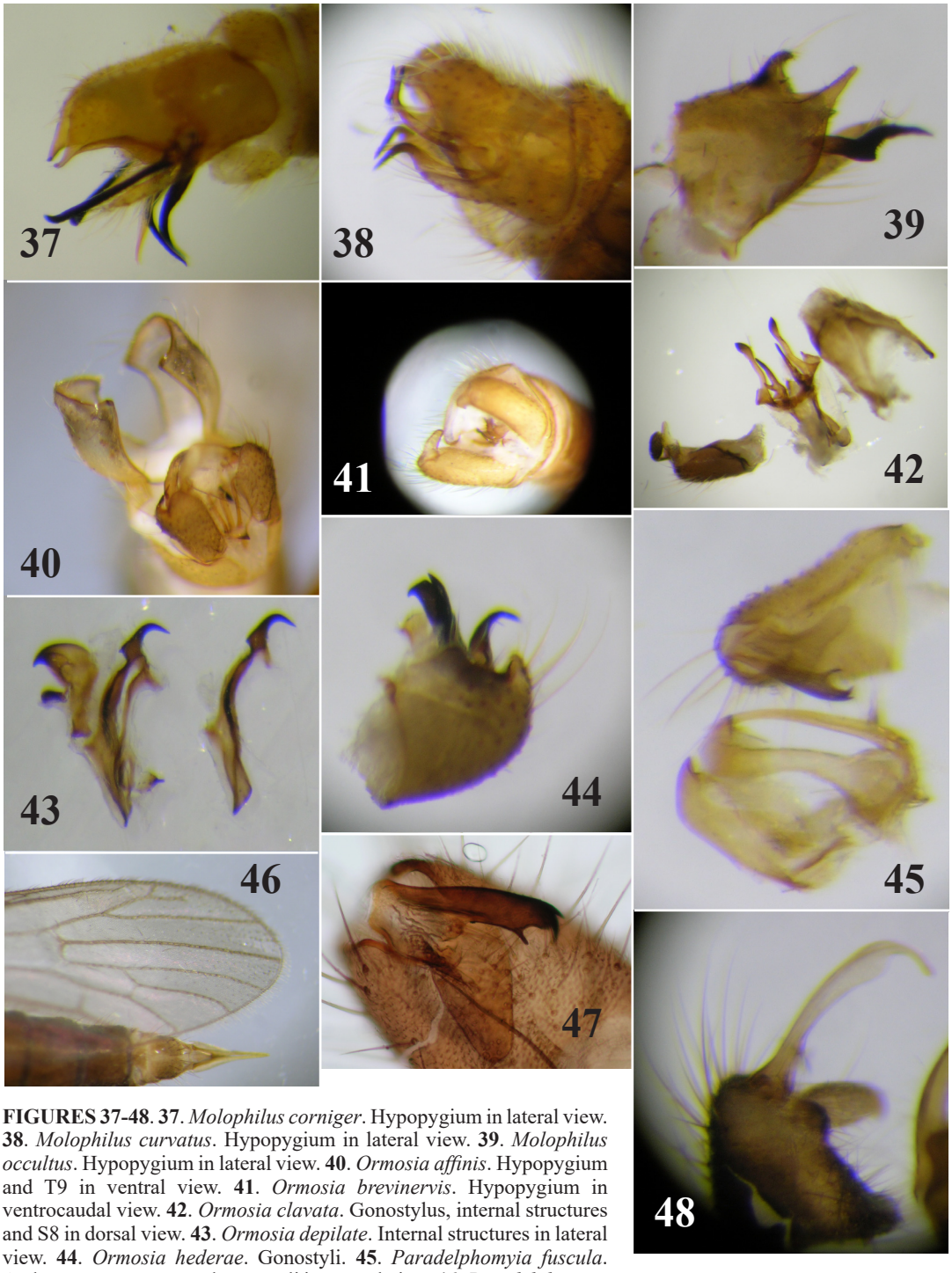
Biology: Larvae of *Gonomyia* (sensu strictu) are generally found near the shores of flowing and standing waters (Cranston & Drake 2010). In Great Britain, the species is reported from seepages, near streams and water margins on



FIGURES 14-24. **14**. *Adelphomyia punctum*. Gonostyli in ventral view. **15**. *Austrolimnophila harperi*. Hypopygium in dorsal view. **16**. *Cheilotrichia neglecta*. Aedeagus in lateral and gonostyli in caudal view. **17**. *Dicranomyia esbeni*. Hypopygium in dorsal view. **18**. *Dicranomyia fusca*. Hypopygium in dorsal view. **19**. *Dicranomyia imbecilla*. Hypopygium dorsal view. **20**. *Dicranomyia intricata*. Hypopygium in dorsal view. **21**. *Dicranomyia liberta*. Hypopygium in dorsal view. **22**. *Dicranomyia schineriana*. Hypopygium in dorsal view. **23**. *Dicranomyia sera*. Hypopygium in dorsal view. **24**. *Eloeophila submarmorata*. Female.



FIGURES 25-36. 25. *Gonomyia abscondita*. Aedeagus in lateral view. **26**. *Gonomyia edwardsi*. Hypopygium in ventral view. **27**. *Helius flavus*. Hypopygium in dorsal view. **28**. *Helius longirostris*. Gonostyli and internal structures of hypopygium. **29**. *Ilisia maculata*. Tip of wing and hypopygium in dorsal view. **30**. *Limonia maculicosta*. Hypopygium in dorsal view. **31**. *Limonia stigma*. Hypopygium in dorsal view. **32**. *Lipsothrix errans*. Aedeagus in lateral view. **33**. *Lipsothrix remota*. Aedeagus in lateral view. **34**. *Metalimnobia charlesi*. Hypopygium in ventral view. **35**. *Metalimnobia tenua*. Hypopygium in dorsal view. **36**. *Molophilus bihamatus*. Hypopygium in lateral view.



FIGURES 37-48. **37**. *Molophilus corniger*. Hypopygium in lateral view. **38**. *Molophilus curvatus*. Hypopygium in lateral view. **39**. *Molophilus occultus*. Hypopygium in lateral view. **40**. *Ormosia affinis*. Hypopygium and T9 in ventral view. **41**. *Ormosia brevinervis*. Hypopygium in ventrocaudal view. **42**. *Ormosia clavata*. Gonostylus, internal structures and S8 in dorsal view. **43**. *Ormosia depilate*. Internal structures in lateral view. **44**. *Ormosia hederae*. Gonostyli. **45**. *Paradelphomyia fuscula*. Aedeagus, parameres and gonostyli in ventral view. **46**. *Paradelphomyia nigrina* Tip of wing and ovipositor in dorsal view. **47**. *Paradelphomyia senilis*. Gonostyli. **48**. *Phylidorea bicolor*. Gonostyli.

FIGURES 49-53. **49**. *Pilaria fuscipennis*. Aedeagus in lateral view. **50**. *Rhabdomastix laetoidea*. Gonostyli and paramere. **51**. *Rhipidia uniseriata*. Hypopygium in dorsal view. **52**. *Scleroprocta pentagonalis*. Hypopygium in dorsocaudal view. **53**. *Symplecta mabelana*. Hypopygium in dorsal view.

neutral to acidic soil, frequently in wet woodland or scrub (Boardman 2007, 2016, Stubbs & Kramer 2016c). In Finland, adults were collected from springs and headwater streams, rarely from intermittent streams (Salmela 2012b). The period of flight is May–September.

***Gonomyia (Teuchogonomyia) edwardsi* Lackschewitz, 1925** (Figure 26)

Material examined: **TEI**, Tokke: NW Båtstø, 1♂, 9.VI.–16.VII.2015, MT, leg. KMO/ØG, det. KMO, conf. JSa.

Identification: *Gonomyia edwardsi* is a drab species with the top of the thorax entirely dark, a wide pleural stripe and yellow areas murky, dull. Wing with vein Rs of median length, shorter than half the length of cell rs (upper basal cell). Male gonocoxite with three lobes of gonostyles.

Distribution: Known from a small number of European countries, including Sweden and Finland. Also, Karelia and Mongolia. Only one locality in Norway, in county Telemark.

Biology: In Scotland the species has a strong association with exposed riverine sediments (Godfrey 1999, Hewitt *et al.* 2005). It has been found near small streams in moorland, where some deposition of marginal sand is present (Stubbs & Kramer 2016c). In Romania it was found in boggy environment along marshy springs complexes and streams with Alder, tall sedge and bushy vegetation (Ujvárosi *et al.* 2011). The period of flight is May–August.

***Ilisia maculata* (Meigen, 1804)** (Figure 29)

Material examined: **TEY**, Skien: NE Bjerketvedt, 2♂♂♀♀, 22.VI.2016, N, leg./det. KMO, conf. JK.

Identification: The species can easily be recognized by the colouration of the wing; 10 or more brown spots with pale centres and three large spots along the radial sector.

Distribution: The species is widespread in Europe, including Sweden and Denmark. Also, European Russia, Turkey, Transcaucasus and Morocco. Only one locality in Norway, in county Telemark.

Biology: *Ilisia maculata* is a marshland and wet woodland species with larvae in more or less saturated organic mud of swamps, lake margins, marshes (Boardman 2007, 2016, Kramer & Withers 2007, Noll 1985, Podeniene 2003) and deciduous forests (Beling 1879, Crisp & Lloyd

1954). The period of flight is May–October.

***Molophilus (Molophilus) bihamatus* de Meijere, 1918** (Figure 36)

Material examined: **AK**, Ås: Pollen, 7♂♂♀♀, 15.V.–27.VI.2016, MT, leg. OJL, det. KMO, conf. JSt.

Identification: Belongs to the small group of black-bodied *Molophilus* species. Among these, *M. bihamatus* is characterized by the pale brown femora, at most slightly darkened at the tip.

Distribution: Known from various countries throughout Europe from Ireland to West Russia, including Sweden, Finland, Karelia (part of Russia) and Denmark. Only one locality in Norway, in county Akershus.

Biology: In Finland considered a species indicating conservation value or naturalness of wetlands (Salmela & Autio 2007). Occurs around springs, brooks and rusty seepages, reedbeds, lake edges, in mires and carrs as well as damp forests (Brinkmann 1991, Boardman 2016, Krzeminski 1984, Howe & Howe 2001, Howe *et al.* 2001, Salmela 2001, 2012b). Larvae are semi-aquatic or terrestrial (Mendl 1978). The period of flight is May–September.

***Molophilus (Molophilus) corniger* de Meijere, 1920** (Figure 37)

Material examined: **Ø**, Rakkestad: N Stiksvannet, 3♂♂, 15.VIII.–19.IX.2015, MT, leg. KMO/OMWK, det. KMO; **TEY**, Kragerø: Tåtøy, 2♂♂, 11.VIII.2016, N, leg./det. KMO; **TEI**, Tokke: Eidsborgtjørna, 7♂♂, 17.VII.2016, N, leg./det. KMO; Gruppebekken, 1♂, 17.VII.2016, N, leg./det. KMO; Lårdalsåi, 10♂♂, 16.VII.2016, N, leg./det. KMO; Mågebekken, 5♂♂, 9.VI.–16.VII.2015, MT, leg. KMO/ØG, det. KMO; 3♂♂, 16.VII.–4.IX.2015, same MT, det. KMO; NW Båtstø, 3♂♂, 9.VI.–16.VII.2015, MT, leg. KMO/ØG, det. KMO; 17♂♂, 16.VII.–4.IX.2015, same MT, det. KMO; 1♂, 4.IX.–11.X.2015, same MT, det. KMO; 1♂, 4.09.–11.10.2015, FIT, leg./det. KMO/ØG, det. KMO, conf. JSa.

Identification: Belongs to the group of yellow coloured *Molophilus* species whose males have a hypopygium with two well developed pairs of gonostyles. Gonocoxite with a strong apical hook, one pair of gonostyles straight, the other pair strongly curved.

Distribution: Widely distributed in Europe, including Sweden, Finland and Denmark. Also, European Russia (see Oosterbroek (2017) for details). Probably present over most of southeastern Norway.

Biology: In Great Britain considered an ecological indicator of calcareous carr and seepage woodland, usually on peat or otherwise very humid substrate (Stubbs 2003). Shaded or semi-shaded conditions are considered essential (Stubbs 2003, Stubbs & Kramer 2016e), but the species was also found on marshy meadows (Cramer 1968). Larvae are assumed to be saprophagous, semi-aquatic to aquatic (Noll 1985). In Finland and Germany mainly found in various spring habitats (Lehmann & Reusch 2009, Reusch & Hohmann 2009, Salmela 2001, Salmela *et al.* 2007). The period of flight is May–September.

***Molophilus (Molophilus) curvatus* Tonnoir, 1920** (Figure 38)

Material examined: **AK**, Nesodden: Bergerskogen, 1♂, 18.V.–26.VI.2015, MT, leg. OJL, det. KMO; Oslo: Gaustad, 4♂♂, 23.V.–23.VI.2015, MT, leg. KMO a.o., det. KMO, conf. JK; **SFI**, Lærdal: Husum, 3♂♂, April–July 2016, LT, leg. KB/RAG, det. KMO; 1♂, June–July 2016, same LT, leg. KB/RAG, det. KMO; 2♂♂, 1.–7.VIII.2016, same LT, leg. KB/RAG, det. KMO; 1♂, August 2016, same LT, leg. KB/RAG, det. KMO; 1♂, August–September 2016, same LT, leg. KB/RAG, det. KMO.

Identification: Belongs to the group of orange-brown *Molophilus* species. Male hypopygium with a rather pointed apex, and with a sickle-like and a slender curved gonostyle.

Distribution: Known from a limited number of European countries, from Ireland to the Ukraine, including Sweden and Denmark. Collected from two widely separated areas in eastern and western Norway.

Biology: Known from a variety of wet habitats, such as spring brooks (Noll 1985, Reusch & Hohmann 2009), small sandy stream edges (Godfrey 1999), shaded banks of dingle streams, large streams and rivers (Boardman 2007, 2016,

Noll 1985), marshy meadows and marshland with deciduous trees (Ashe *et al.* 2007, Ujvárosi *et al.* 2011), damp woods near streams (Krzeminski 1984). The period of flight is May–September.

***Molophilus (Molophilus) occultus* de Meijere, 1918** (Figure 39)

Material examined: **VAY**, Kristiansand: Nedre Timenes, 6♂♂, 17.–24.VIII.2015, LT, leg. KB, det. KMO; **RY**, Finnøy: Sevheimsheia, 2♂♂3♀♀, 23.VI.2005, N, leg./det. JSk; **HOY**, Austrheim: Mongstad I, 1♀, 28.V.2005, N, leg./det. JSk; Mongstad II, 13♂♂♀♀, 1.VII.2005, N, leg./det. JSk; Mongstad III, many specimens, sex not known, 1.VII.2005, N, leg./det. JSk; Mongstad IV, many ♂, 28.V.–1.VII.2005, MT1, leg./det. JSk; many specimens, sex not known, 1.VII.–14.IX.2005, MT1, leg./det. JSk; Mongstad V, 11♂♂, 28.V.–1.VII.2005, MT2, leg./det. JSk; 4♂♂♀♀, 1.VII.–10.VIII.2005, MT2, leg./det. JSk; **HOI**, Jondal: SSW Strondi, 78♂♂♀♀, 21.VIII.2016, N, leg./det. KMO; Kvinnherad: Hattebergelva (Rosendal), 1♂, 12.VI.2006, N, leg./det. JSk.

Identification: Belongs to the group of orange brown coloured *Molophilus* species. Male hypopygium with one long narrow and one short broad apical triangular structure, and a sickleshaped gonostyle.

Distribution: Known from a limited number of European countries, from Ireland to Lithuania and Romania, including Sweden, Finland and Denmark. In Norway only in southwestern parts.

Biology: In Great Britain characteristic of wet acid places, especially bogs, wet moorland, acid seepages and less often acid carr (Stubbs & Kramer 2016e). Larvae probably require areas of bare wet peat (Boyce 2004). In Finland and Romania also collected from wet habitats with coniferous trees (*Pinus, Picea*) (Kolcsár *et al.* 2015, Salmela 2011). The period of flight is May—September.

***Ormosia (Ormosia) affinis* (Lundbeck, 1898)** (Figure 40)

Material examined: **AK**, Fet: Asplund, 1♂, 28.IX.2016, N, leg./det. KMO; E Søndre Ås, 1♂, 28.IX.2016, N, leg./det. KMO; W Asplund, 1♂, 28.IX.2016, N, leg./det. KMO; W Stensrud, 1♂1♀, 28.IX.2016, N, leg./det. KMO; Lørenskog: Øvre Grønliveien, 1♂, 1.IX.2016, N, leg. KMO, det. JSt; Oslo: Alnaelva, 1♂, 8.IX.2016, N, leg./det. KMO.

Identification: The species can be easily recognized by the male tergite 9 which is conspicuously enlarged.

Distribution: First record for the West Palaearctic, known so far from the USA and Canada (widespread), Greenland and Far East Russia. So far only found in county Akershus in Norway.

Biology: A summary was given by Oosterbroek *et al.* (2007), citing various authors: a semi-aquatic species. For Northwest USA (New York and New England) the following habitats have been listed: dryer woods above swamp, *Sphagnum* bog, *Arborvitae* swamp, very old bogs, swales, in *Hellebore* patches. Habitats for Far East Russia are open Fir-Larch woodland (Sakhalin) and mixed forests (Kuril Islands). The period of flight is July–September.

***Ormosia (Ormosia) brevinervis* (Lundström, 1907)** (Figure 41)

Material examined: **FV**, Alta: Storeng, 1♂, 26.VI.–10.VII.2010, MT, leg. Finnmarksprosjektet, det. KMO, conf. JSt.

Identification: To be recognized by characters of the male genitalia, especially the single gonostyle, as opposed to the vast majority of species in subgenus *Ormosia*, which possess two gonostyles. The species is redescribed in Tjeder (1965a), including figures of hypopygium and ovipositor.

Distribution: Known from a small number of records in Sweden, Finland, Lithuania, and also from North and West European Russia. A single specimen known from Norway, from western part of Finnmark.

Biology: Most *Ormosia* species are found in wet woodland, but some prefer more open habitats, such as marshy meadows, heaths and moorland. *O. brevinervis* from Finnish Lappland was collected in ”regio subalpina” (Lundström 1907). Specimens from Swedish Lappland were found in the delta of the rivers Kamajokk and Tarrejokk, in very dense and lush vegetation of Birch, salices and carices along the river borders,

at an altitude of 300 m (Tjeder 1965a). Period of flight: June to August, in Norway in June or July.

***Ormosia (Ormosia) clavata* (Tonnoir, 1920)**
(Figure 42)

Material examined: **AK**, Ås: Pollen, 2♂♂, 27.VI.–13.VIII.2016, MT, leg. OJL, det. KMO; **BV**, Ål: Venedokki, 1♂, 6.VII.2016, N, leg./det. KMO; **TEI**, Tokke: Eidsborgtjørna, 8♂♂, 17.VII.2016, N, leg./det. KMO; Gruppebekken, 2♂♂, 17.VII.2016, N, leg./det. KMO; Lårdalsåi, 2♂♂, 16.VII.2016, N, leg./det. KMO; Mågebekken, 3♂♂, 16.VII.–4.IX.2015, MT, leg. KMO/ØG, det. KMO, conf. JSa; NW Båtstø, 3♂♂, 16.VII.–4.IX.2015, MT, leg. KMO/ØG, det. KMO; 1♂, 4.IX.–11.X.2015, same MT, leg. KMO/ØG, det. KMO; **VAY**, Kristiansand: Nedre Timenes, 1♂, 17.–24.VIII.2015, LT, leg. KB, det. KMO; **SFI**, Lærdal: Husum, 1♂, September 2016, LT, leg. KB/RAG, det. KMO.

Identification: A dark brown species, to be recognized (as most *Ormosia* species) by the male hypopygium only: gonocoxite broad. Outer gonostyle short, clubbed. Inner gonostyle lobe-like, bent in the middle.

Distribution: Widespread in continental Europe, including Sweden and Finland. Also, European Russia. Probably widespread in southern Norway.

Biology: Known from a small variety of habitats: spring brooks (Reusch and Hohmann 2009), small mountain streams (Brinkmann 1991), raised bogs (Spungis 2008), calcareous Beech forest (Hövemeyer 1985, as *Ormosia depilata*), mixed forests especially near water (Krzeminski 1984). The period of flight is July–September.

***Ormosia (Ormosia) depilata* Edwards, 1938**
(Figure 43)

Material examined: **AK**, Nesodden: Flatebybråten vest, 1♂, 9.V.–2.VI.2014, MT, leg. OJL, det. KMO; **TEI**, Tokke: Mågebekken, 11♂♂, 4.V.–9.VI.2015, MT, leg. KMO/ØG, det. KMO, conf. JSa; 5♂♂, 9.VI.–16.VII.2015, same MT, leg. KMO/ØG, det. KMO; NW Båtstø, 1♂, 4.V.–9.VI.2015, MT, leg. KMO/ØG, det. KMO; 1♂, 9.VI.–16.VII.2015, same MT, leg. KMO/ØG, det. KMO; **RY**, Finnøy: Sevheimsvatnet, 3♂♂♀♀, 26.V.–26.VI.1995, YPT, leg./det. JSk; **HOY**, Austrheim: Mongstad V, 2♂♂, 28.V.–1.VII.2005, MT2, leg./det. JSk; **HOI**, Kvam: Neshalvøya, 1♂, 6.VI.2006, N, leg./det. JSk; Kvinnherad: Rosendal gjestgiveri, 1♂, 15.VI.2006, N, leg./det. JSk.

Identification: A brown species, to be recognized (as most *Ormosia* species) by the male hypopygium only: tergite 9 broadly lengthened in the middle. Outer gonostyle parallelsided, clubbed. Inner gonostyle lobe-like, broadest in the middle.

Distribution: Widespread in Europe, including Sweden, Finland and Denmark. Also, Karelia and West European Russia. Probably rather widespread in southern Norway.

Biology: Ubiquitous species of springs, spring fens, brooks, small rivers, meadows at lake shores and river banks (Cramer 1968, Krzeminski 1984, Salmela 2004), also found in wet woodland (Drake 2011, Nielsen & Nielsen 2009, Salmela & Vartija 2007) and carr, especially Alder (Stubbs & Kramer 2016d). Larvae terrestrial to semi-aquatic in wet soil and mud along waters and marshes (Noll 1985), probably also aquatic (Brinkmann 1991). The period of flight is May–September.

***Ormosia (Ormosia) hederae* (Curtis, 1835)**
(Figure 44)

Material examined: **Ø**, Moss: Orebukta, 1♂, 17.VI.2016, N, leg./det. KMO, conf. JSt; Råde: Åven, 2♂♂, 31.VIII.–6.X.2014, MT, leg. AEL/OJL, det. KMO.

Identification: A dark brown species. Flagellar segments basally swollen and hairy, apical third narrow and bold. Male hypopygium with black gonostyles, one gonostyle an upcurved spine, the other one cleft.

Distribution: Widespread in Europe, including Sweden, Finland, Denmark and Iceland. Also, Turkey, Caucasus, Transcaucasus and Pamir. All Norwegian specimens are from county Østfold.

Biology: Predominantly found in and close to wet woodlands, deciduous and mixed (Ashe *et al.* 2007, Boardman 2007, 2016, Drake 2011, Lantsov 2009, Nielsen & Nielsen 2009, Özgül *et al.* 2006), also in hedgerows near wet fields (Stubbs & Kramer 2016d) and along small streams and near springs (Cramer 1968, Noll 1985). Larvae

semi-aquatic to terrestrial (Brinkmann 1991). The period of flight is April–October, probably with two generations a year.

***Rhabdomastix (Rhabdomastix) laetoidea* Starý, 2004** (Figure 50)

Material examined: **TEY**, Skien: N Gravklev, 2♂♂, 22.VI.2016, N, leg. KMO, det. JSt.

Identification: The species belongs to the *R. (R.) laeta* complex and can easily be identified by the narrow wings (about four times as long as broad) and other characters given in the key and description by Starý (2004).

Distribution: This rather recently described species is so far known from Bulgaria, the Czech Republic, Slovakia and Ukraine (Starý 2004). Only one Norwegian specimen, from county Telemark.

Biology: Starý 2004 mentions for Slovakia an association with sandy or gravelly banks of larger streams, a habitat known for several European species of *Rhabdomastix*. The period of flight is June–August.

***Scleroprocta pentagonalis* (Loew, 1873)** (Figure 52)

Material examined: **AK**, Oslo: Gaustad, 1♂, 26.V.–27.VI.2016, MT, leg./det. KMO, conf. JSt.

Identification: Two species of *Scleroprocta* are distributed in NW Europa and Scandinavia, *S. pentagonalis* and *S. sororcula* (Zetterstedt, 1851). In *S. pentagonalis*, the femora are only darkened at the top, the thorax has a thin dark line dorsally and crossvein m-cu is situated well before the base of the discal cell.

Distribution: In Europe from Great Britain to Ukraine, including Sweden, Finland and Denmark. Also known from Kazakhstan. Only one Norwegian specimen, from county Akershus.

Biology: Larvae as well as adults are known from a variety of habitats. The larval habitat ranges from aquatic to wet sandy or mud shores of springs and small rivers (Noll 1985, Podeniene 2009, Stubbs 2003), as well as partly submerged logs (Godfrey 2003). Adults are mainly found in wet woodland at shaded seepages, edges of woodland streams, carr (Boardman 2016, Godfrey 2000, Stubbs 2003), but also reported from other habitats, such as freshwater seepages at coastal soft cliffs (Howe 2010). The species is redlisted in Finland, where it is confined to calcareous springs (Penttinen *et al.* 2010, Salmela 2011). The period of flight is May–September.

***Symplecta (Symplecta) mabelana* (Alexander, 1955)** (Figure 53)

Material examined: **FN**, Porsanger: Rørkulpen, 1♂, 17.–26.VII.2010, MT, leg. Finnmarksprosjektet, det. HdJ.

Identification: The species can easily be identified by characters of the wings and the male and female genitalia, as given in the key and description by Starý & Brodo (2009).

Distribution: A circum-boreal species, known in the Nearctic from Alaska, Yukon and NWT and in the Palaearctic from Finland, Novaya Zemlya and Kola Peninsula to Sakhalin. Only one specimen known from Norway, from the northeasternmost part of the country.

Biology: Unknown. Most *Symplecta* species are found in wet open habitats such as margins of sandy rivers, marshy meadows, fens and marshes including saltmarshes, some species are also found at or have a preference for soft seaside cliffs. The period of flight is June–August.

Limnophilinae

Number of known Norwegian species in this taxon: 33, of which eight are here presented as new to the Norwegian fauna.

***Adelphomyia punctum* (Meigen, 1818)** (Figure 14)

Material examined: **TEI**, Tokke: Lindeviki, 1♂, 9.VI.–10.X.2015, MT, leg. KMO/ØG, det. KMO, conf. JK.

Identification: Thorax brown to dark brown, abdomen yellow with a darker subapical ring. Wings with a characteristic venation, pattern and numerous macrotrichia at the top cells.

Distribution: In continental Europe from Scandinavia and Switzerland to the Ukraine, including Sweden, Finland and Denmark. Also, European and Far East Russia. A single Norwegian specimen, from county Telemark.

Biology: A species associated with woodland

habitats, not necessarily near water (Penttinen *et al.* 2010, Starý 2009). Larvae probably develop in moist woodland mud (Savchenko 1986). The period of flight is May–August.

***Austrolimnophila (Archilimnophila) harperi* (Alexander, 1926)** (Figure 15)

Material examined: **FV**, Alta: Gargia fjellstue, 1♂, 26.VI.–10.VII.2010, MT, leg. Finnmarksprosjektet, det. HdJ; Storeng, 1♂, 26.VI.–10.VII.2010, MT, leg. Finnmarksprosjektet, det. HdJ.

Identification: Differs from *A*. (*A*.) *unica*, the only other Holarctic species of *Archilimnophila*, in characters of the antennae, wings and male hypopygium, as described and figured in detail in Mendl (1979). The species can be easily distinguished in both sexes by characters of the flagellar segments, which are slender in *unica* and more bulbous in *harperi*.

Distribution: Species with a Holarctic distribution: in the Nearctic known from Alberta to New York and south to Colorado; in the Palaearctic from Sweden, Finland and the Tyumen Oblast in Russia. In Norway, found only in one area in Finnmark.

Biology: There is little information on the biology of the species. In the state of New York, it was found at Hurrican Mountain on low cliffs continually moist with dripping water (Alexander 1929). In Finland the collecting localities are headwater streams in rich riparian vegetation (Salmela 2012b). The period of flight is May–July.

***Eloeophila submarmorata* (Verrall, 1887)** (Figure 24)

Material examined: **VE**, Larvik: Nevlungstranda, 1♂, 1.–26.VI.2009, MT, leg. KMO/ØG/SOb, det. KMO; **TEY**, Skien: NE Bjerketvedt, 2♀♀, 22.VI.2016, N, leg./det. KMO, conf. JK; **TEI**, Tokke: Strandine, 1♀, 29.V.2016, N, leg./det. KMO, conf. JSt.

Identification: Within *Eloeophila* recognized by the wing pattern: apart from the large spots along the front margin of the wing, there is a limited number of small spots on the longitudinal veins, mainly restricted to the top half of the wing.

Distribution: Widespread in Europe, including Sweden, Finland and Denmark. Also, Georgia, Turkey and Iran. Three widespread localities in southeastern Norway.

Biology: Found in shaded woodland and dingle woodlands, often near springs and springbrooks, calcareous seepages in fens and carr, wooded streams (Boardman 2007, 2016, Reusch 2006, Salmela *et al.* 2007, Stubbs & Kramer 2016a), but also in marshy grounds (Kramer 2011, Ujvárosi 2005). Larvae can be found in pools (Leskova 2009) and along margins of running water (Mendl 1978). The period of flight is May–August.

***Paradelphomyia (Oxyrhiza) fuscula* (Loew, 1873)** (Figure 45)

Material examined: **AK**, Lørenskog: Øvre Grønliveien, 5♂♂♀♀, 1.IX.2016, N, leg./det. KMO; Oslo: Bekkedalen, Tonsen, 1♂, 04.IX.2016, N, leg./det. KMO; **BØ**, Lier: N Ulvenvann, 1♂, 3.IX.2016, N, leg./det. KMO; **TEY**, Kragerø: Tåtøy, 2♂♂, 11.VIII.2016, N, leg./det. KMO; **TEI**, Tokke: Lårdalsåi, 2♂♂, 16.VII.2016, N, leg./det. KMO; NW Båtstø, 1♂, 16.VII.–4.IX.2015, MT, leg. KMO/ØG, det. KMO.

Identification: To be identified by a combination of wing and male genital characters as mentioned in the keys by Kramer (2015) and Stubbs & Kramer (2016a), most distinctly by the male apodeme having elongated longitudinal processes without lateral arms.

Distribution: In Europe found from Great Britain to Ukraine, including Sweden, Finland and Denmark. Also, West European Russia, Armenia and Iran. Seems to be rather common in southeastern Norway.

Biology: To be found around springs (Reusch & Hohmann 2009, Salmela 2001, 2004), acid seepages in woodland (Boardman 2007, 2016), shaded streams (Godfrey 2000). Larvae live in the riparian zone of small rivulets, between sand, silt and leaf litter, and littoral zone of lakes, mud, springy slopes of lakes and rivers, in bogs of low lying woody swamps, on swampy riversides, in littoral zone of swampy lakes (Noll 1985, Podeniene 2003). The period of flight is May–October, but in northern areas confined to late summer or autumn.

***Paradelphomyia (Oxyrhiza) nigrina* (Lackschewitz, 1940)** (Figure 46)

Material examined: **AK**, Ås: Pollen, 1♀, 27.VI.–13.VIII.2016, MT, leg. OJL, det. JSt/JSa.

Identification: Among the European *Paradelphomyia* species, *P. nigrina* stands out as a broad-winged species, like *P. senilis*, but with the macrotrichia confined to the wing apex. Although not known from the UK, the species was included in Kramer's (2015) review of, and key to, the British *Paradelphomyia* species.

Distribution: In Europe known from a few countries only: the Czech Republic, Slovakia, Latvia, Sweden, Finland and the western part of European Russia. Known from a single female specimen in Norway, in county Akershus.

Biology: The few data for this species indicate that it is found in speciesrich habitats with a high conservation value (Penttinen *et al.* 2010, Salmela *et al.* 2007, Salmela 2008, Starý 2009). The species is in general associated with springs, seepages, swamps and muddy places along brooks. It is rare and considered endangered, having a redlist status in the Czech Republic (Starý & Barták 2005) and Finland (Penttinen *et al.* 2010). The period of flight is June–July.

***Paradelphomyia (Oxyrhiza) senilis* (Haliday, 1833)** (Figure 47)

Material examined: **Ø**, Moss: Fuglevik NR, 49♂♂♀♀, 17.VI.2016, N, leg./det. KMO, conf. PO/JK; **HOY**, Austrheim: Mongstad V, 1♂, 28.V.–1.VII.2005, MT2, leg./det. JSk; 2♂♂, 01.VII.–10.VIII.2005, MT2, leg./det. JSk.

Identification: Wing fairly broad with a distinct anal lobe and with macrotrichia in discal cell and even apex of first basal cell. Scutellum dark. Male genitalia dark orange-brown.

Distribution: Widespread in Europe, including Norway and Sweden. Also, South European Russia, Caucasus, Transcaucasus, Turkey and Kyrgyzstan. Only two localities known in Norway, one far to the east and one far to the west.

Biology: Mainly found in dingles and wet woodlands, both calcareous and acid (Boardman 2007, 2016, Kramer 2015), frequently around springs (Lehmann & Reusch 2009, Reusch & Hohmann 2009, Salmela 2010), also in fens, marshes (Drake 2009, Mendl 1978, Reusch & Schrankel 2006) and marshy meadows (Cramer 1968). Larvae live in wet soil at springs, along wooded shores (Brindle 1967, Crisp & Lloyd 1954), on several occasions bred from waterlogged and rotten wood (Blackith *et al.* 1991, Hancock 2002), zoophagous (Reusch & Schrankel 2006). The period of flight is May–October.

***Phylidorea (Phylidorea) bicolor* (Meigen, 1804)** (Figure 48)

Material examined: **TEY**, Kragerø: Frydensborgtjenna, 1♂, 13.V.–11.VI.2009, MT, leg. SOb/AEL, det. KMO, conf. JSt.

Identification: Belongs to the group of *Phylidorea* species which are darker coloured and have the dorsal thorax extensively dusted. Vein Rs and pterostigma relatively long. Similar to *P. squalens* (Zetterstedt, 1838) but with the basal part of vein Rs more rectangular and usually bearing a vein spur. In the male differing by tergite 9 having a broad open notch, in the female by the basal flagellar segments being longer and bearing erect fine hairs.

Distribution: Known form a limited number of European countries, including Sweden, Finland and Denmark. Also, North and West European Russia. Only one locality in Norway, in county Telemark.

Biology: Little is known about the biology of the species. Habitats for Finland are: rich fens, Baltic shore meadow, swampy forests and vegetation rich lake shores (Salmela and Vartija 2007, Autio and Salmela 2010). For Great Britain shady marshy woodland is given (Stubbs & Kramer 2016a), rather than bog as in the closely similar *P. squalens* (Stubbs 2010). Moist forest is given for Latvia, as well as a brook with relatively swift flow, sandy and stony bottom, mosses and riparian forest (Salmela & Vartija 2007). The period of flight is April–June.

***Pilaria fuscipennis* (Meigen, 1818)** (Figure 49)

Material examined: **Ø**, Moss: Fuglevik NR, 2♂♂, 17.VI.2016, N, leg./det. KMO, conf. JSt.

Identification: Differs from other *Pilaria* species by its entirely orange thorax, entirely

yellow femora and male apodeme without a bulbous outgrowth.

Distribution: Widespread in Europe, including Sweden and Denmark. Also, European Russia, Caucasus and Turkey. Only one locality in Norway, in county Østfold.

Biology: Adults are found at seepages in marsh, carr and wet woodland, along flowing and standing waters, avoiding open sunny situations (Boardman 2007, 2016, Drake & Stubbs 2014, Godfrey 2000). Larvae live in mud of bogs, woody swamps and along margins of flowing or standing water (Cranston & Drake 2010, Mendl 1978, Podenas & Podeniene 2008, Podeniene 2001, 2003). The period of flight is June–August.

Limoniinae

Number of known Norwegian species in this taxon: 62, of which 16 are here presented as new to the Norwegian fauna.

***Dicranomyia (Dicranomyia) imbecilla* Lackschewitz, 1941** (Figure 19)

Material examined: **HEN**, Stor-Elvdal: N Krokmyra, 2♂♂, 26.VII.–21.IX.2012, MT, leg. KMO, det. JSt; **TEI**, Tokke: Gruppebekken, 1♂, 17.VII.2016, N, leg./det. KMO; **VAY**, Kristiansand: Nedre Timenes, 1♂, 17.–24.VIII.2015, LT, leg. KB, det. KMO; **SFI**, Lærdal: Husum, 1♂, August 2016, LT, leg. KB/RAG, det. KMO (and multiple collectings from the same LT until mid October, in total 49♂♂); Moldabakkane, 20♂♂, 16.–23. VIII.2015, LT, dry, leg. KB/RAG, det. KMO; **FN**, Porsanger: Rørkulpen, 1♂, 25.VIII.–3.IX.2010, MT, leg. Finnmarksprosjektet, det. HdJ; **FØ**, Sør-Varanger: Russevann, number of specimens and sex unknown, 10.–21.VIII.2010, MT, leg. Finnmarksprosjektet, det. HdJ.

Identification: Starý & Stubbs (2015) reinstated *D. imbecilla* as a valid species. A member of the *Dicranomyia mitis* complex with a feebly indicated pterostigma. Other characters refer to the male tarsomeres and male and female genitalia as given in the key by Starý & Stubbs (2015). Rostral spines almost straight, separated at base by more than their own diameter.

Distribution: So far known from a few European countries, probably including Sweden (see Oosterbroek 2017), and also East European Russia. According to Starý & Stubbs (2015), probably more widely distributed in Europe. Known from five counties from south to north in Norway, so it is probably widespread.

Biology: For Great Britain the following habitats have been listed: calcareous seepages on rock faces or other rather bare surfaces or depositing tufaceous substrate, along spring-fed streams associated with seepage complexes, shaded woodland, large woodland stream well below the source, within ravine or in tall herbage close to a waterfall splash zone (Starý & Stubbs 2015, Stubbs & Kramer 2016b). In the Czech Republic and Slovakia, the species appears to occur predominantly in mountainous areas. In Croatia it is known from calcareous seepages depositing tufaceous substrate (Kolcsár *et al.* 2015). The period of flight is April–October.

***Dicranomyia (Dicranomyia) sera* (Walker, 1848)** (Figure 23)

Material examined: **AK**, Asker: Brønnøya, 22♂♂, 12.VI.2016, N, leg. KMO/SOs, det. JSt; Langåra, 4♂♂, 31.VII.2016, N, leg. KMO/RB, det. KMO; Bærum: Storøykilen, 11♂♂, 7.VIII.2016, N, leg./det. KMO; **TEY**, Bamble: Vinjekilen NR, 20♂♂♀♀, 11.VIII.2016, N, leg./det. KMO.

Identification: The species is often yellow. It can be dark, but the thorax is never glossy black. Flagellar segments compact, not elongated. Wings clear, with discal cell present. Male genitalia simple, tergite 9 with a strong V-shaped notch, gonocoxites and gonostyles slender.

Distribution: Known from a few localities in North America; widespread in Europe, including Sweden, Finland and Denmark. Also, South Russia and Central Asia as far east as Mongolia and Primorskiy. Probably common in salt marshes in southeastern Norway.

Biology: A species of brackish or saline habitats (Salmela 2010), found in salty and coastal grazing marshes (Autio & Salmela 2010, Stubbs 2010). In Britain confined to high zone saltmarsh, most often markedly associated with *Juncus gerardii*. Believed to be intolerant of intensive grazing (Stubbs 2003). In Kazakhstan collected

at small freshwater pools and wet habitats near a salty steppe lake with surrounding vegetation of grazed grassland (Devyatkov 2013). The period of flight is June–September.

***Dicranomyia (Glochina) liberta* Osten Sacken, 1860** (Figure 21)

Material examined: **AK**, Ullensaker: Hovinmoen grustak, 3♂♂♀♀, 19.VII.2016, N, leg. KMO/RB, det. KMO; **TEI**, Kviteseid: Hustuftin, 1♂, 16.VII.–5.IX.2015, MT, leg. KMO, det. JSt.

Identification: This *Glochina* species are characterized by clear wings and vein Sc ending near the base of Rs. Male genitalia with a tubercle on the inner upper side of the gonocoxite, bearing a tuft of hairs. Rostral lobe of outer gonostyle just slightly wider at base than before rostral spines, trapezium-shaped. Rostral spines short and strongly diverging.

Distribution: Species with a disjunct Holarctic distribution. Widespread in the Nearctic. In the Palaearctic known from Finland, West Siberia (near Tomsk) and Mongolia. Two widely separated localities in southeastern Norway.

Biology: In North America a species of open woods (Alexander 1916, 1924) and during a study on woods in Kansas found to be common in vernal seepage in bottomland woods and in the mesic thicket around pond margins (Young 1978). In Finland found in swampy forests (Salmela 2012a). Period of flight in northern Europe is June–August, in North America March–December and considered bivoltine (Petersen 2003).

***Dicranomyia (Glochina) schineriana* (Alexander, 1964)** (Figure 22)

Material examined: **OS**, Lunner: Grindvoll, Vestern, 1♂, 21.VIII.–18.IX.1994, MT, leg. OJL, det. KMO; **TEY**, Bamble: Langøya E, 6♂♂, 24.VI.–30.VII.2009, MT, leg. KMO/ØG/SOb, det. KMO, conf. JSt; Langøya W, 6♂♂♀♀, 30.VII.–18.VIII.2009, leg. KMO/ØG/SOb, det. KMO; **TEI**, Seljord: Heggenes, 16♂♂♀♀, 11.VI.–17.VII.2015, two MT, leg./det. KMO (and multiple collectings from the same two MT and from FIT until beginning of October, in total 71♂♂♀♀); **SFI**, Lærdal: Husum, 1♂, 1.–7.VIII.2016, LT, leg. KB/RAG, det. KMO; 3♂♂♀♀, September 2016, same LT, leg. KB/RAG, det. KMO; Moldabakkane, 1♂, 16.–23.VIII.2015, LT, leg. KB/RAG, det. KMO.

Identification: The only regional species of *Glochina* with three outgrowths on the inner side of the gonocoxite. Rostrum of inner gonostyle halfway with two strong spines and a darkened downcurved apical half.

Distribution: Widespread in Europe, including Norway and Sweden. Also, South Russia and Central Asia as far east as Mongolia. Several widespread localities in southern Norway, so it is probably rather common.

Biology: Although the species is being widespread, very little is known about its biology. In Germany it was collected from a swampy helocrene spring with a sediment of detritus only and stands of *Phragmites* nearby (Reiff *et al.* 2015). For Russia, Savchenko (1985) mentions broadleaf forests growing along the bottom and slopes of gullies in forest steppe and steppe areas. For Mongolia the larval habitat is given as ”terrestrial” (Yadamsuren *et al.* 2015). A common denominator for the Norwegian collecting sites seems to be rather dry and open areas. The period of flight is May–September.

***Dicranomyia (Idiopyga) esbeni* (Nielsen, 1940)** (Figure 17)

Material examined: **Ø**, Hvaler: NW Skipstadkilen, 1♂, 16.VI.2016, N, leg./det. KMO; **AK**, Asker: Brønnøya, 48♂♂, 12.VI.2016, N, leg. KMO/SOs, det. KMO, conf. JSa.

Identification: General colouration dark brown dorsally, yellow ventrally. Wings clear, and vein Sc ends near base of Rs. Male genitalia complicated (as in all species of *Idiopyga*): gonocoxite with five pairs of complicated rod and stick-shaped appendages. Inner gonostyle with a long straight rostrum bearing two clearly separated spines.

Distribution: Known from a few countries only: Finland, Denmark, Kazakhstan and Mongolia. In Norway found only in counties Østfold and Akershus.

Biology: Little is known. In Finland known from Baltic coastal meadows (Penttinen *et al.* 2010, as *D. melleicauda*). In Kazakhstan collected

at small freshwater pools and wet habitats near a salty steppe lake with surrounding vegetation of grazed grassland (Devyatkov 2013). The period of flight is June–September.

***Dicranomyia (Idiopyga) intricata* Alexander, 1927** (Figure 20)

Material examined: **FV**, Alta: Storeng, 1♂, 7.–24.VIII.2010, MT, leg. Finnmarksprosjektet, det. HdJ; 1♂, 24.–30.VIII.2010, same MT, leg. Finnmarksprosjektet, det. HdJ.

Identification: General colouration dark brown. Wings clear, and vein Sc ends near base of Rs. Male genitalia complicated (as in all species of *Idiopyga*): gonocoxite with three pairs of peculiar shaped appendages. Inner gonostyle with a long somewhat curved rostrum bearing two clearly separated spines.

Distribution: Species with a disjunct distribution. In the Nearctic known from Northwest and West Canada, in the Westpalaearctic from North Sweden and North Finland. Probably a strictly northern species also in Norway.

Biology: In Canada collected from so-called muskeg bogs, nutrient-poor peatlands dominated by *Sphagnum* mosses (Salmela *et al.* 2014); in Finland from minerotrophic fens and, less often, springs and shores of streams and rivers (Salmela 2012a, Salmela *et al.* 2014). The period of flight is August–September.

***Dicranomyia (Numantia) fusca* (Meigen, 1804)** (Figure 18)

Material examined: **AK**, Fet: Asplund, 2♂♂, 28.IX.2016, N, leg./det. KMO; SE Asplund, 1♂, 28.IX.2016, N, leg./det. KMO; Lørenskog: Øvre Grønliveien, 2♂♂, 1.IX.2016, N, leg./det. KMO; Oslo: Bekkedalen, 8♂♂♀♀, 4.IX.2016, N, leg./det. KMO; **TEI**, Tokke: Eidsborgtjørna, 1♂, 17.VII.2016, N, leg./det. KMO; Lårdalsåi, 2♂♂, 16.VII.2016, N, leg./det. KMO, conf. JSt.

Identification: A darkbodied species. Easily identified by the long antennae, clear wings, discal cell present, and wing surface with macrotrichia covering the apical third of the wing.

Distribution: Widely distributed in the Nearctic and West Palaearctic, including Sweden, Finland and Denmark, and as far east as Iran. Also, Far East Russia and Japan. Probably widespread in southeastern parts of Norway.

Biology: A species of wooded dingles, carr and other wet woodland (Boardman 2016), also found at springs (Gathmann & Williams 2006, Lehmann & Reusch 2009, Reusch & Hohmann 2009, Ruckert 2005), woodland seepages (Stubbs & Kramer 2016b) and streamside vegetation (Byers 2002). Larvae have been reared from mud, but also found emerging from a rotten, decorticated log in a debris dam (Godfrey 2001) and other kinds of wet or water-logged deciduous logs and woody debris (Godfrey 2003, Hancock 2002, Rotheray 2001, Rotheray & Horsfield 2003). The period of flight is April–October, considered bivoltine (Petersen 2003).

***Helius (Helius) flavus* (Walker, 1856)** (Figure 27)

Material examined: **Ø**, Hvaler: NW Skipstadkilen, 1♀, 16.VI.2016, N, leg./det. KMO; **BØ**, Ringerike: Lamyra S, 5♂♂♀♀, 23.VI.2016, N, leg./det. KMO; **TEY**, Skien: NE Bjerketvedt, 1♂, 22.VI.2016, N, leg./det. KMO, conf. JK.

Identification: Belongs to the West Palaearctic species of *Helius* with a dark coloured rostrum and a faint pterostigma. Among these species characterized by the yellow to orange coloured dorsal thorax, sometimes with a short dark brown median stripe.

Distribution: Widespread in Europe, including Sweden, Finland and Denmark. Also, European and Far East Russia. Known from three rather widely separated localities in southeastern Norway.

Biology: A species of all types of wet habitats such as springs, fens, marshland, carr around pools and lakes, well vegetated water margins, wet woodlands and marshy meadows (Autio & Salmela 2010, Boardman 2007, 2016, Cramer 1968, Kramer 2011, Lehmann & Reusch 2009, Noll 1985). Larvae aquatic to semi-aquatic, sometimes truly aquatic (Beyer 1932) but usually found in the more or less saturated organic mud along lakes and rivers (Cranston & Drake 2010, Kramer & Withers 2007, Przhiboro 2003), or between leaves of marshplants such as *Iris, Phragmites* and *Typha* (Brindle 1967, Coe 1941). Pupation in withered

stems of *Typha* (Gaunitz 1956). Details on rearing and lifecycle in Brinkmann (1991). The period of flight is May–September.

***Helius (Helius) longirostris* (Meigen, 1818)** (Figure 28)

Material examined: **Ø**, Hobøl: S Risermosan, 4♂♂, 14.VI.2016, N, leg./det. KMO; **BØ**, Ringerike: Lamyra S, 66♂♂♀♀, 9.VI.2016, N, leg./det. KMO, conf. JSt; 11♂♂♀♀, 23.VI.2016, N, leg./det. KMO; Lamyra W, 2♂♂, 9.VI.2016, N, leg./det. KMO; Løkken, 1♂, 9.VI.2016, N, leg./det. KMO; **VE**, Larvik: Nevlungstranda, 1♂, 1.–26.VI.2009, MT, leg. KMO/ØG/SOb, det. KMO; 2♂♂, 26.VI.–27.VII.2009, same MT, leg. KMO/ØG/SOb, det. KMO; **TEY**, Skien: NE Bjerketvedt, 6♂♂, 22.VI.2016, N, leg./det. KMO; **RY**, Finnøy: Sevheim, 1♂, 6.VI.2005, N, leg./det. JSk; **HOY**, Austrheim: Mongstad V, 10♂♂♀♀, 28.V.–1.VII.2005, MT2, leg./det. JSk; **HOI**, Kvinnherad: Hjortlandstjørn, 1♂, 15.VI.2006, N, leg./det. JSk.

Identification: Belongs to the Westpalaearctic species of *Helius* with a dark rostrum and a faint pterostigma. Among these species characterized by the brown to grey dorsal thorax with three dark brown median stripes.

Distribution: Widespread in Europe, including Sweden, Finland and Denmark. Also, European Russia, Turkey and Israel. Seems to be widespread and common in southern Norway.

Biology: Habitats of adults and larvae more or less as in *Helius flavus*. Larvae occur at the waterline of slowly flowing or small standing waters, breathing by holding the stigma field between leaves of shore plants (Bangerter 1929, Cramer 1968). Adults were reared from a wet decorticated log, probably from the mud adhering to the woody debris (Godfrey 2003). Details on rearing and lifecycle in Brinkmann (1991), Cramer (1968) and Reusch (1988). The period of flight is May–September.

***Limonia maculicosta* (Coquillett, 1905)** (Figure 30)

Material examined: **SFI**, Lærdal: Moldabakkane, 1♂, 16.–23.VIII.2015, LT, leg. KB/RAG, det. KMO, conf. JSt.

Identification: Recognized by the following combination of characters: top of femora lighter coloured (usually yellow) than the rest of the femora and wing with a dark spot at the origin of vein Rs, in the direction of the wingtip followed by a yellowish white, a dark, a yellowish white and a dark spot. Abdomen banded brown and white.

Distribution: Species with a disjunct Holarctic distribution. Widespread in the Nearctic. In the Palaearctic known from Sweden, Finland, Far East Russia and Japan. Only one Norwegian locality on the west coast, in county Sogn og Fjordane.

Biology: Practically unknown. In the USA, collected once on the damp walls of a cave, in total darkness (Byers 2002). The period of flight in the USA is April–November.

***Limonia stigma* (Meigen, 1818)** (Figure 31)

Material examined: **VE**, Larvik: Karto, 12♂♂♀♀, 1.–22.VIII.2010, MT, leg. SOb, det. KMO, conf. JSt/PO; **SFI**, Lærdal: Husum, 1♂1♀, 1.–7.VIII.2016, LT, leg. KB/RAG, det. KMO.

Identification: Recognized by the following combination of characters: head and thorax yellowish, front part of dorsal thorax with a dark brown stripe that continues on the neck, femora with a dark apical ring and front margin of the wing with 2–3 (usually 2) small dark spots, of which the pterostigma is the most distinct.

Distribution: Widespread in Europe, including Sweden, Finland and Denmark. Also, European Russia and Armenia. Known from two widespread localities in Norway, one in county Vestfold and one in Sogn og Fjordane.

Biology: A species of marshland, grassland, but especially hedgerows and woodlands (Boardman 2007, 2016, Cramer 1968, Kramer 2007, Kramer & Withers 2007, Stubbs 2003). The period of flight is May–September.

***Lipsothrix errans* (Walker, 1848)** (Figure 32)

Material examined: **TEI**, Tokke: Mågebekken, 2♂♂, 9.VI.–16.VII.2015, MT, leg. KMO/ØG, det. KMO; **VAY**, Kristiansand: Tveit prestegård, 1♂, 1.VI.–15.IX.2015, WT, leg. LJS, det. KMO, conf. JSa.

Identification: Among the *Lipsothrix* species without a pterostigma, recognized by tip of femora

darkened and tip of tibiae *not* darkened. Abdomen with a dark median dorsal stripe, in the male with sternite 7 and segment 8 darkened.

Distribution: Known from a fair number of European countries, including Sweden, Finland and Denmark. Also, West European Russia. From two localities in southern and southeastern Norway.

Biology: Adults are found in wet woodland, often near springs and seepages. Noll (1985) observed frequently that adults were climbing high on plant stems at a spring marsh. Larvae are xylophagous, living in saturated rotten wood, confined to fallen timber and coarse wooden debris in shaded woodland streams, seepages and, less frequent, peaty banks or forest floors (Beling 1886, Boardman 2007, 2016, Godfrey 2003, Hancock *et al.* 2009, Hewitt & Parker 2006, Kramer 2008, Krivosheina 2009, Krivosheina & Krivosheina 2011, Reusch & Hohmann 2009, Ruckert 2005, Stubbs 2003, Wittrock 2005). The period of flight is May–July, with a few records even as late as October.

***Lipsothrix remota* (Walker, 1848)** (Figure 33)

Material examined: **TEI**, Tokke: Lårdalsåi, 1♂, 16.VII.2016, N, leg./det. KMO; Mågebekken, 1♂, 9.VI.–16.VII.2015, MT, leg. KMO/ØG, det. KMO, conf. JSa; NW Båtstø, 1♂, 9.VI.–16.VII.2015, MT, leg. KMO/ØG, det. KMO; 1♂, 16.VII.–4.IX.2015, same MT, leg. KMO/ØG, det. KMO.

Identification: Among the *Lipsothrix* species without a pterostigma, recognized by tip of femora not darkened, tip of tibiae darkened.

Distribution: Widespread in Europe, including Sweden and Denmark. In Norway, only found in inner parts of county Telemark.

Biology: Habitats of adults and larvae more or less as in *Lipsothrix errans*, see above (for details see especially Hancock 2002). In several countries also recorded from caves (Reusch & Weber 2013). The period of flight is May–September.

***Metalimnobia (Metalimnobia) charlesi* Salmela & Starý, 2009** (Figure 34)

Material examined: **AK**, Ås: Pollen, 1♂, 27.VI.–13.VIII.2016, MT, leg. OJL, det. KMO, conf. JSt.

Identification: *M. charlesi* is closely related to *M. quadrimaculata*, but the species can be distinguished by external and genital characters (Salmela & Starý 2009).

Distribution: This fairly recently described species is known from a few countries only: the Czech Republic, Slovakia, Sweden and Finland. In Norway known from a single locality in county Akershus.

Biology: Little is known about the biology of the species. In Finland it was found during a study on saproxylic nematoceran communities occupying different parts of decaying fallen *Populus* trunks in a boreal forest (Halme *et al.* 2012). As is the case with other *Metalimnobia* species, the larvae are most probably fungivorous. A large part of the type material was obtained from trunk emergence traps on *Betula* logs lying on the forest floor and decayed by polyporous fungi (Salmela & Starý 2009). The period of flight is June–August.

***Metalimnobia (Metalimnobia) tenua* Savchenko, 1976** (Figure 35)

Material examined: **BV**, Ål: Venedokki, 4♂♂♀♀, 6.VII.2016, N, leg./det. KMO; **TEI**, Tokke: Mågebekken, 1♂, 9.VI.–16.VII.2015, MT, leg. KMO/ØG, det. KMO, conf. JSt; S Bratsberg, 1♂, 29.V.–16.VII.2016, FIT, leg./det. KMO.

Identification: Very similar to the widespread species *M. quadrinotata* and *M. zetterstedti*. Differentiating characters are in the male genitalia only: parameres without apical bristles (present in *M. zetterstedti*) and with rounded apex (apex truncate in *M. quadrinotata*).

Distribution: Known from a small number of European countries, including Sweden and Finland. Also, East and Far East Russia, Mongolia and Japan. In Norway known from the inner parts of counties Buskerud and Telemark.

Biology: A species with an apparent preference for mixed forests, where it is found at springs and streams (Salmela 2011, Starý 2006, details in Kahanpää & Salmela 2007). The larvae are strictly fungivorous. The period of flight is June–September.

***Rhipidia (Rhipidia) uniseriata* Schiner, 1864**
(Figure 51)

Material examined: **Ø**, Fredrikstad: Evenrød, 1♀, 5.–17.VII.2016, PT, leg. OMWK, det. KMO; **AK**, Nesodden: Blåbærstien, 1♀, 28.VI.–27.VII.2015, MT, leg. OJL, det. KMO; 1♀, 3.VII.–19.VIII.2016, same MT, leg. OJL, det. KMO, conf. JSt; **SFI**, Lærdal: Husum, 1♂, August 2016, LT, leg. KB/RAG, det. JSt.

Identification: Flagellar segments in the male with one outgrowth, in the female serrate. Winglength 8–10 mm. Wing with three spots along the front margin, no spot between the base of the wing and the origin of vein Rs. Femora with at least the apical half darkened.

Distribution: Widespread in Europe, including Sweden, Finland and Denmark. Also, Turkey, Georgia, European, Central and Far East Russia, Mongolia. Known from three widespread localities in southern Norway.

Biology: A species of woodlands, parklands, carr, old orchards, hedgerows, etc. Larvae feed on decaying deciduous wood and on fungi, notably *Russula nigricans*, and are apparently easily found by rearing from rot holes (Alexander 2002, Chandler 2010, Gibbs 2005, Godfrey 2010, Halme *et al.* 2012, Kramer & Withers 2007, Krivosheina 2008, 2009, 2011, Krivosheina & Krivosheina 2011). The period of flight is May–August.

Annotated checklist of Nordic Pediciidae and Limoniidae

The country-wice distribution in the list below is based mainly on CCW (Oosterbroek 2017). The Norwegian distribution is based mainly on records published in scientific papers, in addition to recent identifications made by the authors of this article. Also, some more or less obscure sources have been reviewed, all being listed in the reference section. Only to a minor degree have reports from Artskart (Artsdatabanken 2017a) and Artsobservasjoner (Artsdatabanken 2017b) been included, and in those cases, the records were supported by identifiable photos. The collections of the Norwegian natural history museums have not been revised, and only records that are already published in scientific papers (without evaluating the correctness of identifications) are included. These collections will be revised in the coming years, and results, including emendations, will be published later. Data from Finnmarksprosjektet are not included, except for the species new to Norway, and data from Skartveit (unpublished) are also only partially included.

Species are presented in the same sequence as in CCW (Oosterbroek 2017).

Annotations

The country-wice distribution in the list below is based mainly on CCW (Oosterbroek 2017). The Norwegian distribution is based mainly on records published in scientific papers, in addition to recent identifications made by the authors of this article. Some references are not mentioned elsewhere in the text: Aagaard *et al.* (2004), Alexander (1922), Bergroth (1913), Brodo (1995), Hancock (2008), Hippa & Koponen (1988), Hågvar (1971, 1976a,b), Hågvar & Hågvar (2011), Hågvar *et al.* (2010, 2013), Magnussen (2013), Mendl *et al.* (1987), Oosterbroek & Reusch (2008), Østbye & Lauritzen (2013), Solem & Mendl (1989), Sømme & Østbye (1969), Thunes *et al.* (2004, in prep.), Wahlgren (1904) and Wallengren (1882). Also, some more or less obscure sources have been reviewed, all being listed in the reference section. Only to a minor degree have reports from Artskart (Artsdatabanken 2017a) and Artsobservasjoner (Artsdatabanken 2017b) been included, and in those cases, the records were supported by identifiable photos. The collections of the Norwegian natural history museums have not been revised, and only records that are already published in scientific papers (without evaluating the correctness of identifications) are included. These collections will be revised in the coming years, and results, including emendations, will be published later. Data from Finnmarksprosjektet are not included, except for the species new to Norway, and data from Skartveit (unpublished) are also only partially included.

Pediciidae

***1) Dicranota crassicauda* Tjeder, 1972.** Mentioned by Solem (1996) from county Troms and/or Finnmark.

***2) Ula mixta* Starý, 1983.** The species is marked as Norwegian in Savchenko *et al.* (1992), but neither there, nor in any other published source, are there any details on its distribution in Norway. Apart from one recent record in TEI, it is therefore unknown.

Limoniidae

***3) Arctoconopa melampodia* (Loew, 1873).** According to Savchenko (1982), the information in Lackschewitz (1940a) about this species from Norway is questionable/uncertain and needs verification. However, in Lackschewitz (1940a), there *is* no mention of Norway regarding this species. In Savchenko *et al.* (1992), Norway is included without reservation, but this might be erroneous, and the species will for now be deleted from the Norwegian list.

***4) Arctoconopa zonata* (Zetterstedt, 1851).** The history of *A. zonata*, both in Norway and elsewhere, is confusing. The species has been mentioned on several occasions, but sometimes under other names, and it has not been possible to find secure information about its presence in Norway. It is therefore, at this stage, regarded as doubtful, and in need of new information, based either on existing material in museum collections or fresh specimens. At least the following literature must be consulted, in order to sort out the problem: Siebke (1870, 1872, 1877), Lackschewitz (1933, 1936a), Tjeder (1955), Savchenko (1982) and Savchenko *et al.* (1992).

***5) Erioconopa symplectoides* (Kuntze, 1914)**. In CCW (Oosterbroek 2017), this species is marked as questionable for Norway. This is probably based on the fact that Lackschewitz (1935b) considers *Erioptera parumpunctata* Storm, 1898, based on Storm's description, as being a senior synonym of *Erioconopa symplectoides*. The type material of *E. parumpunctata* is, according to Lackschewitz (1935b), probably lost, and the synonymy can perhaps never be confirmed with certainty. Savchenko *et al.* (1992) regard *E. parumpunctata* as a questionable senior synonym of *E. symplectoides*, and hence question the latter's presence in Norway. It is not clear whether this is a separate evaluation or based on Lackschewitz (1935b). A new evaluation of this has been made, and based on the (translated) descriptions of *Erioptera parumpunctata* (Storm 1898) and *Erioptera symplectoides* (Kuntze 1914), it is very unlikely that they are the same species (Jaroslav Starý *in litt.*). The black stripe on thorax may indicate that *E. parumpunctata* in fact is *Erioconopa trivialis*, even though Storm points out that *parumpunctata* is *different* from *trivialis* in this respect (which it is clearly not). Moreover, it adds to the unlikelihood of *E. parumpunctata* being *E. symplectoides* that Storm claims his species to be "certis locis copiose" [abundant at some sites]. *E. symplectoides* is therefore left out of the Norwegian list.

***6) Erioptera pederi* Tjeder, 1969.** Mentioned by Solem (1996) from Sør-Trøndelag and/or Nord-Trøndelag.

***7) Gonomyia bifida* Tonnoir, 1920**. According to Lackschewitz (1933) this is one of the specimens Siebke (1877) mentioned as *Limnobia tenella* from either "Moen in par. Fron Gudbrandsdaliæ", "Søndmøre ad Aalesund" or "Søndmøre ad Ørskoug". Lackschewitz mentions nothing about the other two, except that one can infer that they were not in the Zoological museum in Oslo. Accordingly, there is little information about the distribution of this species in Norway, apart from one new record from county Akershus.

***8) Gonomyia conoviensis* Barnes, 1924**. Mentioned by Solem (1996) from Sør-Trøndelag and/or Nord-Trøndelag.

***9) Gonomyia dentata* de Meijere, 1920.** First recorded for Norway by John Skartveit, as published by Hovstad & Hella (2006) (on internet only). Material examined: **TEI**, Tokke: Eidsborgtjønna, 28♂♂♀♀, 17.VII.2016, N, leg. KMO, det. JSt.; **AAY**, Birkenes: Nordåsen, 1♂, August 2015, LT, leg. SS/KB, det. KMO; **HOY**, Austrheim: Mongstad V, 3♂♂♀♀, 01.VII.–10. VIII.2005, MT2, leg./det. JSk.

***10) Molophilus cinereifrons* de Meijere,**

TABLE 2. Checklist of Pediciidae and Limoniidae from the Nordic countries. N = Norway, S = Sweden, F = Finland, D = Denmark, I = Iceland. The Strand regions, Ø through FØ, are explained in the illustration on page 183. Species marked with an asterisk (*) are the 40 species new to Norway, presented above. Species with numbers in superscript are commented on.

	N	S	F	D	I	Ø	AK	HES	HEN	OS	ON	BØ	BV	VE	TEY	TEI	AAY	AAI	VAY	VAI	RY
PEDICIIDAE																					
PEDICIINAE																					
***Dicranota* Zetterstedt, 1838**																					
Dicranota Zetterstedt, 1838																					
bimaculata (Schummel, 1829)	x	x	x	x			x		x	x	x										
crassicauda Tjeder, 1972 [1]	x	x	x																		
guerini Zetterstedt, 1838	x	x	x	x			x		x		x										
Paradicranota Alexander, 1934																					
gracilipes Wahlgren, 1905	x	x	x	x			x		x		x										
pavida (Haliday, 1833)	x	x	x	x			x														
robusta Lundström, 1912	x	x	x	x					x												
subtilis Loew, 1871	x	x	x	x	?						x					x					
Rhaphidolabis Osten Sacken, 1869																					
exclusa (Walker, 1848)	x	x	x	x	x		x		x	x	x					x					
***Nasiternella* Wahlgren, 1904**																					
varinervis (Zetterstedt, 1851)	x																				
***Pedicia* Latreille, 1809**																					
Crunobia Kolenati, 1859																					
littoralis (Meigen, 1804)		x		x																	
straminea (Meigen, 1838)	x	x	x	x							x	x				x					
Pedicia Latreille, 1809																					
rivosa (Linnaeus, 1758)	x	x	x	x		x	x	x	x	x	x	x		x	x	x					
***Tricyphona* Zetterstedt, 1837**																					
Tricyphona Zetterstedt, 1837																					
immaculata (Meigen, 1804)	x	x	x	x		x	x		x	x	x	x	x	x	x	x	x		x		
livida Madarassy, 1881			x																		
schummeli Edwards, 1921	x	x	x	x					x		x	x		x		x					
unicolor (Schummel, 1829)	x	x	x	x			x					x		x	x						
ULINAE																					
***Ula* Haliday, 1833**																					
Ula Haliday, 1833																					
bolitophila Loew, 1869	x	x	x																		
kiushiuensis Loew, 1869			x																		
mixta Starý, 1983 [2]	x	x	x													x					
mollissima Haliday, 1833	x	x	x	x					x												
sylvatica (Meigen, 1818)	x	x	x	x		x	x		x	x	x					x	x		x		
LIMONIIDAE																					
CHIONEINAE																					
***Arctoconopa* Alexander, 1955**																					
forcipata (Lundström, 1915)			x																		
melampodia (Loew, 1873) [3]				x																	
obscuripes (Zetterstedt, 1851)	x	x	x				x														
quadrivittata (Siebke, 1872)	x	x					x		x												
zonata (Zetterstedt, 1851) [4]	?	x	x																		
***Cheilotrichia* Rossi, 1848**																					
Cheilotrichia Rossi, 1848																					
imbuta (Meigen, 1818)	x	x	x	x			x								x						
Empeda Osten Sacken, 1869																					
areolata (Lundström, 1912)	x	x	x																		
cinerascens (Meigen, 1804)	x	x	x	x		x	x		x		x			?			x	x	x		
* *neglecta* (Lackschewitz, 1927)	x		x				x			x											
***Chionea* Dalman, 1816**																					
Chionea Dalman, 1816																					
araneoides Dalman, 1816	x	x	x	x			x	x	x	x	x	x	x			x					
crassipes Boheman, 1846	x	x	x						x		x		x								
Sphaeconophilus Becker, 1912																					
belgica (Becker, 1912)				x																	
lutescens Lundström, 1907		x	x																		
***Crypteria* Bergroth, 1913**																					
limnophiloides Bergroth, 1913	x	x	x	x			x					x				x	x	x	x		
***Ellipteroides* Becker, 1907**																					
Ellipteroides Becker, 1907																					
lateralis (Macquart, 1835)				x																	

TABLE 2. *Continued.*

	RI	HOY	HOI	SFY	SFI	MRY	MRI	STY	STI	NTY	NTI	NSY	NSI	NNØ	NNV	TRY	TRI	FV	FI	FN	FØ
PEDICIIDAE																					
PEDICIINAE																					
***Dicranota* Zetterstedt, 1838**																					
Dicranota Zetterstedt, 1838																					
bimaculata (Schummel, 1829)			x						x							x		x		x	x
crassicauda Tjeder, 1972 [1]																					
guerini Zetterstedt, 1838			x		x		x		x		x						x	x		x	x
Paradicranota Alexander, 1934																					
gracilipes Wahlgren, 1905							x		x		x					x	x	x		x	x
pavida (Haliday, 1833)									x					x		x					
robusta Lundström, 1912									x		x										
subtilis Loew, 1871									x								x			x	
Rhaphidolabis Osten Sacken, 1869																					
exclusa (Walker, 1848)	?		x		x				x		x					x	x	x		x	x
***Nasiternella* Wahlgren, 1904**																					
varinervis (Zetterstedt, 1851)											x		x								
***Pedicia* Latreille, 1809**																					
Crunobia Kolenati, 1859																					
littoralis (Meigen, 1804)																					
straminea (Meigen, 1838)		x			x																
Pedicia Latreille, 1809																					
rivosa (Linnaeus, 1758)		x	x	x	x	x			x		x		x	x		x	x			x	
***Tricyphona* Zetterstedt, 1837**																					
Tricyphona Zetterstedt, 1837																					
immaculata (Meigen, 1804)		x	x		x				x		x		x	x		x	x	x		x	x
livida Madarassy, 1881																					
schummeli Edwards, 1921			x		x				x							x	x	x		x	x
unicolor (Schummel, 1829)			x																		
ULINAE																					
***Ula* Haliday, 1833**																					
Ula Haliday, 1833																					
bolitophila Loew, 1869													x								
kiushiuensis Loew, 1869																					
mixta Starý, 1983 [2]																					
mollissima Haliday, 1833									x												
sylvatica (Meigen, 1818)			x		x				x					x						x	
LIMONIIDAE																					
CHIONEINAE																					
***Arctoconopa* Alexander, 1955**																					
forcipata (Lundström, 1915)																					
melampodia (Loew, 1873) [3]																					
obscuripes (Zetterstedt, 1851)									?		x										
quadrivittata (Siebke, 1872)																					
zonata (Zetterstedt, 1851) [4]																					
***Cheilotrichia* Rossi, 1848**																					
Cheilotrichia Rossi, 1848																					
imbuta (Meigen, 1818)																					
Empeda Osten Sacken, 1869																					
areolata (Lundström, 1912)														x							
cinerascens (Meigen, 1804)					x		x		x		x										
* *neglecta* (Lackschewitz, 1927)																					
***Chionea* Dalman, 1816**																					
Chionea Dalman, 1816																					
araneoides Dalman, 1816	x		x		x	x	x		x			x	x			x				?	x
crassipes Boheman, 1846													x					x	x	x	x
Sphaeconophilus Becker, 1912																					
belgica (Becker, 1912)																					
lutescens Lundström, 1907																					
***Crypteria* Bergroth, 1913**																					
limnophiloides Bergroth, 1913					x				x												
***Ellipteroides* Becker, 1907**																					
Ellipteroides Becker, 1907																					
lateralis (Macquart, 1835)																					

TABLE 2. *Continued*.

	N	S	F	D	I	Ø	AK	HES	HEN	OS	ON	BØ	BV	VE	TEY	TEI	AAY	AAI	VAY	VAI	RY
***Erioconopa* Stary, 1976**																					
diuturna (Walker, 1848)	x	x	x						x												
symplectoides (Kuntze, 1914) [5]																					
trivialis (Meigen, 1818)	x	x	x	x	x	x	x			x	x	x	x	x	x	x					
***Erioptera* Meigen, 1803**																					
Erioptera Meigen, 1803																					
beckeri Kuntze, 1914		x	x	x																	
divisa (Walker, 1848)	x	x	x	x			x								x	x					
flavata (Westhoff, 1882)	x	x	x	x							x				x						
fuscipennis Meigen, 1818	x	x		x		x	x		x												
fusculenta Edwards, 1938		x		x																	
griseipennis Meigen, 1838		x	x	x																	
lutea Meigen, 1804	x	x	x	x		x	x		x	x	x	x	x		x	x		x	x		
nielseni Meijere, 1921		x	x	x																	
pederi Tjeder, 1969 [6]	x	x	x																		
sordida Zetterstedt, 1838	x	x	x	x		x	x								x						
squalida Loew, 1871		x	x	x																	
tordi Tjeder, 1973		x	x																		
Mesocyphona Osten Sacken, 1869																					
bivittata (Loew, 1873)		x		x																	
***Gnophomyia* Osten Sacken, 1860**																					
acheron Alexander, 1950			x																		
lugubris (Zetterstedt, 1838)	x	x	x	x										x							
viridipennis (Gimmerthal, 1847)	x	x	x	x		x								x							
***Gonempeda* Alexander, 1924**																					
flava (Schummel, 1829)		x	x	x																	
***Gonomyia* Meigen, 1818**																					
Gonomyia Meigen, 1818																					
* *abscondita* Lackschewitz, 1935	x	x	x				x								x	x					
bifida Tonnoir, 1920 [7]	x	x	x	x			x														
conoviensis Barnes, 1924 [8]	x			x																	
dentata Meijere, 1920 [9]	x	x	x	x												x					
lappona Oosterbroek, 1992		?																			
lucidula Meijere, 1920	x	x		x																	
recta Tonnoir, 1920		x		x																	
simplex Tonnoir, 1920	x	x	x	x									x			x					
stackelbergi Lackschewitz, 1935	x	x	x																		
subtenella Savshenko, 1972		x																			
tenella (Meigen, 1818)	x	x	x	x			x														
Prolipophleps Savchenko, 1972																					
abbreviata Loew, 1873		x																			
Teuchogonomyia Alexander, 1968																					
* *edwardsi* Lackschewitz, 1925	x	x	x													x					
***Hoplolabis* Osten Sacken, 1869**																					
Parilisia Savchenko, 1976																					
areolata (Siebke, 1872)	x	x	x	x					x												
subalpina (Bangerter, 1947)		x																			
vicina (Tonnoir, 1920)	x	x	x	x					x												
***Idiocera* Dale, 1842**																					
Idiocera Dale, 1842																					
bradleyi (Edwards, 1939)		x																			
pallens (Alexander, 1928)			x																		
pulchripennis (Loew, 1856)				x																	
sexguttata (Dale, 1942)				x																	
***Ilisia* Rondani, 1856**																					
* *maculata* (Meigen, 1804)	x	x		x											x						
occoecata Edwards, 1936		x		x																	
***Molophilus* Curtis, 1833**																					
Molophilus Curtis, 1833																					
appendiculatus (Staeger, 1840)	x	x	x	x		x	x				x	x	x		x	x		x		x	
ater (Meigen, 1804)	x	x	x	x			x		x	x	x					x					
bifidus Goetghebuer, 1920	x	x	x	x											x	x					
* *bihamatus* Meijere, 1918	x	x	x	x			x														

TABLE 2. *Continued*.

	RI	HOY	HOI	SFY	SFI	MRY	MRI	STY	STI	NTY	NTI	NSY	NSI	NNØ	NNV	TRY	TRI	FV	FI	FN	FØ
***Erioconopa* Stary, 1976**																					
diuturna (Walker, 1848)									x			x								x	
symplectoides (Kuntze, 1914) [5]									?												
trivialis (Meigen, 1818)			x		x	x			x		x			x		x	x			x	x
***Erioptera* Meigen, 1803**																					
Erioptera Meigen, 1803																					
beckeri Kuntze, 1914																					
divisa (Walker, 1848)																					
flavata (Westhoff, 1882)			x																		
fuscipennis Meigen, 1818						x															
fusculenta Edwards, 1938																					
griseipennis Meigen, 1838																					
lutea Meigen, 1804		x	x		x				x		x			x		x		x		x	
nielseni Meijere, 1921																					
pederi Tjeder, 1969 [6]																					
sordida Zetterstedt, 1838									x					x			x	x			
squalida Loew, 1871																					
tordi Tjeder, 1973																					
Mesocyphona Osten Sacken, 1869																					
bivittata (Loew, 1873)																					
***Gnophomyia* Osten Sacken, 1860**																					
acheron Alexander, 1950																					
lugubris (Zetterstedt, 1838)																					
viridipennis (Gimmerthal, 1847)																					
***Gonempeda* Alexander, 1924**																					
flava (Schummel, 1829)																					
***Gonomyia* Meigen, 1818**																					
Gonomyia Meigen, 1818																					
* *abscondita* Lackschewitz, 1935					x																
bifida Tonnoir, 1920 [7]																					
conoviensis Barnes, 1924 [8]					x																
dentata Meijere, 1920 [9]		x																			
lappona Oosterbroek, 1992																					
lucidula Meijere, 1920																	x				
recta Tonnoir, 1920																					
simplex Tonnoir, 1920																x					
stackelbergi Lackschewitz, 1935																x					
subtenella Savshenko, 1972																					
tenella (Meigen, 1818)									x		x			x							
Prolipophleps Savchenko, 1972																					
abbreviata Loew, 1873																					
Teuchogonomyia Alexander, 1968																					
* *edwardsi* Lackschewitz, 1925																					
***Hoplolabis* Osten Sacken, 1869**																					
Parilisia Savchenko, 1976																					
areolata (Siebke, 1872)														x							
subalpina (Bangerter, 1947)																					
vicina (Tonnoir, 1920)														x			x				
***Idiocera* Dale, 1842**																					
Idiocera Dale, 1842																					
bradleyi (Edwards, 1939)																					
pallens (Alexander, 1928)																					
pulchripennis (Loew, 1856)																					
sexguttata (Dale, 1942)																					
***Ilisia* Rondani, 1856**																					
* *maculata* (Meigen, 1804)																					
occoecata Edwards, 1936																					
***Molophilus* Curtis, 1833**																					
Molophilus Curtis, 1833																					
appendiculatus (Staeger, 1840)	?		x						x		x		x				x				
ater (Meigen, 1804)											x			x		x	x	x		x	
bifidus Goetghebuer, 1920			x		x																
* *bihamatus* Meijere, 1918																					

TABLE 2. *Continued*.

	N	S	F	D	I	Ø	AK	HES	HEN	OS	ON	BØ	BV	VE	TEY	TEI	AAY	AAI	VAY	VAI	RY
cinereifrons Meijere, 1920 [10]	x	x	x	x			x								x						
* *corniger* Meijere, 1920	x	x	x	x		x									x	x					
crassipygus Meijere, 1918	x	x	x	x			x					x			x	x			x		
* *curvatus* Tonnoir, 1920	x	x		x			x														
flavus Goetghebuer, 1920	x	x	x	x		x	x		x		x	x			x	x		x			
griseus (Meigen, 1804)	x	x	x	x		x	x					x					x		x		
lackschewitzianus Alexander, 1953				x																	
medius Meijere, 1918	x	x	x	x										x	x	x			x		
obscurus (Meigen, 1818)		x	x	x																	
* *occultus* Meijere, 1918	x	x	x	x															x		
ochraceus (Meigen, 1818)	x	x	x	x		x	x								x				x		
pleuralis Meijere, 1920		x		x																	
propinquus (Egger, 1863)	x	x	x	x		x			x						x	x					
pullus Lackschewitz, 1927			x																		
serpentiger Edwards, 1938		x		x																	
***Neolimnophila* Alexander, 1920**																					
carteri (Tonnoir, 1921)	x	x	x	x												x					
placida (Meigen, 1830)	x	x	x	x		x	x	x	x	x	x										
***Ormosia* Rondani, 1856**																					
Oreophila Lackschewitz, 1935																					
sootryeni (Lackschewitz, 1935)	x	x	x																		
Ormosia Rondani, 1856																					
* *affinis* (Lundbeck, 1898)	x						x														
* *brevinervis* (Lundström, 1907)	x	x	x																		
* *clavata* (Tonnoir, 1920)	x	x	x				x						x			x			x		
* *depilata* Edwards, 1938	x	x	x	x			x									x					
fascipennis (Zetterstedt, 1838)	x	x	x	x	x		x		x		x	x				x					
* *hederae* (Curtis, 1835)	x	x	x	x	x	x															
lineata (Meigen, 1804)	x	x	x	x		x	x				x	x		x	x	x					
loxia Starý, 1983			x																		
nodulosa (Macquart, 1826)	x	x		x																	x
pseudosimilis (Lundström, 1912)	x	x	x	x		x						x								x	
ruficauda (Zetterstedt, 1838)	x	x	x			x	x		x		x	x	x	x	x	x					
staegeriana Alexander, 1953	x	x	x	x		x	x		x	x	x	x	x	x		x					
***Phyllolabis* Osten Sacken, 1877**																					
macroura (Siebke, 1863)	x	x	x								x	x									
***Rhabdomastix* Skuse, 1890**																					
Rhabdomastix Skuse, 1890																					
borealis Alexander, 1924	x	x	x																		
japonica Alexander, 1924		x																			
laeta (Loew, 1873)		x	x	?																	
* *laetoidea* Stary, 2004	x														x						
Sacandaga Alexander, 1911																					
parva (Siebke, 1863)	x	x	x		x				x		x										
***Rhypholophus* Kolenati, 1860**																					
haemorrhoidalis (Zetterstedt, 1838)	x	x	x	x			x		x		x	x				x					
varius (Meigen, 1818)	x	x	x	x																	
***Scleroprocta* Edwards, 1938**																					
* *pentagonalis* (Loew, 1973)	x	x	x	x			x														
sororcula (Zetterstedt, 1851)	x	x	x	x								x				x					
***Symplecta* Meigen, 1830**																					
Psiloconopa Zetterstedt, 1838																					
lindrothi (Tjeder, 1955)		x	x																		
meigeni (Zetterstedt, 1838)	x	x	x	x																	
stictica (Meigen, 1818)	x	x	x	x		x	x							x	x						
Symplecta Meigen, 1830																					
chosenensis (Alexander, 1940)			x																		
hybrida (Meigen, 1804)	x	x	x	x	x		x		x		x	x									x
* *mabelana* (Alexander, 1955)	x		x																		
scotica (Edwards, 1938)	x	x	x						x												
Trimicra Osten Sacken, 1861																					
pilipes (Fabricius, 1787)	x	x	x	x			x												x		

TABLE 2. *Continued*.

	RI	HOY	HOI	SFY	SFI	MRY	MRI	STY	STI	NTY	NTI	NSY	NSI	NNØ	NNV	TRY	TRI	FV	FI	FN	FØ
cinereifrons Meijere, 1920 [10]		x																			
* *corniger* Meijere, 1920																					
crassipygus Meijere, 1918					x													x			
* *curvatus* Tonnoir, 1920					x																
flavus Goetghebuer, 1920		x			x				x		x									x	
griseus (Meigen, 1804)					x				x									x			
lackschewitzianus Alexander, 1953																					
medius Meijere, 1918									x												
obscurus (Meigen, 1818)																					
* *occultus* Meijere, 1918			x																		
ochraceus (Meigen, 1818)																					
pleuralis Meijere, 1920																					
propinquus (Egger, 1863)											x										x
pullus Lackschewitz, 1927																					
serpentiger Edwards, 1938																					
***Neolimnophila* Alexander, 1920**																					
carteri (Tonnoir, 1921)									x					x							
placida (Meigen, 1830)			x				x						x				x				
***Ormosia* Rondani, 1856**																					
Oreophila Lackschewitz, 1935																					
sootryeni (Lackschewitz, 1935)														x							
Ormosia Rondani, 1856																					
* *affinis* (Lundbeck, 1898)																					
* *brevinervis* (Lundström, 1907)																		x			
* *clavata* (Tonnoir, 1920)																					
* *depilata* Edwards, 1938																					
fascipennis (Zetterstedt, 1838)			x		x				x					x		x		x		x	
* *hederae* (Curtis, 1835)																					
lineata (Meigen, 1804)					x				x			x									
loxia Starý, 1983																					
nodulosa (Macquart, 1826)		x									x										
pseudosimilis (Lundström, 1912)	?								x											x	
ruficauda (Zetterstedt, 1838)									x		x					x	x			x	
staegeriana Alexander, 1953	?		x		x	x			x		x		x	x		x	x	x		x	
***Phyllolabis* Osten Sacken, 1877**																					
macroura (Siebke, 1863)			x						x											x	
***Rhabdomastix* Skuse, 1890**																					
Rhabdomastix Skuse, 1890																					
borealis Alexander, 1924																				x	
japonica Alexander, 1924																					
laeta (Loew, 1873)																					
* *laetoidea* Stary, 2004																					
Sacandaga Alexander, 1911																					
parva (Siebke, 1863)					x				x								x				x
***Rhypholophus* Kolenati, 1860**																					
haemorrhoidalis (Zetterstedt, 1838)		x			x				x					x		x					
varius (Meigen, 1818)									x												
***Scleroprocta* Edwards, 1938**																					
* *pentagonalis* (Loew, 1973)																					
sororcula (Zetterstedt, 1851)			x																		
***Symplecta* Meigen, 1830**																					
Psiloconopa Zetterstedt, 1838																					
lindrothi (Tjeder, 1955)																					
meigeni (Zetterstedt, 1838)																	x	x			
stictica (Meigen, 1818)									x					x						x	
Symplecta Meigen, 1830																					
chosenensis (Alexander, 1940)																					
hybrida (Meigen, 1804)							x		x		x	x						x			
* *mabelana* (Alexander, 1955)																				x	
scotica (Edwards, 1938)									x												
Trimicra Osten Sacken, 1861																					
pilipes (Fabricius, 1787)																					

TABLE 2. *Continued*.

	N	S	F	D	I	Ø	AK	HES	HEN	OS	ON	BØ	BV	VE	TEY	TEI	AAY	AAI	VAY	VAI	RY
***Tasiocera* Skuse, 1890**																					
Dasymolophilus Goetghebuer, 1920																					
exigua Savchenko, 1973		x	x																		
fuscescens (Lackschewitz, 1940)	x	x	x			x									x	x					
murina (Meigen, 1818)	x	x	x	x		x	x					x				x					
robusta (Bangerter, 1947)		x																			
LIMNOPHILINAE																					
***Adelphomyia* Bergroth, 1891**																					
* *punctum* (Meigen, 1818)	x	x	x	x												x					
***Archilimnophila* Alexander, 1920**																					
Archilimnophila Alexander, 1934																					
* *harperi* (Alexander, 1926)	x	x	x																		
unica (Osten Sacken, 1869)	x	x	x	x		x			x				x			x					
Austrolimnophila Alexander, 1920																					
ochracea (Meigen, 1804)	x	x		x		x	x							x	x	x			x		
***Dicranophragma* Osten Sacken, 1860**																					
Brachylimnophila Alexander, 1966																					
adjunctum (Walker, 1848)			x																		
nemorale (Meigen, 1818) [11]	?	x		x			?		?		?			?	?					?	?
separatum (Walker, 1848)	x	x	x	x		x	x				x	x	x	x	x	x			x		
***Eloeophila* Rondani, 1856**																					
maculata (Meigen, 1804)	x	x	x	x		x	x			x	x	x		x	x	x					
mundata (Loew, 1971) [12]	x	x	x	x																	
* *submarmorata* (Verrall, 1887)	x	x	x	x										x	x	x					
trimaculata (Zetterstedt, 1838)	x	x	x	x			x					x									
verralli (Bergroth, 1912)			x	x																	
***Epiphragma* Osten Sacken, 1860**																					
Epiphragma Osten Sacken, 1860																					
ocellare (Linnaeus, 1761)	x	x	x	x		x	x			x		x		x	x	x		x	x		
***Euphylidorea* Alexander, 1972**																					
aperta (Verrall, 1887)				x																	
dispar (Meigen, 1818)		x	x	x																	
lineola (Meigen, 1804) [13]	?	x		x														?		?	
meigenii (Verrall, 1886)	x	x	x	x	x		x			x		x			x						
phaeostigma (Schummel, 1829)	x	x	x	x		x	x		x	x	x	x	x		x	x				x	x
***Eutonia* van der Wulp, 1874**																					
barbipes (Meigen, 1804)		x	x	x																	
***Hexatoma* Latreille, 1809**																					
Hexatoma Latreille, 1809																					
fuscipennis (Curtis, 1836)		x	x	x																	
vittata (Meigen, 1830)		x																			
***Idioptera* Macquart, 1834**																					
linnei Oosterbroek, 1992	x	x	x	x		x		x	x		x										
pulchella (Meigen, 1830)	x	x	x	x			x		x		x										
***Limnophila* Macquart, 1834**																					
Limnophila Macquart, 1834																					
pictipennis (Meigen, 1818) [14]	?	x	x	x																	
schranki Oosterbroek, 1992	x	x	x	x																	
***Neolimnomyia* Seguy, 1937**																					
Neolimnomyia Seguy, 1937																					
batava (Edwards, 1938) [15]	x	x	x	x		x									x						
filata (Walker, 1856)		x		x																	
***Paradelphomyia* Alexander, 1936**																					
Oxyrhiza de Meijere, 1946																					
* *fuscula* (Loew, 1873)	x	x	x	x			x					x			x	x					
nielseni (Kunze, 1919)				x																	
* *nigrina* (Lackschewitz, 1940)	x	x	x				x														
* *senilis* (Haliday, 1833)	x	x		x		x															
***Phylidorea* Bigot, 1854**																					
Macrolabina Savchenko, 1986																					
nigronotata (Siebke, 1870)	x	x	x	x									x								
Paraphylidorea Savchenko, 1986																					
fulvonervosa (Schummel, 1829)	x	x	x	x		x	x		x	x		x	x	x	x	x					
Phylidorea Bigot, 1854																					
abdominalis (Staeger, 1840)	x	x	x	x								x									

TABLE 2. *Continued*.

	RI	HOY	HOI	SFY	SFI	MRY	MRI	STY	STI	NTY	NTI	NSY	NSI	NNØ	NNV	TRY	TRI	FV	FI	FN	FØ
***Tasiocera* Skuse, 1890**																					
Dasymolophilus Goetghebuer, 1920																					
exigua Savchenko, 1973																					
fuscescens (Lackschewitz, 1940)			x																		
murina (Meigen, 1818)																					
robusta (Bangerter, 1947)																					
LIMNOPHILINAE																					
***Adelphomyia* Bergroth, 1891**																					
* *punctum* (Meigen, 1818)																					
***Archilimnophila* Alexander, 1920**																					
Archilimnophila Alexander, 1934																					
* *harperi* (Alexander, 1926)																		x			
unica (Osten Sacken, 1869)		x			x																
Austrolimnophila Alexander, 1920																					
ochracea (Meigen, 1804)					x																
***Dicranophragma* Osten Sacken, 1860**																					
Brachylimnophila Alexander, 1966																					
adjunctum (Walker, 1848)																					
nemorale (Meigen, 1818) [11]			?	?	?	?			?		?	?	?			?	?	?		?	
separatum (Walker, 1848)					x													x		x	
***Eloeophila* Rondani, 1856**																					
maculata (Meigen, 1804)				x					x							x					
mundata (Loew, 1971) [12]									?												
* *submarmorata* (Verrall, 1887)																					
trimaculata (Zetterstedt, 1838)									x		x							x			x
verralli (Bergroth, 1912)																					
***Epiphragma* Osten Sacken, 1860**																					
Epiphragma Osten Sacken, 1860																					
ocellare (Linnaeus, 1761)			x	x	x	x			x		x	x									
***Euphylidorea* Alexander, 1972**																					
aperta (Verrall, 1887)																					
dispar (Meigen, 1818)																					
lineola (Meigen, 1804) [13]									?												
meigenii (Verrall, 1886)		x	x																	x	x
phaeostigma (Schummel, 1829)					x	x	x		x		x	x		x		x	x	x			
***Eutonia* van der Wulp, 1874**																					
barbipes (Meigen, 1804)																					
***Hexatoma* Latreille, 1809**																					
Hexatoma Latreille, 1809																					
fuscipennis (Curtis, 1836)																					
vittata (Meigen, 1830)																					
***Idioptera* Macquart, 1834**																					
linnei Oosterbroek, 1992									x		x							x			x
pulchella (Meigen, 1830)									x								x	x		x	x
***Limnophila* Macquart, 1834**																					
Limnophila Macquart, 1834																					
pictipennis (Meigen, 1818) [14]									?												
schranki Oosterbroek, 1992									x												
***Neolimnomyia* Seguy, 1937**																					
Neolimnomyia Seguy, 1937																					
batava (Edwards, 1938) [15]																					
filata (Walker, 1856)																					
***Paradelphomyia* Alexander, 1936**																					
Oxyrhiza de Meijere, 1946																					
* *fuscula* (Loew, 1873)																					
nielseni (Kunze, 1919)																					
* *nigrina* (Lackschewitz, 1940)																					
* *senilis* (Haliday, 1833)																					
***Phylidorea* Bigot, 1854**																					
Macrolabina Savchenko, 1986																					
nigronotata (Siebke, 1870)																					
Paraphylidorea Savchenko, 1986																					
fulvonervosa (Schummel, 1829)						x	x	x	x		x	x	x	x							x
Phylidorea Bigot, 1854																					
abdominalis (Staeger, 1840)											x										

TABLE 2. *Continued*.

	N	S	F	D	I	Ø	AK	HES	HEN	OS	ON	BØ	BV	VE	TEY	TEI	AAY	AAI	VAY	VAI	RY
* *bicolor* (Meigen, 1804)	x	x	x	x											x						
ferruginea (Meigen, 1818)	x	x	x	x		x	x					x		x	x						
heterogyna (Bergroth, 1913) [16]	x	x	x	x																	
longicornis (Schummel, 1829)	x	x	x	x			x														
nervosa (Schummel, 1829)			x	x																	
squalens (Zetterstedt, 1838)	x	x	x	x		x	x		x	x		x	x								
umbrarum (Krogerus, 1937)			x																		
***Pilaria* Sintenis, 1889**																					
decolor (Zetterstedt, 1851) [17]	x	x	x	?			x														
discicollis (Meigen, 1818)	x	x	x	x		x	x		x	x	x		x		x	x		x			
* *fuscipennis* (Meigen, 1818)	x	x		x		x															
meridiana (Staeger, 1840)	x	x	x	x			x		x	x											
nigropunctata (Agrell, 1945)		x	x	?																	
scutellata (Staeger, 1840)		x	x	x																	
***Prionolabis* Osten Sacken, 1860**																					
hospes (Egger, 1863) [18]	?																				
***Pseudolimnophila* Alexander, 1919**																					
Pseudolimnophila Alexander, 1919																					
lucorum (Meigen, 1818)		x	x	x																	
sepium (Verrall, 1886)		x		x																	
LIMONIINAE Speiser, 1909																					
***Achyrolimonia* Alexander, 1965**																					
decemmaculata (Loew, 1873)		x	x	x																	
neonebulosa (Alexander, 1924)	x														x						
***Antocha* Osten Sacken, 1860**																					
Antocha Osten Sacken, 1860																					
vitripennis (Meigen, 1830)	x	x	x	x																	
Orimargula Mik, 1883																					
alpigena (Mik, 1883)				x																	
***Atypophthalmus* Brunetti, 1911**																					
Atypophthalmus Brunetti, 1911																					
inustus (Meigen, 1818)	x	x	x	x			x														
***Dicranomyia* Stephens, 1829**																					
Dicranomyia Stephens, 1829																					
aperta Wahlgren, 1904		x	x	x																	
autumnalis (Staeger, 1840)	x	x	x	x	x	x	x								x		x	x	x		
chorea (Meigen, 1818)	x	x		x		x	x														
consimilis (Zetterstedt, 1838)	x	x	x	x			x		x												
didyma (Meigen, 1804)	x	x	x	x	x	x	x		x	x						x		x			
distendens Lundström, 1912	x	x	x	x					x	x	x	x									
frontalis (Staeger, 1840)	x	x	x	x			x		x	x		x			x	x	x	x			
halterata Osten Sacken, 1869	x	x	x				x	x	x		x										
handlirschi Lackschewitz, 1928	x	x	x	x		x															
hyalinata (Zetterstedt, 1851)	x	x	x	x																	
* *imbecilla* Lackschewitz, 1941	x	?							x							x			x		
incisurata Lackschewitz, 1928	x										x										
longipennis (Schummel, 1829)		x	x																		
lucida de Meijere, 1918				x																	
lutea (Meigen, 1804) [19]	?			?																	
mitis (Meigen, 1830)	x	x	x	x											x						
modesta (Meigen, 1818)	x	x	x	x		x	x	x	x		x	x		x	x	x	x	x	x		
moniliformis Doane, 1900		x	x																		
omissinervis Meijere, 1918		x	x																		
patens Lundström, 1907	x	x	x						x												
radegasti Starý, 1993			x																		
* *sera* (Walker, 1848)	x	x	x	x			x								x						
terraenovae Alexander, 1920	x	x	x	x			x		x			x									
ventralis (Schummel, 1829)	x	x	x	x											x						
zernyi Lackschewitz, 1928	x	x	x						x												
Glochina Meigen, 1830																					
* *liberta* Osten Sacken, 1860	x		x				x									x					
* *schineriana* (Alexander, 1964)	x	x								x					x	x					
tristis (Schummel, 1829)	x	x	x			x	x	x								x					
Idiopyga Savchenko, 1987																					
boreobaltica Salmela, 2014			x																		

TABLE 2. *Continued*.

	RI	HOY	HOI	SFY	SFI	MRY	MRI	STY	STI	NTY	NTI	NSY	NSI	NNØ	NNV	TRY	TRI	FV	FI	FN	FØ
* *bicolor* (Meigen, 1804)																					
ferruginea (Meigen, 1818)									x												
heterogyna (Bergroth, 1913) [16]																					
longicornis (Schummel, 1829)									?		x	x		x		x	x	x		x	
nervosa (Schummel, 1829)																					
squalens (Zetterstedt, 1838)			x	x					x		x		x	x		x	x	x		x	x
umbrarum (Krogerus, 1937)																					
***Pilaria* Sintenis, 1889**																					
decolor (Zetterstedt, 1851) [17]																					
discicollis (Meigen, 1818)									x		x	x									
* *fuscipennis* (Meigen, 1818)																					
meridiana (Staeger, 1840)																					
nigropunctata (Agrell, 1945)																					
scutellata (Staeger, 1840)																					
***Prionolabis* Osten Sacken, 1860**																					
hospes (Egger, 1863) [18]																					
***Pseudolimnophila* Alexander, 1919**																					
Pseudolimnophila Alexander, 1919																					
lucorum (Meigen, 1818)																					
sepium (Verrall, 1886)																					
LIMONIINAE Speiser, 1909																					
***Achyrolimonia* Alexander, 1965**																					
decemmaculata (Loew, 1873)																					
neonebulosa (Alexander, 1924)			x																		
***Antocha* Osten Sacken, 1860**																					
Antocha Osten Sacken, 1860																					
vitripennis (Meigen, 1830)									x												
Orimargula Mik, 1883																					
alpigena (Mik, 1883)																					
***Atypophthalmus* Brunetti, 1911**																					
Atypophthalmus Brunetti, 1911																					
inustus (Meigen, 1818)					x											x	x				
***Dicranomyia* Stephens, 1829**																					
Dicranomyia Stephens, 1829																					
aperta Wahlgren, 1904																					
autumnalis (Staeger, 1840)									x							x					x
chorea (Meigen, 1818)	?	x	x								x					x		x			
consimilis (Zetterstedt, 1838)									x												
didyma (Meigen, 1804)		x	x		x				x			x				x		x			x
distendens Lundström, 1912											x		x	x			x				
frontalis (Staeger, 1840)									x												x
halterata Osten Sacken, 1869											x		x	x		x		x		x	
handlirschi Lackschewitz, 1928																					
hyalinata (Zetterstedt, 1851)									x			x		x		x		x			x
* *imbecilla* Lackschewitz, 1941					x															x	x
incisurata Lackschewitz, 1928									x												
longipennis (Schummel, 1829)																					
lucida de Meijere, 1918																					
lutea (Meigen, 1804) [19]																					
mitis (Meigen, 1830)			x						x									x			
modesta (Meigen, 1818)			x		x	x			x		x	x				x	x		x		x
moniliformis Doane, 1900																					
omissinervis Meijere, 1918																					
patens Lundström, 1907																					x
radegasti Starý, 1993																					
* *sera* (Walker, 1848)																					
terraenovae Alexander, 1920	?				x	x	x		x		x	x				x					x
ventralis (Schummel, 1829)																					x
zernyi Lackschewitz, 1928											x										
Glochina Meigen, 1830																					
* *liberta* Osten Sacken, 1860																					
* *schineriana* (Alexander, 1964)					x																
tristis (Schummel, 1829)									x												
Idiopyga Savchenko, 1987																					
boreobaltica Salmela, 2014																					

TABLE 2. *Continued*.

	N	S	F	D	I	Ø	AK	HES	HEN	OS	ON	BØ	BV	VE	TEY	TEI	AAY	AAI	VAY	VAI	RY
danica Kuntze, 1919		x	x	x																	
* *esbeni* (Nielsen, 1940)	x		x	x		x	x														
halterella Edwards, 1921	x	x	x													x					
* *intricata* Alexander, 1927	x	x	x																		
klefbecki (Tjeder, 1941)		x	x																		
lulensis (Tjeder, 1969)		x	x																		
magnicauda Lundström, 1912		x	x	x																	
melleicauda Alexander, 1917		x		x																	
murina (Zetterstedt, 1851)	x	x	x						x												
nigristigma Nielsen, 1919				x																	
ponojensis Lundström, 1912	x	x	x						x												
stigmatica (Meigen, 1830)	x	x	x	x					x												
Melanolimonia Alexander, 1965																					
caledonica Edwards, 1926	x	x	x	x			x		x		x										
morio (Fabricius, 1787)	x	x	x	x					x												
occidua Edwards, 1926 [20]	x	x	x																		
rufiventris (Strobl, 1901)	x	x	x						x												
stylifera Lackschewitz, 1928	x	x	x																		
Numantia Bigot, 1854																					
* *fusca* (Meigen, 1804)	x	x	x	x			x									x					
***Dicranoptycha* Osten Sacken, 1860**																					
cinerascens (Meigen, 1818)			x																		
fuscescens (Schummel, 1829)	x	x		x			x			x			x			x					
***Discobola* Osten Sacken, 1865**																					
annulata (Linnaeus, 1758)	x	x	x			x	?								x	x					
caesarea (Osten Sacken, 1854)		x	x																		
***Elephantomyia* Osten Sacken, 1860**																					
Elephantomyia Osten Sacken, 1860																					
edwardsi Lackschewitz, 1932		?	x																		
krivosheinae Savchenko, 1976		x	x																		
***Helius* Lepeletier & Serville, 1828**																					
Helius Lepeletier & Serville, 1828																					
* *flavus* (Walker, 1856)	x	x	x	x		x						x			x						
* *longirostris* (Meigen, 1818)	x	x	x	x		x						x		x	x						
pallirostris Edwards, 1921		x	x	x																	
***Libnotes* Westwood, 1876**																					
Afrolimonia Alexander, 1965																					
ladogensis (Lackschewitz, 1940)			x																		
***Limonia* Meigen, 1803**																					
Limnobia Meigen, 1801																					
badia (Walker, 1848)			x																		
dilutior (Edwards, 1921)				x																	
flavipes (Fabricius, 1787)	x	x	x	x		x	x		x	x	x		x		x	x					
hercegovinae (Strobl, 1898)					?																
interjecta Starý, 1974 [21]	?	x																			
macrostigma (Schummel, 1829)	x	x	x	x	x		x		x		x			x	x						
* *maculicosta* (Coquillett, 1905)	x	x	x																		
messaurea Mendl, 1971		x	x																		
nigropunctata (Schummel, 1829)		x		x																	
nubeculosa Meigen, 1804	x	x	x	x		x	x		x					x	x	x	x	x	x		
phragmitidis (Schrank, 1781)	x	x	x	x		x	x		x	x			x		x						
* *stigma* (Meigen, 1818)	x	x	x	x										x							
sylvicola (Schummel, 1829)	x	x	x	x				x	x	x	x										
trivittata (Schummel, 1829)	x	x	x	x	x		x				x				x						
***Lipsothrix* Loew, 1873**																					
ecucullata Edwards, 1938	x	x	x	x		x	x								x						
* *errans* (Walker, 1848)	x	x	x	x												x			x		
* *remota* (Walker, 1848)	x	x		x												x					
***Metalimnobia* Matsumura, 1911**																					
Metalimnobia Matsumura, 1911																					
bifasciata (Schrank, 1781)	x	x	x	x		x	x		x	x		x		x	x	x				x	x
* *charlesi* Salmela & Starý, 2008	x	x	x				x														
quadrimaculata (Linnaeus, 1761)	x	x	x	x		x	x		x	x	x	x		x	x	x			x		
quadrinotata (Meigen, 1818)	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x		x	x		
* *tenua* Savchenko, 1976	x	x	x										x			x					

TABLE 2. *Continued*.

	RI	HOY	HOI	SFY	SFI	MRY	MRI	STY	STI	NTY	NTI	NSY	NSI	NNØ	NNV	TRY	TRI	FV	FI	FN	FØ
danica Kuntze, 1919																					
* *esbeni* (Nielsen, 1940)																					
halterella Edwards, 1921																x					
* *intricata* Alexander, 1927																		x			
klefbecki (Tjeder, 1941)																					
lulensis (Tjeder, 1969)																					
magnicauda Lundström, 1912																					
melleicauda Alexander, 1917																					
murina (Zetterstedt, 1851)									x							x			x		
nigristigma Nielsen, 1919																					
ponojensis Lundström, 1912											x					x					
stigmatica (Meigen, 1830)					x				x									x			x
Melanolimonia Alexander, 1965																					
caledonica Edwards, 1926									x							x		x		x	
morio (Fabricius, 1787)									x				x					x			
occidua Edwards, 1926 [20]																					
rufiventris (Strobl, 1901)									x		x					x		x			x
stylifera Lackschewitz, 1928									x									x			
Numantia Bigot, 1854																					
* *fusca* (Meigen, 1804)																					
***Dicranoptycha* Osten Sacken, 1860**																					
cinerascens (Meigen, 1818)																					
fuscescens (Schummel, 1829)																					
***Discobola* Osten Sacken, 1865**																					
annulata (Linnaeus, 1758)							x														
caesarea (Osten Sacken, 1854)																					
***Elephantomyia* Osten Sacken, 1860**																					
Elephantomyia Osten Sacken, 1860																					
edwardsi Lackschewitz, 1932																					
krivosheinae Savchenko, 1976																					
***Helius* Lepeletier & Serville, 1828**																					
Helius Lepeletier & Serville, 1828																					
* *flavus* (Walker, 1856)																					
* *longirostris* (Meigen, 1818)																					
pallirostris Edwards, 1921																					
***Libnotes* Westwood, 1876**																					
Afrolimonia Alexander, 1965																					
ladogensis (Lackschewitz, 1940)																					
***Limonia* Meigen, 1803**																					
Limnobia Meigen, 1801																					
badia (Walker, 1848)																					
dilutior (Edwards, 1921)																					
flavipes (Fabricius, 1787)				x	x				x			x		x							
hercegovinae (Strobl, 1898)																					
interjecta Starý, 1974 [21]																					
macrostigma (Schummel, 1829)									x		x						x			x	x
* *maculicosta* (Coquillett, 1905)					x																
messaurea Mendl, 1971																					
nigropunctata (Schummel, 1829)																					
nubeculosa Meigen, 1804		x	x				?		x		x	x									
phragmitidis (Schrank, 1781)					x				x		x										
* *stigma* (Meigen, 1818)					x																
sylvicola (Schummel, 1829)			x		x	x			x		x			x		x					x
trivittata (Schummel, 1829)			x				x		x			x		x		x	x				
***Lipsothrix* Loew, 1873**																					
ecucullata Edwards, 1938			x		x						x										
* *errans* (Walker, 1848)																					
* *remota* (Walker, 1848)																					
***Metalimnobia* Matsumura, 1911**																					
Metalimnobia Matsumura, 1911																					
bifasciata (Schrank, 1781)		x			x				x		x		x	x							
* *charlesi* Salmela & Starý, 2008																					
quadrimaculata (Linnaeus, 1761)											x	x	x								
quadrinotata (Meigen, 1818)				x	x				x		x	x	x			x	x			x	
* *tenua* Savchenko, 1976																					

TABLE 2. *Continued*.

	N	S	F	D	I	Ø	AK	HES	HEN	OS	ON	BØ	BV	VE	TEY	TEI	AAY	AAI	VAY	VAI	RY
zetterstedti (Tjeder, 1968)	x	x	x				x		x	x		x			x	x					
***Neolimonia* Alexander, 1964**																					
dumetorum (Meigen, 1804)	x	x	x	x		x	x					x		x	x	x					?
***Orimarga* Osten Sacken, 1869**																					
Orimarga Osten Sacken, 1869																					
attenuata (Walker, 1848)	x	x	x							x	x										
juvenilis (Zetterstedt, 1851) [22]		x	x																		
virgo (Zetterstedt, 1851)		x																			
***Rhipidia* Meigen, 1818**																					
Rhipidia Meigen, 1818																					
ctenophora Loew, 1871		x		x																	
maculata Meigen, 1818	x	x	x	x		x	x		x	x	x	x		x	x	x	x	x	x		?
* *uniseriata* Schiner, 1864	x	x	x	x		x	x														
***Thaumastoptera* Mik, 1866**																					
Thaumastoptera Mik, 1866																					
calceata Mik, 1866				x																	

TABLE 2. *Continued*.

	RI	HOY	HOI	SFY	SFI	MRY	MRI	STY	STI	NTY	NTI	NSY	NSI	NNØ	NNV	TRY	TRI	FV	FI	FN	FØ
zetterstedti (Tjeder, 1968)									x		x	x									
***Neolimonia* Alexander, 1964**																					
dumetorum (Meigen, 1804)				x																	
***Orimarga* Osten Sacken, 1869**																					
Orimarga Osten Sacken, 1869																					
attenuata (Walker, 1848)					x				x		x						x	x			
juvenilis (Zetterstedt, 1851) [22]																					
virgo (Zetterstedt, 1851)																					
***Rhipidia* Meigen, 1818**																					
Rhipidia Meigen, 1818																					
ctenophora Loew, 1871																					
maculata Meigen, 1818			x	x	x				x		x					x	x				
* *uniseriata* Schiner, 1864					x																
***Thaumastoptera* Mik, 1866**																					
Thaumastoptera Mik, 1866																					
calceata Mik, 1866																					

1920. First recorded for Norway by John Skartveit, as published by Hovstad & Hella (2006) (on internet only). Material examined: **AK**, Oslo: Bekkedalen, Tonsen, 1♂, 04.IX.2016, N, leg./det. KMO; **TEY**, Skien: NE Bjerketvedt, 2♂♂, 22.VI.2016, N, leg./det. KMO, conf. JK; **HOY**, Austrheim: Mongstad V, 1♂, 28.V.–01.VII.2005, MT2, leg./det. JSk.

***11) Dicranophragma nemorale* (Meigen, 1818)**. There is great uncertainty as to whether this species is actually recorded in Norway or not. It is mentioned in many publications from many localities in Norway, but papers from before Stary & Reusch (2009) must be considered as not having considered *D. separatum*. The first author has identified close to 500 specimens of Norwegian *Dicranophragma*, both males and females and from both southern and northern Norway, and all have proved to be *D. separatum*. *D. nemorale* has been removed from the Finnish list (Salmela & Petrasiunas 2014), and it should also be questioned on the Norwegian, pending reliable information to the contrary. Material in Norwegian natural history museums has not yet been revised. The situation in Sweden is the same as for Norway, but Yngve Brodin (*in litt.*) has chosen to retain the status as it being present. In Denmark, there are reliably identified females (David Byriel *in litt.*).

***12) Eloeophila mundata* (Loew, 1971).** Lackschewitz (1940b) reported ”Dovre”, leg. Winthem, probably referring to the mountain area which is divided between Strand regions STI and ON (so the record might also have been made in municipality Dovre in northern part of county Oppland).

***13) Euphylidorea lineola* (Meigen, 1804).** The specimens mentioned by Siebke (1877) from "Fredrikshald, Staværn, in parochia Enebak ad lacum Øiern, in Søndmøre ad Ørskoug [et Muri in Valdalen] & ad Throndhjem" were shown to be *Phylidorea fulvonervosa* by Lackschewitz (1933). "Muri in Valdalen", which is in Norddal municipality, appears to be missing in the list of Lackschewitz ("Enebak, Stavern, Trondheim, Fredrikshald, Ørskog"), so it still might be *E. lineola*, but we see no reason why Siebke should identify two species as different as *P. fulvonervosa* and *E. lineola* as one and the same. *E. lineola*, as *Limnophila lineola*, is also mentioned from Norway by Storm (1898, 1907) and Lundström (1913), but these records seem to have not been revised. Zetterstedt (1851) mention *Limnobia lineola* from "Näs / Verdalia ad Næs". This record is referred to by Siebke (1877), but as Siebke obviously misinterpreted the species, maybe also Zetterstedt's specimens could be *P. fulvonervosa*. Salmela (2011) stated that Finnish specimens identified as *E. lineola* turned out to be either *E. dispar* or *Phylidorea fulvonervosa*. The species is thus marked as doubtful in Norway, and in need of confirmation.

***14) Limnophila pictipennis* (Meigen, 1818).** Mentioned by Storm (1898) from "Sneisenvandet" (Mostadmarken/Selbu) in STI, but the species is otherwise not regarded as Norwegian. It will here be included as uncertain for Norway, and there should be put effort into finding recent Norwegian specimens.

***15) Neolimnomyia batava* (Edwards, 1938).** Mentioned by Solem (1996) from both eastern and middle Norway, but without details.

***16) Phylidorea heterogyna* (Bergroth, 1913).** Mentioned by Solem (1996) from Sør-Trøndelag and/or Nord-Trøndelag.

***17) Pilaria decolor* (Zetterstedt, 1851).** Mannheims (1967) stated the species as new to Norway, but mentioned only a couple of localities in Sweden. It is, however, mentioned by Solem (1996) from county Troms and/or Finnmark, probably not based on Mannheims, and there are also some recent finds.

***18) Prionolabis hospes* (Egger, 1863).** Lackschewitz (1940b), as *Limnophila platyptera*, mentioned "Norwegen". In the manuscript for the Catalogue of Palaearctic Diptera, Savchenko had it as "?N", but without any explanation. In the printed version (Savchenko *et al.* 1992) "?N" has become "N", also without any explanation. Hence, we have no secure information on the presence or distribution of this species in Norway, and it is included in the list as uncertain and in need of confirmation.

***19) Dicranomyia lutea* (Meigen, 1804).** Lackschewitz (1935b) mentioned the species from TRY: Tromsø 04.IX.1923 and Nord-Fugløy 02.VIII.1925, and also, with reference to Walker (1848), as *Limnobia lutea*, from FV. The current concept of *Dicranomyia lutea* is defined in Stary & Stubbs (2015), and any records of *D. lutea* prior to that paper should be regarded as doubtful. It is, perhaps, more likely that Lackschewitz (1935b) had *D. chorea* before him. The species is therefore regarded as uncertain in Norway, and in need of confirmation.

***20) Dicranomyia occidua* Edwards, 1926.** Tjeder (1955) marked the species as Norwegian, but he gave no details. One female from HOY is mentioned in the list from Skartveit, but according to Stubbs & Kramer (2016b), females of this section of subgenus *Melanolimonia* are unidentifiable. Therefore, no exact knowledge about this species' distribution in Norway exists.

***21) Limonia interjecta* Starý, 1974.** Starý & Oosterbroek (2008) mentioned the species as Norwegian, with reference to CCW (as of 2008), but with no details on its distribution. It was marked as Norwegian by Savchenko in his manuscript for the Catalogue of Palaearctic Diptera, but the origin of this information is not known. Norway was not included by Geiger (1986). Its presence in Norway is therefore in need of confirmation.

***22) Orimarga juvenilis* (Zetterstedt, 1851).** Zetterstedt (1851) did not mention any Norwegian localities. Savchenko *et al.* (1992) wrote "?Norway", but the locality Sand[a], which Savchenko believed might be Norwegian, is according to Zetterstedt (1851) in Sweden. Therefore, no real records of this species from Norway exist, and it is thus excluded from the list.

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