

An annotated checklist of the Norwegian Lonchaeidae (Diptera, Cyclorrhapha) with the description of a new species

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The status of Lonchaeidae in Norway is reviewed and a Norwegian checklist is provided for the first time listing 40 species in six genera. Whenever possible the records for each species provide details of region code, municipality, locality (grid code after the EIS-system, decimal degrees) number of individuals, sex, date, collecting method, collector and depository. Information is also provided on wider European distribution, and where known, larval habitat. A new species within the genus *Lonchaea* Fallén, 1820 namely *Lonchaea norvegica* **sp. n.** is described and its relationship with related species is discussed. The Norwegian fauna is compared to that of other adjacent European countries.

Key words: Diptera, Lonchaeidae, *Lonchaea norvegica*, new species, checklist, Norway.

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Introduction

The Lonchaeidae is one of eight families within the superfamily Tephritoidea which also includes the Tephritidae. Worldwide the Lonchaeidae contain just over 600 species in 10 genera (MacGowan 2022) with approximately 140 species known from the Palearctic. Lonchaeidae are small-sized (body length: 3–6 mm), stout-bodied acalyptrate flies, with broad wings, body usually entirely shiny blue-black, head wide and high, thorax broad, abdomen broad and flat, wing usually hyaline, haltere invariably black.

Knowledge of the family has been steadily increasing, and from a northern European perspective given impetus by the publication of a Handbook to the British Lonchaeidae (MacGowan & Rotheray 2008). Subsequently several national

checklists have been published including for Sweden (MacGowan 2015, 2020) and France (Withers & MacGowan 2014). The most recent overview of the family can be found in MacGowan & Rotheray (2021). This current checklist is the first attempt to catalogue the Norwegian fauna and set it in context with that of neighbouring north-west European countries.

Material and methods

Specimens examined came from a variety of sources, preserved in alcohol from Malaise trap samples, pinned specimens from museum collections and as fresh unpinned specimens from the contributors to this project. Whenever possible specimens were identified without dissection.

When dissection was required, specimens were micro-pinned and staged with accompanying data labels. Dissected genitalia were cleared in 10% KOH before examination and were subsequently stored in glycerol filled micro-vials attached to the specimen pin. Voucher specimens are retained in the National Museum of Scotland, Edinburgh. The taxonomic terminology used in describing the new species follows that of MacGowan & Rotheray (2021).

The collection dates of the material examined ranges from 1849 to 2021. We have tried as far as possible to examine all relevant material but we recognise that there is potentially more still to be examined, for example in unsorted Malaise trap samples. In addition, it is frequently not possible to identify many female lonchaeids to more than genus level. The records are based solely on collected material, except for six records, identified from photographs.

Acronyms used for the depositories.: Natural History Museums of Oslo (NHMO), National Museum of Scotland, Edinburgh (NMS) and University Museum of Bergen (UMB).

Description of the new species

Lonchaea Fallén, 1820

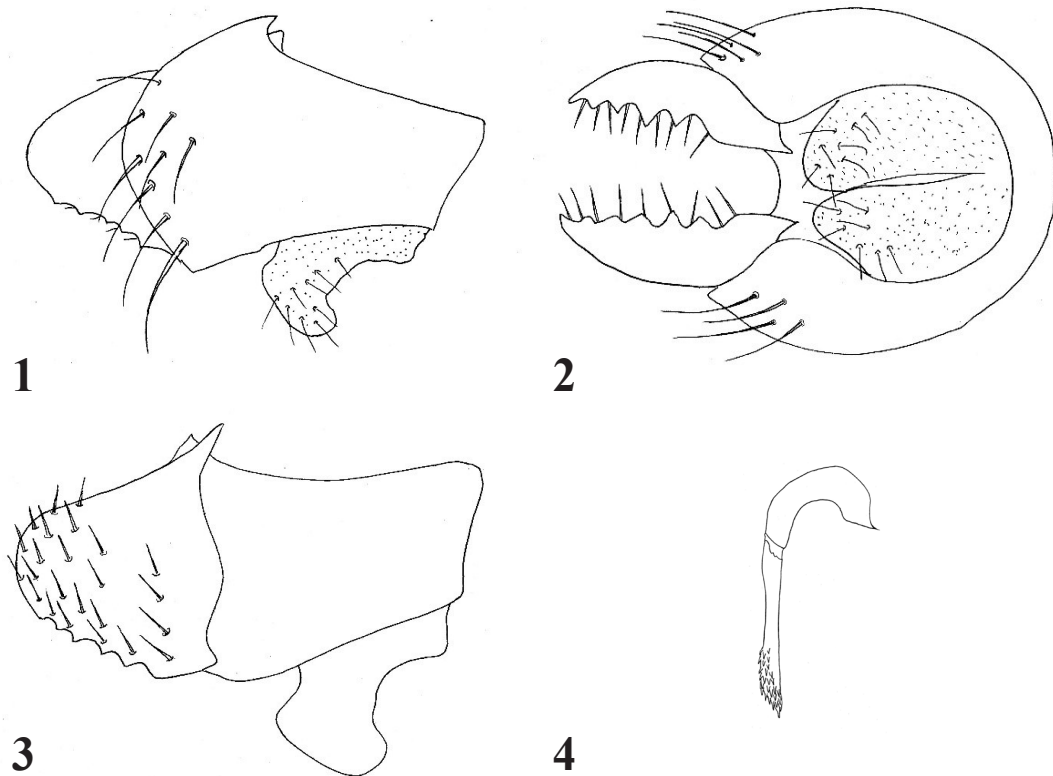
Lonchaea norvegica sp. n.

Description. **Holotype** ♂. **Head:** Eyes bare. Frons at narrowest point above lunule approximately 0.5x width of an eye heavily grey dusted, narrowing gradually from level of ocellar triangle to just above antennal bases, frontal and interfrontal setulae long, 0.6x length of orbital seta. Orbital plate black, dulled by microsculpture, bearing 4–5 setulae as long as the interfrontals. Lunule ground colour black; lunule, parafacials and face covered in dense silver-grey pollinosity. Anterior genal setulae forming a single regularly spaced row of 3–4 along mouth edge, these slightly stronger than other setulae on the genae. Palpi black, with numerous strong setae. Antennae entirely black, antennal postpedicel length to depth ratio 2.2: 1. Arista entirely black, microscopically pubescent

Thorax: Scutum sub shining blue-black, covered with light grey dusting, with a covering of long black setulae approximately 0.75x length of orbital seta. Humerus densely covered in setulae. Anepisternum grey dusted with 4 setae in a row along posterior margin, anterior setae difficult to distinguish from other numerous long setulae on the sclerite. Proepisternum with one long seta, approximately six setae on proepimeron. Katepisternum, grey dusted, a single seta located near dorsal margin a few long setulae lying anterior and posterior to this, otherwise sclerite with only rather fine, sparse setulae. Anepimeron bare. Scutellum sub-shining black, covered with grey dusting, with a pair of lateral and apical setae, the right lateral setae with an additional seta in close proximity, scutellar margin with six setulae on left, three on right side between lateral setae, six between apical setae, these approximately 0.4x as long as marginal setae, no setulae anterior to the lateral setae. Calypter white with a short whitish fringe of uniform length. Wing: length 3.6 mm, membrane slightly fumose, covered in dark microtrichia. Veins dark brown, intercostal section of wing, between insertion of Sc and R1, short, just slightly more than length of cross vein r-m. Legs, black, short ventral fringe on tarsomeres of front, mid and hind legs golden brown, basal and second tarsomeres of hind leg brownish ventrally but this partly obscured by the covering of black setulae.

Abdomen: 1st sternite without setulae. Male terminalia (Figures 1–4): In lateral view epandrium roughly rectangular, approximately 1.5x as wide as high, bearing strong setae ventrally. Surstylus strongly sclerotised, protruding ventrally beyond shell of epandrium as a large rounded process. Cercus, membranous, relatively irregular in shape, approximately half height of epandrium; with a scattering of setulae on apical half. In posterior view surstylus strongly emarginated medially, the inner surface with approximately 25 long, thin setae, concentrated ventrally. Phallus; bi-segmented, in lateral view an inverted J-shape, basiphallus a simple curved tube, distiphallus a straight tube, slightly thickened basally and apically, apical third spiculate.

Female; unknown.



FIGURES 1–4. *Lonchaea norvegica* sp. n. Male genitalia. 1. Epandrium and associated structures, lateral view. 2. Same, posterior view. 3. Internal view of surstylus. 4. Phallus lateral view. Drawings: Iain MacGowan.

Type material: Holotype ♂. **NORWAY: RY** Sokndal, Skittmyr (EIS 3, N58.35048° E6.30549°) 11 June–10 July 2020, Malaise trap, leg. Jarl S. Birkeland. Coll. National Museum of Scotland, Edinburgh, specimen no. NMS-10005535.

Etymology: The specific epithet refers to the country of origin of the holotype.

Remarks: This is a long-haired, dusted species with conspicuously silver–grey face and parafacials. With the combination of bare eyes, anterior genal setae in a single row, tarsomeres partly brownish, fringes of calypteres pale, proepimeron with several setae and orbital plate with setulae it keys out in the Palearctic fauna to being near *Lonchaea subneatosia* Kovalev, 1974 and *Lonchaea freyi* Czerny, 1934 (MacGowan 2021). However, it differs from the former in that the 1st sternite is entirely bare and from the latter by having a scutellum with no marginal

setulae anterior to lateral seta and none on the disc. On dissection of the male terminalia the very distinctive bi-segmented, J-shaped phallus with a spiculate apex and the large ventrally projecting, serrated surstyli serve to easily distinguish this species from any other Palearctic *Lonchaea* species.

The Malaise trap, in which the holotype was collected, was located in an old hayfield which has not been used and harvested for approximately 20 years. On one side it is bounded by a plantation forest consisting of different species of spruce (*Picea* spp.). On the other side is a small nature reserve which contains large oak trees (*Quercus* spp.) as well as many mature aspen (*Populus tremula* L.) and a good amount of dead wood. The field itself is full of different grasses, thistles and *Rubus* sp. The margins of the hayfield on the border of the forest is quite boggy and there is a

small stream which floods the field after heavy rain (J. S. Birkeland, personal communication, June 2021). It seems most probable that this species, along with the majority of all Palearctic *Lonchaea* species, has saproxylic larvae and dead wood in the adjacent large oak and aspen trees must be suitable candidates for the larval substrate.

Annotated checklist

For each species the total number of records, the record details and relevant remarks are provided. The localities are listed from south to north, with the following details, if present: Region/geographical zone code (Endrestøl 2021), municipality, locality (grid code after the EIS-system (Endrestøl 2006), decimal degrees, number of individuals, sex, date, collecting method, collector and collection). New records to Norway are indicated by an asterisk before the species name. Previously, the Russian lonchaeid expert Vladimir Grigoryevich Kovalev, along with other entomologists (noted with their full name in the checklist) identified some of the older material in museum collections (these are marked with # after the date), these have also been re-examined and either confirmed or corrected in this checklist.

The records are listed within biogeographical zones (a modified version of the Strand-system (Endrestøl 2021)). These zones are based on the old county names, and are abbreviated as follows: Ø – Østfold; AK – Akershus; BØ – Buskerud, east; BV – Buskerud, west; VE – Vestfold; TEY – Telemark, coastal; TEI – Telemark, interior; AAY – Aust-Agder, coastal; AAI – Aust Agder, interior; VAY – Vest-Agder, coastal; VAI – Vest-Agder, interior; RY – Rogaland, coastal; RI – Rogaland, interior; HOY – Hordaland, coastal; HOI – Hordaland, interior; SFY – Sogn og Fjordane, coastal; SFI – Sogn og Fjordane, interior; OS – Oppland, south; ON – Oppland, north; HES – Hedmark, south; HEN – Hedmark, north; MRY – Møre og Romsdal, coastal; MRI – Møre og Romsdal, interior; STY – Sør-Trøndelag, coastal; STI – Sør-Trøndelag, interior; NTY – Nord-Trøndelag, coastal; NTI – Nord-Trøndelag, interior; NSY – Nordland, south coastal; NSI

– Nordland, south interior; NNV – Nordland, north coastal; NNØ – Nordland, north interior; TRY – Troms, coastal; TRI – Troms, interior; FV – Finnmark, west; FI – Finnmark, interior; FN – Finnmark, north, and FØ – Finnmark, east.

Family LONCHAEIDAE

DASIOPINAE

DASIOPINI

Dasiops Rondani, 1865

* *Dasiops facialis* Collin, 1953

Total: 4♀. **Records:** BØ Ringerike: Sokna (EIS 36) 1♀ 30 May 2008, L.G. Jensen leg. (UMB). RY Sokndal: Skittmyr (EIS 3, N58.35048° E6.30549°) 1♀ 21 May–11 June 2020, Malaise trap, J.S. Birkeland leg. (NMS). HOY Osterøy: Hosanger (EIS 40, N60.56832° E5.48575°) 1♀ 18 June–13 July 2020, Malaise trap, A.T. Mjøs leg. (NMS). MRY Averøy: Rokset, Kvernesveien 1283 (EIS 84, N62.9838° E7.6693°) 1♀ 7 June 2017, netted, J.R. Gustad leg. (NMS).

Remarks: An uncommon species with scattered records across western Europe. The larval habitat is unknown.

* *Dasiops laticeps* (Czerny, 1934)

Total: 1♂. **Records:** NTI Høylandet: Tverråa (EIS 107) 1♂ 11 June 1988, Malaise trap, J.O. Solem leg. (UMB).

Remarks: A rare species with a scattered distribution, occurring in Sweden, Russia Hungary and Mongolia.

* *Dasiops mucronatus* Morge, 1959

Total: 1♀. **Records:** RY Sokndal: Varåsen (EIS 3, N58.3309° E6.2629°) 1♀ 30 May–26 June 2021, Malaise trap, J.S. Birkeland leg. (NMS).

Remarks: A species more common in central and southern Europe, in the north it seems to be restricted to coastal locations. The larval habitat is unknown.

* *Dasiops occultus* Collin, 1953

Total: 1♀. **Records:** HOY Stord: Iglatjodn

myrreservat (EIS 23) 1♀ 28 June–19 July 1989, Malaise trap, L.G. Jensen leg. (UMB).

Remarks: Apparently a rather rare species with only a few records from north-western Europe.

* *Dasiops perpropinquus* Morge, 1959

Total: 1♀. **Records:** NTI Høylandet: Tverråa (EIS 107) 1♀ 6 August 1986, Malaise trap, J.O. Solem leg. (UMB).

Remarks: An uncommon species in Europe, it has been reared from larvae and pupae found under the bark of several deciduous tree species.

* *Dasiops spatiosus* (Becker, 1895) (Figure 5)

Total: 1♀1♂. **Records:** AK Enebakk: Nordre Bøler (EIS 29) 1♂ September 1996, Malaise trap, H. Breilid & H. Solberg leg. (UMB). TEY Drangedal: Laksvassmyra, Saga (EIS 10, N59.072309° E8.756784°) 1♀ 1 August 2020, collected by hand, M. Amundsen & M.A. Mjelde leg. (NMS).

Remarks: One of the more common *Dasiops* species of northern European woodlands where

the larvae develop in decaying birch.

* *Dasiops trichosternalis* Morge, 1959

Total: 1♂2♀♀ (1♂ dissected). **Records:** MRV Averøy: Rokset, Kvernesveien 1283 (EIS 84, N62.9838° E7.6693°) 1♂ 10 June 2020, netted, J.R. Gustad leg. (NMS). NTI Høylandet: Tverråa (EIS 107) 1♀ 9 July 1986, 1♀ 13 August 1986, Malaise trap, J.O. Solem leg. (UMB).

Remarks: An uncommon species. The larval habitat is unknown.

LONCHAEINAE

EAROMYIINI

Protearomyia McAlpine, 1962

* *Protearomyia nigra* (Meigen, 1826)

Total: 2♂♂. **Records:** MRV Averøy: Rokset, Kvernesveien 1283 (EIS 84, N62.9838° E7.6693°) 1♂ 12 June 2020, netted, J.R. Gustad leg. (NMS). MRI Molde: Eikesdalen, Finnset



FIGURE 5. *Dasiops spatiosus* (Becker, 1895). The second record from Norway, a female, from Drangedal 1 August 2020. Photo: Morten Angard Mjelde.

(EIS 78, N62.4232° E8.3235°) 1♂ 20 June 2021, netted, J.R. Gustad leg. (NMS).

Remarks: *P. nigra* seems to be the only member of this genus to occur at more northern latitudes although a further two species occur in southern Sweden. The larvae are considered to develop in the stems of herbaceous plants. 10 additional female specimens of *Protearomyia* ssp. were collected from Ø, AK, RY, SFI, MRY and MRI but these cannot confidently be assigned to a species.

Chaetolonchaea Czerny, 1934

Chaetolonchaea dasyops (Meigen, 1826)

Total: 3♀♀, 1 not sexed. **Records:** **AK** Bærum: Fornebu, Lilløyplassen (EIS 28) 1 ex 18 May 2008, photo, J.M. Mjelde leg. **VE** Larvik: Nevlungstranda (EIS 18, N58.968° E9.8450°) 1♀ 7 June 2010, netted, G.E.E. Søli leg. (NHMO). **RY** Sokndal: Varåsen (EIS 3, N58.3309° - E6.2629°) 1♀ 3-30 April 2021, 1♀ 30 May-26 June 2021, Malaise trap, J.S. Birkeland leg. (NMS).

Remarks: This is the less common of the two species of *Chaetolonchaea* found in Norway, it usually found in meadow habitats where the larvae, as with all *Chaetolonchaea* species, are thought to develop in bulbs and tubers.

* *Chaetolonchaea pallipennis* (Zetterstedt, 1855)

Total: 7♀♀2♂♂, 1 not sexed. **Records:** **Ø** Råde: Tasken N (EIS 20) 1♀ 2–24 June 1995, Malaise trap, J.I.I. Båtvik & O. Hanssen leg. (NHMO). **AK** Oslo: Tøyen, botanisk have, 1♀ 8 July 1850#, J.H.S. Siebke leg. (NHMO), previously published as *L. dasyops* by Siebke (1877). Oslo: Tøyen (EIS 28) 1♀ no date, J.H.S. Siebke leg. (NHMO) (could be the second individual given as ♂, in Siebke (1877)). Bærum: Ostøya (EIS 28, N59.868° E10.571°) 1 imago 31 May 1984#, L.G. Jensen leg. (UMB). **AK?** Labels not readable to current location 1♀ 16 June 1849, J.H.S. Siebke leg. (NHMO). **BØ** Asker: Hurum, Tofteholmen (EIS 19) 1♀ 28 May–7 July 1991, Malaise trap, L.O. Hansen leg. (NHMO). **VE** Larvik: Mølen (EIS 11, N58.96812° E9.84192°) 1♀ 31 May 2021, netted, M. Amundsen & M.A. Mjelde leg. (NMS). **TEY** Bamble: Langøya

(EIS 11) 1♂ 2–28 May 1991, Malaise trap, L.O. Hansen leg. (NHMO). Kragerø: Portør (EIS 11, N58.791206° E9.388083°) 1♂ 16 May 2021, M.A. Mjelde leg. (NMS). **ON** Vang: Vennis, Døtten (EIS 52, N61.1660° E8.4904°) 1♀ 27 June 2021, netted, J.R. Gustad leg. (NMS).

Remarks: First record is from 1849. This is the smaller and more common of the two species, it may be more tolerant of colder temperatures.

Earomyia Zetterstedt, 1842

Earomyia lonchaeoides Zetterstedt, 1848

Total: 2♀♀1♂. **Records:** **Ø** Halden (EIS 12) 1♀ 6 May–9 June 1986, Malaise trap, F. Midtgaard leg. (UMB). **AK** Frogn: Drøbak, Tomters Øvre vei 10 (EIS 28, N59.69950° E10.64576°) 1♀ 1 May 2013, photo, J.R. Gustad leg. **TEY** Drangedal: Neslandsvatn, Løbbedalen 76 (EIS 11, N58.97625° E09.16715°) 1♂ 19 March 2019, photo, M.A. Mjelde leg.

Remarks: The two latter records were previously published in Gustad & MacGowan (2020). This can be a very common species in European woodlands but its early spring emergence may lead to a paucity of records. The larval habitat is unknown.

LONCHAEINI

Lonchaea Fallén, 1820

Lonchaea affinis Malloch, 1920

Total: 58♀♀15♂♂, 15 not sexed. **Records:** **Ø** Halden: Strupe (EIS 12, N59.138° E11.371°) 1 imago 5 June 1967#, anonymous leg. (UMB). Indre Østfold: Eidsberg, Mysen, Åsen (EIS 29) 1♀ 21 June 2012, S.E. Eriksen & O. Sørlibråten leg. (NHMO). Krokstad bruk (EIS 29) 1♂ 15 June 2013, O. Sørlibråten leg. (NHMO). **AK** Oslo: Ryen, Ryenberg 1♀ 23 June 1849, J.H.S. Siebke leg. (NHMO), previously listed as *L. albitarsis* Zetterstedt, 1837 by Siebke (1877). Hasle (EIS 28) 1♀ 17 August 1851, J.H.S. Siebke leg. (NHMO), previously listed as *L. albitarsis* by Siebke (1877). Ljanselva, Liadalen (EIS 28, N59.848° E10.792°) 1♀ 25 June–5 July 2010, Malaise trap, M. Steinert & S. Steinert leg. (NHMO). Ljanselva, Urskogen

(EIS 28, N59.854° E10.818°) 1♀ 25 June–5 July 2010, Malaise trap, M. Steinert & G.E.E. Søli leg. (NHMO). Østensjøvannet, Bogerudmyra (EIS 28, N59.87° E10.83°) 1♀ 18 June 2012, netted, G.E.E. Søli leg. (NHMO). Sørkedalen, Svartorsætra (EIS 28, N60.026° E10.646°) 1♀ 6–12 June 2018, Malaise trap, H. Elven leg. (NHMO). Lørenskog: Losby (EIS 29) 2♀♀ 27 June–1 August 1991, Malaise trap, B. Økland leg. (NHMO). Ullensaker: Sessvollmoen, Aurtjernet V (EIS 29) 1♀ 30 June–12 August 2008, Malaise trap, L.O. Hansen leg. (NHMO). Nesodden: Røertjern (EIS 28, N59.811° E10.679°) 1♀ 2 July–1 August 2010, Malaise trap, O.J. Lønnve leg. (NHMO). **BØ** Kongsberg: Jondalen (EIS 27) 1 imago 20 June 1983, B.A.Sagvolden leg. (NHMO). Drammen: Underlia (EIS 28) 1♀ July 1992, Malaise trap, L.O. Hansen leg. (NHMO). Nedre Eiker, Mjøndalen, Hagatjern, Ryggsetra (EIS 28, N59.7327° E10.046°) 4♀♀ July 1994, Malaise trap, Y. Berg & L.O. Hansen leg. (NHMO). Ringerike: Sokna, Hovland (EIS 36) 1♀ 1 June–3 July 2004, Malaise trap, L.G. Jensen leg. (UMB). **BV** Hol: Hovet (EIS 43, N60.622° E8.151°) 1 imago 27 July 1981#, L.G. Jensen leg. (UMB). Rollag: Rollag (EIS 27?) 1 imago 1 June 1983, B.A. Sagvolden leg. (UMB). Brattåsen (EIS 27?) 1♀ July 1994, L.O. Hansen & B.A. Sagvolden leg. (UMB). Rollag (EIS 27?) 1♂ 5 June 1995, B.A. Sagvolden leg. (UMB). Sigdal: Heimsæteråsen (EIS 35, N60.046° E9.637°) 2♂♂ 10 June 1998 + 4♀♀1♂ 16 June 1998, canopy fogging, K.H. Thunes leg. (UMB). **VE** Færder: Tjøme, Eidene (EIS 19, N59.099° E10.403°) 1 imago 15 June 1965#, A. Fjellberg leg. (UMB). **TEY** Drangedal: Langås (EIS 11, N58.99855° E9.18872°) 1♀ 11 June 2021, netted, M. Amundsen leg. (NMS). **TEI** Tinn: Lontjønnan (EIS 34, N60.0372° E8.4411°) 1 imago 9 July 1983, B.A. Sagvolden leg. (UMB). **RY** Sokndal: Skittmyr (EIS 3, N58.3494953° E6.3053846°) 1♀ 13–26 June 2021, Malaise trap, J.S. Birkeland leg. (NMS). **RI** Sandnes: Forsand, Skurvedalen (EIS 7, N59.0289° E6.3045°) 1♀ 31 May 1984, netted, T. Jonassen leg. (NMS). Sandnes: Forsand, Helmikstøl to Håheller (Daladalen) (EIS 7, N59.0589° E6.4905°) 1♂ 27 July 1984, netted, T. Jonassen leg. (NMS). **HOY** Bergen: Åstveit (EIS 39, N60.449° E5.321°) 1 imago 25 May 1968#, T.R. Nielsen leg. (UMB). Åsane (EIS 31) 1♀ 14–25 June 1986, Malaise trap, L.G. Jensen leg. (UMB). Osterøy: Herlandsnesjane naturreservat (EIS 40) 1♀ 11 June–12 August 1999, Malaise trap, K. Aakra & P. Djursvoll (UMB). Haukåsvatnet (EIS 40) 1 imago 2 May–5 June 2003, Malaise trap, L.G. Jensen leg. (UMB). Hyllestad: Botnen (EIS 49) 1 imago 21 June–21 July 1999, Malaise trap, L.G. Jensen & L. Sognes leg. (UMB). **HOI** Ullensvang: Ringøy (EIS 41, N60.44° E6.781°) 1 imago 16 July 1967#, T.R. Nielsen leg. (UMB). **OS** Ringeby: Fåvang, Stortann (EIS 63) 1♀ 28 July 1998, Malaise trap, O. Sørlibråten leg. (NHMO). Søndre Land: Odneseberga (EIS 45, N60.8070° E10.1796°) 1♀ 18 May–25 June 2009, Malaise trap, L. Aarvik, F.A. Grøndahl & L.O. Hansen leg. (NHMO). **ON** Vang: Vennis, Døtten (EIS 52) 1♂ 8 June 2005, K. Berggren leg. (UMB). **ON?** Nord-Fron?: Rondane (EIS 62?) 1♀ 3 August 2015, S.M. Hewitt leg. (NMS). **HES** Eidskog: Hornåsen (EIS 29) 1♂ 10 May 2006, O. Sørlibråten leg. (NHMO). Våler: Nordre Bolsjøen, Kaskonbekken (EIS 56, N60.856° E12.089°) 3♀♀ 7 June–6 August 2009, Malaise trap, G.E.E. Søli & E. Rindal leg. (NHMO). Nordre Bolsjøen, Gjerdaskoia (EIS 56, N60.8513° E12.1031°) 1♂ 7 June–6 August 2009, Malaise trap, G.E.E. Søli & E. Rindal leg. (NHMO). Kongsvinger: Fjorsjøen (EIS 38, N60.1745° E12.4359°) 2♂♂ 6 June–5 July 2015, Malaise trap, K. Sund leg. (NHMO). **HEN** Rendalen: Holla seter (EIS 73) 1♀ June 1945, L.R. Natvig & Y. Rendal leg. (NHMO). Solbakken, Ytre Rendal (EIS 64) 1♀ 24 July 1949 + 1♀ 14 July 1950, L.R. Natvig leg. (NHMO). **MRI** Norddal: Tafjord, Zakariasvatnet (EIS 69) 1♀ 22 July 1996, J. Skartveit leg. (UMB). **STI** Trondheim: Lade (EIS 92, N63.446° E10.443°) 1 imago 2 August 1968#, A. Pettersen leg. (UMB). Oppdal: Kongsvoll, Gavalibk (EIS 79) 1♂ 13 July 1982, J.O. Solem leg. (UMB). **NTI** Høylandet: Skiftesåa (EIS 107) 1♀ 25 June 1986, 2♀♀ 30 July 1986, 1♀ 20 July 1988, Malaise trap, J.O. Solem leg. (UMB). Tverråa (EIS 107) 1♀ 25 June 1986, 1♀ 1 July 1986, 2♀♀ 23 July 1986, 1♀ 13 August 1986, Malaise trap, J.O. Solem leg. (UMB). Lierne: Nordli, Kveskallen (EIS 103, N71.51599° E:45.0062°) 1♀ 2–27 June

1986, Malaise trap, O. Hanssen leg. (UMB). Lierne: Nordli, Stortjønnlia (EIS 108, N64.5622° E13.6785°) 1♀ 9 July 2014, O. Sørlibråten leg. (NHMO). **NSY** Bodø: Mørkeid, Hokkåsflata (EIS 130, N67.29240409° E14.57168002°) 1♀ 25 August 2020, indoor, G. Ørsnes leg. (NMS). **TRI** Bardu: Setermoen (EIS 146) 1 imago 25 June 1984, S. Svendsen leg. (UMB). Målselv: Dividal (EIS 157) 1♀ 3 August 1996, F. Midtgaard leg. (UMB). Nordreisa: Nokinivat 1♀ 20 June–20 July 1996, 2♀♀ 20 July–20 September 1996, Malaise trap, J. Kjærandsen leg. (NHMO). **FV** Alta: Grønnåsen (EIS 165, N69.789° E23.529°) 1 imago 28 June 1967#, L.G. Jensen leg. (UMB). Gargia (EIS 165) 2 imago 30 June 1989, B.A. Sagvolden leg. (UMB). Vinamoen (EIS 165) 1♂ 9 July 1995, K. Berggren leg. (UMB). **FN** Berlevåg: Kongsfjorddalen (EIS 184) 1♂ 2 July 2002, T.R. Nielsen leg. (UMB). Tana: Dardneskaidi 1♂ 8 July 2002, K. Berggren leg. (UMB). **FØ** Sør-Varanger: Pasvik, Ellenvann (EIS 160) 2♀♀ 3 July 1966, R. Mehl leg. (NHMO). Vaggatem (EIS 160) 2♀♀ 1 August 1996, J. Skartveit leg. (UMB). Pasvik, Dagvann 1♀ 2 August 1996, J. Skartveit leg. (UMB).

Remarks: First record is from 1849. This species has previously been known and published as *Lonchaea laxa* Collin, 1953, but MacGowan (2019) recognised *L. laxa* as a junior synonym of *Lonchaea affinis*. The Sigdal material was originally determined as *L. laxa* by John Skartveit and published as such in Thunes *et al.* (2004). This is one of the most common Scandinavian lonchaeids with the larvae breeding in the decaying wood of a range of coniferous trees

Lonchaea albitarsis Zetterstedt, 1837

Total: 5♀♀7♂♂. **Records:** **AK** Oslo: Lutdalen (EIS 28) 1♂ 28 June–5 July 1990, Malaise trap, M. Falck leg. (NHMO). **AAI** Evje og Hornnes: Kjetså (EIS 25, N59.54396° E7.75594°) 1♀ 2–16 June 2020, Malaise trap, L. Breistøl leg. (NMS). **RY** Sokndal: Skittmyr (EIS 3, N58.35048° E6.30549°) 1♀3♂♂ 21 May–11 June 2020, Malaise trap, J.S. Birkeland leg. (NMS). Kvam (EIS 3, N58.342078° E6.2727141°) 1♀ 13 June–4 July 2021, Malaise trap, J.S. Birkeland leg. (NMS). **RI** Sauda: Vikaneset (EIS 23,

N59.56888° E6.28494°) 2♀♀ 12–26 May 2020, Malaise trap, Ø.N. Larsen leg. (NMS). **MRY** Averøy: Rokset, Kvernesveien 1283 (EIS 84, N62.9838° E7.6693°) 1♂ 22 May 2021, 1♂ 23 May 2021, 1♂ 2 June 2021, netted, J.R. Gustad leg. (NMS).

Remarks: First record is from 1990. A rather uncommon northern species, the larvae are associated with the decaying wood of coniferous trees.

* ***Lonchaea angelina*** MacGowan, 2014

Total: 1♂. **Records:** **HOY** Osterøy: Hole (EIS 40, N60.56832° E5.48575°) 1♂ 15 April–18 May 2020, Malaise trap, A.T. Mjøs leg. (NMS).

Remarks: A little known species with records scattered across Europe. The larval habitat is unknown.

* ***Lonchaea bukowskii*** Czerny, 1934 (Figure 6)

Total: 1♀1♂. **Records:** **TEY** Kragerø: Kurdøla (EIS 11, N58.966746° E9.256652°) 1♀ 11 July 2020, collected by hand, M.A. Mjelde leg. (NMS). **RY** Sandnes: Sandnes, Utsikten 11 (EIS 7, N58.8460° E5.7656°) 1♂ 10 July 2021, indoor, K. Solheim leg. (NMS).

Remarks: A northern and central European species, Barták (2001) stated that the larvae are saprophagous on willows (*Salix* spp).

* ***Lonchaea carpathica*** Kovalev, 1974

Total: 3♂♂. **Records:** **Ø** Fredrikstad: Rauer (EIS 19) 1♂ 29 July 1989, L.O. Hansen leg. (UMB). **VE** Larvik: Skjærsvjø (EIS 19, N59.200° E9.922°) 1♂ 3 July 2012, K.H. Thunes leg. (NHMO). **TEI** Kviteseid: Kviteseid (EIS 17) 1♂ 23–27 June 1998, S. Ligaard leg. (UMB).

Remarks: A species most common in eastern and central Europe, the adults are associated with deciduous forests where the larvae may develop in rot holes.

Lonchaea chorea (Fabricius, 1781) (Figure 7)

Total: 52♀♀101♂♂, 11 not sexed. **Records:** **AK** Oslo: Kristiania (EIS 28) 4♂♂ no date (year approximately 1850)#, J.H.S. Siebke leg. (NHMO). Botanisk have (muséplassen) (EIS 28, N60.387° E5.322°) 1 imago 23 July 1934, N.



FIGURE 6. *Lonchaea bukowskii* Czerny, 1934. The first record from Norway, a female, from Kragerø 11 July 2020. Photo: Morten Angard Mjelde.



FIGURE 7. A female *Lonchaea chorea* (Fabricius, 1781) with extended ovipositor, from Sandnes 12 August 2020. This common species belongs to the group within the genus *Lonchaea* with entirely black legs and pale fringed calypteres. Photo: Kåre Solheim.

Knaben leg., Walter L.V. Hackman det. (UMB). Bydgøy, Hengsenga (EIS 28, N59.914° E10.673°) 1 imago 1 May 1984#, L.G. Jensen leg. (UMB). Frogn: Håøya, Håøytangen (EIS 28) 1♀ 1 June 1990, L.O. Hansen leg. (UMB). Enebakk: Nordre Bøler (EIS 29) 1♀ June 1996, H. Breilid & H. Solberg leg. (UMB). **BV** Rollag: Rollag (EIS 27?) 1 imago 26 June 1983, 1 imago 9 June 1993, B.A. Sagvolden leg. (UMB). Rollag: ? (EIS 27?) 1♀

16 June 1984, NIR leg. (UMB). Rollag: Veggli (EIS 35) 1 imago 29 June 1995, B.A. Sagvolden leg. (UMB). Nore og Uvdal: Gvammen (EIS 34) 1 imago 10 July 1983, NIR leg. (UMB). **VE** Færder: Tjøme, Kjære (EIS 19, N59.106° E10.405°) 1 imago 12 June 1965#, L.G. Jensen leg. (UMB). Holmestrand: Våle, Langøya (EIS 19) 1♀ 1 June 1990, L.O. Hansen leg. (UMB). **TEY** Skien: Børsesjø (EIS 18, N59.220770° E9.613412°) 1♀

21 June 2021, M.A. Mjelde leg. (NMS). **TEI** Tinn: Håkånes (EIS 26) 1♂ June 1995, B.A. Sagvolden leg. (UMB). **AAY** Arendal: Tromøy kirke (EIS 6, N58.4504° E8.8635°) 1♀ 10 July 2020, J.R. Gustad leg. (NMS). **RY** Sandnes: Myrland (EIS 7, N58.835° E5.744°) 1 imago 4 July 1985#, T.R. Nielsen leg. (UMB). Sandnes, Utsikten 11 (EIS 7, N58.8460° E5.7656°) 1♀ 12 August 2020, 1♀ 13 August 2020, 1♀ 18 June 2021, 1 imago 8 July 2021, indoor, K. Solheim leg. (NMS). Finnøy: Kyrkjøy (EIS 14, N59.256° E5.8116°) 1 pair 16 July 1990, netted, T. Jonassen leg./det. (NMS). Sevheim (EIS 14) 1♀ 27 May–4 June 1992, A. Skartveit leg. (NMS). Sokndal: Skittmyr (EIS 3, N58.35048° E6.30549°) 1♀ 20 July–8 August 2020, Malaise trap, J.S. Birkeland leg. (NMS). Skittmyr (EIS 3, N58.3494953° E6.3053846°) 1♂ 12–30 May 2021, Malaise trap, J.S. Birkeland leg. (NMS). Kvam (EIS 3, N58.342078° E6.2727141°) 1♀2♂♂ 13 May–13 June 2021, Malaise trap, J.S. Birkeland leg. (NMS). Stavanger: Byhaugen (EIS 7, N58.9731558° E5.6990651°) 3♀♀ 6–29 August 2020, Malaise trap, J.S. Birkeland leg. (NMS). **RI** Sandnes: Forsand, Songesand (EIS 7, N59.0282° E6.3688°) 1♀ 6 June 1984, netted, T. Jonassen leg./det. (NMS). **HOY** Bergen: Langhaugen (EIS 31, N60.365° E5.364°) 1 imago 13 June 1968#, G. Langhelle leg. (UMB). Vollane (EIS 39, N60.44° E5.315°) 1 imago 9 July 1981#, L.G. Jensen leg. (UMB). Mildevann (EIS 30) 1♀ 10–19 June 2005, 1♀ 19 June–27 July 2005, Malaise trap, L.G. Jensen leg. (UMB). Samnanger: Ådland (EIS 40) 1♀ 16 June–2 July 1982, Malaise trap, L.G. Jensen & Nilsen leg. (UMB). **SFY** Sunnfjord: Kjøsnes (EIS 59) 1 imago 3 July 1983, L.G. Jensen leg. (UMB). **SFI** Lærdal: Husum (EIS 51, N61.0463° E7.7891°) 1♂ 4 June 2021, netted, J.R. Gustad leg. (NMS). Øvre Ljøsne (EIS 51, N61.0481° E7.6113°) 1♀36♂♂ 4 June 2021, 1♀12♂♂ 5 June 2021, 1♀34♂♂ 27 June 2021, netted, J.R. Gustad leg. (NMS). Øvre Ljøsne (EIS 51, N61.0478° E7.6070°) 1♀1♂ 5 June 2021, netted, J.R. Gustad leg. (NMS). Haugsbakken (EIS 51, N61.0834° E7.5243°) 1♂ 4 June 2021, netted, J.R. Gustad leg. (NMS). Haugsbakken (EIS 51, N61.0846° E7.5217°) 1♀ 5 June 2021, netted, J.R. Gustad leg. (NMS). Nedre Eri (EIS 51, N61.0866° E7.5104°) 7♀♀1♂ 5 June 2021,

netted, J.R. Gustad leg. (NMS). Moldabakkane (EIS 51, N61.0612° Ø7.5258°) 2♂♂ 24 June 2021, netted, J.R. Gustad leg. (NMS). **ON** Vågå: Øvsteng, Slådalsvegen (EIS 71, N61.904913° E9.012751) 1♀ 26 June 2020, netted, M.A. Mjelde leg. (NMS). **MRY** Gjemnes: Batnfjorden, Knutset (EIS 84, N62.9381° E7.7363°) 1♀ 18 June 2011, netted, H. Hatlen leg. (NMS). Averøy: Rokset, Kvernesveien 1283 (EIS 84, N62.9829° E7.6684°) 1♀ 17 June 2020, 3♀♀ 19 June 2020, 4♀♀ 20 June 2020, 2♀♀ 26 July 2020, 1♀ 2 September 2020, indoor, J.R. Gustad leg. (NMS). **MRI** Molde: Eikesdalen, Finnset (EIS 78, N62.4232° E8.3235°) 1♀ 20 June 2021, netted, J.R. Gustad leg. (NMS). Eikesdalen, Horne (EIS 78, N62.6362° - E8.0993°) 1♀1♂ 20 June 2021, netted, J.R. Gustad leg. (NMS). **NTI** Namsskogan: Trones (EIS 108, N64.733° E12.843°) 1♀ 27 May 2015, S.M. Hewitt (NMS). Verdal: Halsetbakkan 46 (EIS 98, N63.78498° E11.68754°) 1♂ 17 May 2021, netted, M. Amundsen (NMS). **Locality not or vaguely known** “Launga” 1♀ 18 July 1861#, J.H.S. Siebke leg. (NHMO). Vaage 1♀ 1 July 1861#, J.H.S. Siebke leg. (NHMO). “Fronyl” 1♀ July 1862#, J.H.S. Siebke leg. (NHMO). Grue 1♀ no date#, J.H.S. Siebke leg. (NHMO). Hallingdal 1♂ no date#, J.H.S. Siebke leg. (NHMO).

Remarks: First Norwegian record is from 1861. One of the most common European lonchaeids probably due to the fact that the larvae will develop in a very wide range of decaying organic material ranging from dung and compost heaps to decaying vegetables.

* *Lonchaea collini* Hackman, 1956

Total: 4♀♀29♂♂. **VE** Larvik: Jordstøyp (EIS 19, N59.18° E9.95°) 1♂ 20 May 2005, I. MacGowan leg. (NMS). Hellesrød (EIS 19, N59.01° E9.87°) 3♀♀28♂♂ collected 23 May 2005, ex pupae ex pine, I. MacGowan leg. (NMS). **TEY** Drangedal: Neslandsvatn stasjon (EIS 11, N58.97153° E9.15609°) 1♀ 25 July 2021, netted, M. Amundsen leg. (NMS).

Remarks: A common northern species whose larvae develop in a range of coniferous trees.

* *Lonchaea contigua* Collin, 1953

Total: 1♀. **Records:** **SFI** Lærdal: Haugs-

bakken (EIS 51, N61.0834° E7.5243°) 1♀ 4 June 2021, netted, J.R. Gustad leg. (NMS).

Remarks: A relatively common species in central Europe and the UK, the larvae develop in a range of deciduous trees.

* *Lonchaea corusca* Czerny, 1934

Total: 8♀♀1♂. **Records:** **TEY** Skien: Gjerpen (EIS 18, N59.22705° E9.60881°) 1♂ 15 July 2021, netted, M. Amundsen & M.A. Mjelde leg. (NMS). **RY** Finnøy: Kyrkjøy (EIS 14, N59.256° E5.8116°) 1♀ 5 July 1986, netted, T. Jonassen leg. (NMS). **Hå:** Hølland (EIS 3, N58.52445° E5.83518°) 2♀♀ 14–29 June 2020, Malaise trap, A.T. Mjøs leg. (NMS). **RI** Sandnes: Forsand to Sundmork (EIS 14, N59.0639° E6.3512°) 1♀ 2 June 1985, netted, T. Jonassen leg. (NMS). **Sauda:** Hustveit (EIS 23, N59.56878° E6.26467°) 1♀ 2–16 June 2020, Malaise trap, Ø.N. Larsen leg. (NMS). **HOY** Bergen: Åsane, Haukåsvassdraget (EIS 31) 1♀ 2 May–5 June 2003, Malaise trap, L.G. Jensen & G.W. Bakkerud leg. (UMB). **MRI** Molde: Eikesdalen, Finnset (EIS 78, N62.4232° E8.3235°) 2♀♀ 20 June 2021, netted, J.R. Gustad leg. (NMS).

Remarks: First record is from 1985. A common European species whose larvae develop in a range of deciduous trees.

* *Lonchaea deutschii* Zetterstedt, 1837

Total: 20♀♀2♂♂. **Records:** **AK** Lørenskog: Onsfell (EIS 29) 1♂ 19 June 1991, collision trap, B. Økland leg. (UMB). **Losby** (EIS 29) 1♀ 27 June–1 August 1991, Malaise trap, B. Økland leg. (UMB). **Oslo:** Ljanselva, Urskog (EIS 28, N59.854° E10.818°) 1♀ 2–14 June 2010, 1♀ 14–25 June 2010, Malaise trap, M. Steinert & G.E.E. Søli leg. (NHMO). **TEY** Porsgrunn: Åsstranda (EIS 10, N59.093° E9.6499°) 1♀ 30 June–27 July 2010, Malaise trap, G.E.E. Søli leg. (NHMO). **AAI** Evje og Hornnes: Kjetså (EIS 25, N59.54396° E7.75594°) 2♀♀ 18 June–1 July 2020, Malaise trap, L. Breistøl leg. (NMS). **RY** Finnøy: Kyrkjøy (EIS 14, N59.256° E5.8116°) 1♀ 18 May–1 June 1990, Malaise trap, T. Jonassen leg./det. (NMS). **RI** Hjelmeland: Fister (EIS 14, N59.17132° E6.07342°) 3♀♀ 15–30 June 2020, Malaise trap, A.T. Mjøs leg. (NMS). Hjelmeland

(EIS 14, N59.23120° E6.16526°) 4♀♀ 15–30 June 2020, Malaise trap, A.T. Mjøs leg. (NMS).

HOY Osterøy: Skaftå (EIS 40) 1♀ 28 May–16 June 1982, Malaise trap, Alf-Jacob Nilsen leg. (UMB). **Bergen:** Åsane (EIS 31) 1♀ 30 June–28 July 2008, Malaise trap, L.G. Jensen (UMB). **MRY** Averøy: Rokset, Kvernesveien 1283 (EIS 84, N62.9829° E7.6689°) 1♀ 28 June 2020, indoor, J.R. Gustad leg. (NMS). **NTI** Høylandet: Skiftesåa (EIS 107) 1♀ 18 June 1986, 1♀ 30 July 1986, 1♀ 25 June 1988, Malaise trap, J.O. Solem leg. (UMB). **FØ** Sør-Varanger: Nyrud (EIS 168, N69.401° E29.719°) 1♂ 19–24 June 2010, Malaise trap, Finnmarksprosjektet leg. (UMB).

Remarks: First record is from 1982. A northern species often associated with birch woodlands. The larvae are almost certainly saproxylic but the exact tree species used are unknown.

* *Lonchaea fraxina* MacGowan & Rotheray, 2000

Total: 1♂. **Records:** **RI** Strand: Strandalia (EIS 7, N59.03927° E5.93342°) 1♂ 15 May–2 June 2020, Malaise trap, A.T. Mjøs leg. (NMS).

Remarks: This species has a scattered distribution throughout much of Europe, the larval substrate is ash *Fraxinus excelsior*.

* *Lonchaea fugax* Becker, 1895

Total: 29♀♀3♂♂, 1 not sexed. **Records:** **Ø** Sarpsborg: Tune, Tunevannet SØ (EIS 20) 1♀ 14 July 1992, T.J. Olsen leg. (NHMO). **AK** Oslo: Østensjøvannet, Bogerudmyra (EIS 28) 1♀ 11 July 2009, G.E.E. Søli leg. (NHMO). **Hauketo,** Prinsdal (EIS 28, N59.8296° E10.8176°) 1♂ 8 June–5 July 2016, Malaise trap, L.O. Hansen & J.P. Lindemann leg. (NHMO). **Nesodden:** Røertjern (EIS 28, N59.811° E10.679°) 2♀♀ 2 July–1 August 2010, Malaise trap, O.J. Lønnve leg. (NHMO). **BØ** Lier: Utengen (Egge) (EIS 28) 2♀♀ 31 May 1992, ex pupae, L.O. Hansen leg. (NHMO). **Drammen:** Underlia (EIS 28) 1♀ August 1992, L.O. Hansen leg. (UMB). **Asker:** Hurum (EIS 28, N59.663028° E10.588015°) 1♀ 5 August 2021, M.A. Mjelde leg. (NMS). **BV** Rollag: Rollag (EIS 27?) 1♀ 2 April 1995, B.A. Sagvolden leg. (UMB). **TEY** Kragerø: Jomfruland, Øytangen (EIS 11, N58.8814° E9.6107°) 3♀♀ 28 July–15 August 2009, Malaise

trap, H. Holtung leg. (NHMO). Kurdøla (EIS 11, N58.966746° E9.256652°) 1 imago 9 July 2020, collected by hand, M.A. Mjelde leg. (NMS). Kurdøla (EIS 11, N58.96685° - E9.25727°) 1♀ 4 August 2020, netted, M. Amundsen leg. (NMS). Drangedal: Drangedalsveien 1637 (EIS 11, N58.99565° E9.19907°) 1♀ 20 July 2021, netted, M. Amundsen leg. (NMS). Neslandsvatn stasjon (EIS 11, N58.97153° E9.15609°) 1♀ 8 August 2021, 1♀ 11 August 2021, netted, M. Amundsen leg. (NMS). Neslandsvatn (EIS 11, N58.972918° E9.160698°) 1♀ 13 August 2021, M.A. Mjelde leg. (NMS). AAY Birkenes: Birkeland, Nordåsen (EIS 6) 1♀ June 2003, Malaise trap, S. Svendsen leg. (NHMO). VAY Lyngdal: Augdal (EIS 1) 2♀♀ 13 June 2000, T.R. Nielsen leg. (UMB). RY Finnøy: Kyrkjøy (EIS 14, N59.256° E5.8116°) 1♀ 10 June 1990, netted, T. Jonassen leg. (NMS). Sandnes: Sandnes, Utsikten 11 (EIS 7, N58.8460° E5.7656°) 1♀ 13 August 2020, 2♀♀ 16 August 2020, indoor, K. Solheim leg. (NMS). Sokndal: Kvam (EIS 3, N58.342078° E6.2727141°) 1♀ 27 July–12 August 2021, Malaise trap, J.S. Birkeland leg. (NMS). RI Hjelmeland: Ombo (EIS 14, N59.2399° E5.9597°) 1♀ 16 June 1988, netted, T. Jonassen leg. (NMS). Strand: Strandalia (EIS 7, N59.03927° E5.93342°) 1♂ 15 May–2 June 2020, Malaise trap, A.T. Mjøs leg. (NMS). ON Vang: Vennis, Døtten (EIS 52, N61.1659° E8.4922°) 1♀ 27 June 2021, netted, J.R. Gustad leg. (NMS). MRY Averøy: Rokset, Kvernesveien 1283 (EIS 84, N62.9838° E7.6693°) 1♀ 2017, netted, J.R. Gustad leg. (NMS). Kristiansund: Øygarden (EIS 84, N63.1077° E7.8042°) 1♂ 13 June 2020, netted, J.R. Gustad leg. (NMS). MRI Fjord: Norddal (EIS 69?) 1♀ 18 July–11 September 1993, Malaise trap, O. Hanssen leg. (UMB).

Remarks: First record is from 1988. A common European species, the larvae are found in a range of deciduous tree species with a particular fondness for aspen.

* *Lonchaea hackmani* Kovalev, 1981

Total: 6♀♀4♂♂. **Records:** AK Frogn: Bunnefjorden, Bonnebukta (EIS 28, N59.721° E10.7143°) 1♂ 2 July–1 August 2010, Malaise trap, O.J. Lønnve leg. (NHMO). VE Larvik: Tvedalen (Blue Pearl Quarry) (EIS 19, N59.0°

E9.8°) 5♀♀3♂♂ collected 22 May 2005, ex pupae ex Aspen, I. MacGowan leg. (NMS). AAY Risør: Barmen (EIS 11, N58.72905359° E9.19908987°) 1♀ 2 August 2019, photo, M.A. Mjelde leg.

Remarks: A species with a scattered distribution throughout Europe, the main larval substrate is aspen.

* *Lonchaea iona* MacGowan, 2001

Total: 2♂♂, 4♀♀. **Records:** VAY Kristiansand: Stangenes (EIS 2) 1♂ 1 June 1986, S. Svendsen leg. (UMB). RY Finnøy: Kyrkjøy (EIS 14, N59.256° E5.8116°) 1♂ 2 June 1987, netted, T. Jonassen leg. (NMS). Sokndal: Kvam (EIS 3, N58.342078° E6.2727141°) 1♀ 13 June–4 July 2021, Malaise trap, J.S. Birkeland leg. (NMS). RI Sauda: Hustveit (EIS 23, N59.56878° - E6.26467°) 3♀♀ 2–16 June 2020, Malaise trap, Ø.N. Larsen leg. (NMS).

Remarks: A little-known species with records from across Europe, the larvae are associated with deciduous trees with *Populus* sp. being favoured.

* *Lonchaea mallochi* MacGowan & Rotheray, 2000

Total: 3♂♂. **Records:** TEY Kragerø: Langangen (EIS 11, N58.887931° E9.401267°) 1♂ 9 May 2021, collected by hand, M.A. Mjelde leg. (NMS). RY Finnøy: Kyrkjøy (EIS 14, N59.256° E5.8116°) 1♂ 18 May–1 June 1990, Malaise trap, T. Jonassen leg. (NMS). RI Sandnes: Forsand, Songesand (EIS 7, N59.0282° E6.3688°) 1♂ 27 April 1982, netted, T. Jonassen leg. (NMS).

Remarks: A common species in western Europe, the larvae in the dead wood of deciduous trees especially *Quercus* sp.

* *Lonchaea nitens* (Bigot, 1885)

Total: 14♀♀1♂. **Records:** AK Nesodden: Fagerstrand (EIS 28) 1♀ 29–30 Juli 2001, S. Kobro leg. (UMB). TEY Kragerø: Neslandsvatn (EIS 11, N58.976248° E9.167391°) 1♀ 29 April 2021, M.A. Mjelde leg. (NMS). Skien: Børsesjø (EIS 18, N59.220452° E9.613142°) 1♀ 17 June 2021, M. Amundsen & M.A. Mjelde leg. (NMS). TEI Tinn: Håkanes (EIS 26) 1♂ August 1995, B.A. Sagvolden leg. (UMB). AAY Grimstad: Marivold, Rossevika (EIS 6, N58.335° E8.624°) 1♀ 10 May–11 September 2016, Malaise trap, J.P.

Lindemann leg. (NHMO). **AAI** Evje og Hornnes: Kjetså (EIS 25, N59.54396° E7.75594°) 1♀ 18 May–2 June 2020, Malaise trap, L. Breistøl leg. (NMS). **RY** Sokndal: Skittmyr (EIS 3, N58.35048° E6.30549°) 1♀ 21 May–11 June 2020, Malaise trap, J.S. Birkeland leg. (NMS). **RI** Strand: Strandalia (EIS 7, N59.03927° E5.93342°) 6♀♀ 2–15 June 2020, Malaise trap, A.T. Mjøs leg. (NMS). **HOY** Osterøy: Hosanger (EIS 40, N60.56832° E5.48575°) 2♀♀ 18 May–18 June 2019, Malaise trap, A.T. Mjøs leg. (NMS).

Remarks: First record is from 1995. An uncommon European species, larvae in the dead wood of deciduous trees

* *Lonchaea norvegica* sp. n. (Figures 1–4)

Total: 1♂. **Records:** **RY** Sokndal, Skittmyr (EIS 3, N58.35048° E6.30549°) 1♂ 11 June–10 July 2020, Malaise trap, J.S. Birkeland leg. (NMS).

Remarks: New to science (holotype), see description above (page 283).

* *Lonchaea obscuritarsis* Collin, 1953

Total: 2♀♀8♂♂, 3 not sexed. **Records:** **Ø** Sarpsborg: Sandbakken (EIS 20) 1♂ 28 May 2001, T.J. Olsen leg. (NHMO). **RY** Hå: Ognå (EIS 3) 1♂ 17 May–21 June 1996, Malaise trap, L.G. Jensen leg. (UMB). Stavanger: Byhaugen (EIS 7, N58.9731558° E5.6990651°) 1♂ 24 May 2021, netted, J.S. Birkeland leg. (NMS). Sandnes: Sandnes, Utsikten 11 (EIS 7, N58.8460° E5.7656°) 1♂ 28 May 2021, indoor, K. Solheim leg. (NMS). Sokndal: Birkeland (EIS 3, N58.3568° E6.1540°) 2♂♂ 1–30 May 2021, Malaise trap, J.S. Birkeland leg. (NMS). **HOY** Kvinnherad: Ljosmyr (EIS 31, N59.929° E5.808°) 1 imago 25 May 1968#, field course leg. (UMB). Kvam: Svevatnet (Geitaknottane naturreservat) (EIS 31, N60.109° E5.874°) 1♀ 26 May 1998, canopy fogging, K.H. Thunes leg. (UMB), previously published as *L. stackelbergi* Czerny, 1934 by Thunes *et al.* (2004). **ON** Vang: Vennis, Døtten (EIS 52, N61.1660° E8.4904°) 1♀ 27 June 2021, netted, J.R. Gustad leg. (NMS). **MRY** Hareid: Håbakken (EIS 76) 1 imago 19–24 July 1991, L.G. Jensen leg. (UMB). Averøy: Rokset, Kvernesveien 1283 (EIS 84, N62.9838° E7.6693°) 1♂ 22 May 2021, netted,

J.R. Gustad leg. (NMS). Smøla: Litnes, Lillenes gravsted (EIS 90, N63.4295° E7.9133°) 1♂ 30 May 2021, netted, J.R. Gustad leg. (NMS). **NNV** Vestvågøy: Helle (EIS 137, N68.139° E13.831°) 1 imago 30 July 1979#, L.G. Jensen leg. (UMB).

Remarks: First record is from 1968. A characteristic species of northern birch woods.

* *Lonchaea patens* Collin, 1953

Total: 10♀♀. **Records:** **AK** Nesodden: Røertjern (EIS 28, N59.811° E10.679°) 3♀♀ 2 July–1 August 2010, Malaise trap, O.J. Lønnve leg. (NHMO). **TEY** Drangedal: Neslandsvatn, Løbbedalen (EIS 11, N58.976170° E9.167203°) 1♀ 14 May 2020, netted, M.A. Mjelde leg. (NMS). **RY** Sandnes: Sandnes, Utsikten 11 (EIS 7, N58.8460° E5.7656°) 1♀ 18 June 2021, indoor, K. Solheim leg. (NMS). **RI** Sauda: Hustveit (EIS 23, N59.56878° E6.26467°) 2♀♀ 2–16 June 2020, Malaise trap, Ø.N. Larsen leg. (NMS). Vikaneset (EIS 23, N59.56847° E6.28322°) 1♀ 10–28 July 2020, Malaise trap, Ø.N. Larsen leg. (NMS). **HOY** Osterøy: Hosanger (EIS 40, N60.56832° E5.48575°) 1♀ 18 June–13 July 2020, Malaise trap, A.T. Mjøs leg. (NMS). **MRY** Kristiansund: Øygarden (EIS 84, N63.1077° E7.8042°) 1♀ 13 June 2020, netted, J.R. Gustad leg. (NMS).

Remarks: First record is from 2010. A common European species, the larvae associated with the dead wood of *Populus* and *Fraxinus*.

* *Lonchaea postica* Collin, 1953

Total: 1♂. **Records:** **Ø** Sarpsborg: Rokkeveien (EIS 20) 1♂ 9 June 2016, T.J. Olsen leg. (NHMO).

Remarks: An uncommon European species, the larvae are associated with wet woodland habitats.

* *Lonchaea ragnari* Hackman, 1956

Total: 2♀♀2♂♂. **Records:** **AK** Oslo: Ljanselva, Urskogen (EIS 28, N59.854° E10.818°) 1♀ 5–14 July 2010, Malaise trap, M. Steinert & G.E.E. Søli leg. (NHMO). **TEY** Kragerø: Åtangen (EIS 11, N58.871428° E9.350319°) 1♀ 19 May 2021, M.A. Mjelde leg. (NMS). **TEI** Tinn: Rjukan (EIS 26) 1♂ May 1995, B.A. Sagvolden leg. (UMB). **TRI** Målselv: Kongsvold (EIS 154) 1♂ 24 June 2004, L.G. Jensen leg. (UMB).

Remarks: A species characteristic of old growth northern birch-woods, the larvae develop in decaying birch.

* *Lonchaea scutellaris* Rondani, 1874

Total: 1♂. **Records:** RY Sokndal: Kvam (EIS 3, N58.35048° E6.30549°) 1♂ 21 May–11 June 2020, Malaise trap, J.S. Birkeland leg. (NMS).

Remarks: A common species in central and southern Europe, larvae in the dead wood of deciduous trees.

* *Lonchaea spicata* MacGowan, 2008

Total: 2♀♀12♂♂. **Records:** RY Sokndal: Skittmyr (EIS 3, N58.35048° E6.30549°) 1♀9♂♂ 21 May–11 June 2020, Malaise trap, J.S. Birkeland leg. (NMS). Kvam (EIS 3, N58.342078° E6.2727141°) 1♀2♂♂ 13 May–13 June 2021, Malaise trap, J.S. Birkeland leg. (NMS). NTI Høylandet: Tverråa (EIS 107) 1♂ 1 June 1986, Malaise trap, J.O. Solem leg. (UMB).

Remarks: An uncommon species in Europe, the larval habitat is unknown.

* *Lonchaea subneatosa* Kovalev, 1974 (Figure 8)

Total: 1♀. **Records:** AAY Risør: Barmen (EIS 11, N58.735095° E9.207431°) 1♀ 8 June 2021, M. Amundsen & M.A. Mjelde leg. (NMS).

Remarks: An uncommon species whose larvae are associated with the dead wood of *Populus* trees.

* *Lonchaea sylvatica* Beling, 1873

Total: 19♀♀2♂♂, 2 not sexed. **Records:** Ø Sarpsborg: Råkil, Tune (EIS 20) 1♀ 7 July 1993, T.J. Olsen leg. (NHMO). Marker: Ruketjernshøgda, Abbortjern (EIS 21) 1♀ 3 May 2015, O. Sørlibråten leg. (NHMO). AK Asker: Sandungen (EIS 28, N59.8749° E10.3698°) 1♂ 21 May 2009, photo, G. Drange leg. TEY Kragerø: Kurdøla (EIS 11, N58.966761° E9.256641°) 1♀ 9 July 2020, collected by hand, M.A. Mjelde leg. (NMS). Kurdøla (EIS 11, N58.966761° E9.256641°) 2 pupae found 15 March 2021, hatched as ♀♀ 9 May 2021, ex Aspen, M.A. Mjelde leg. (NMS). Kurdøla (EIS 11, N58.966746° E9.256652°) 1♀ 21 August 2021, M.A. Mjelde leg. (NMS). Drangedal: Dyvikheia (EIS 11,



FIGURE 8. *Lonchaea subneatosa* Kovalev, 1974. The first record from Norway, a female, from Risør 8 June 2021. Photo: Morten Angard Mjelde.

N58.973580° E9.200535°) 1♀ 4 June 2021, M.A. Mjelde leg. (NMS). Ytre Vefall (EIS 11, N58.99929° E9.21012°) 1♀ 18 July 2021, netted, M. Amundsen leg. (NMS). Ytre Vefall (EIS 11, N58.99665° E9.21434°) 1♀ 18 July 2021, netted, M. Amundsen leg. (NMS). Neslandsvatn stasjon (EIS 11, N58.97153° E9.15609°) 1♀ 22 July 2021, netted, M. Amundsen leg. (NMS). Skien: Børsesjø (EIS 18, N59.227141° E9.610496°) 1♀ 21 August 2021, M.A. Mjelde leg. (NMS). **AAY** Grimstad: Skiftenes edelløvkogreservat (EIS 6, N58.412° E8.485°) 1 imago 31 May 1971, E. Oug leg. (UMB). Birkenes: Birkeland, Nordåsen (EIS 6) 2♀♀ June 2003, 1♀ July 2003, Malaise trap, S. Svendsen leg. (UMB). **RY** Hå: Hølland (EIS 3, N58.52445° E5.83518°) 1♀ 1–14 June 2020, Malaise trap, A.T. Mjøs leg. (NMS). Sokndal: Kvam (EIS 3, N58.342078° E6.2727141°) 1♀ 27 July–12 August 2021, Malaise trap, J.S. Birkeland leg. (NMS). **RI** Sandnes: Forsand, Songesand (EIS 7, N59.0282° E6.3688°) 1♀ 25 April 1982, netted, T. Jonassen leg. (NMS). Hjelmeland: Fister (EIS 14, N59.17132° E6.07342°) 1♀ 17 July–3 August 2020, Malaise trap, A.T. Mjøs leg. (NMS). **HOY** Osterøy: Hosanger (EIS 40, N60.56832° E5.48575°) 1♀ 18 June–13 July 2020, Malaise trap, A.T. Mjøs leg. (NMS). **NSY** Bodø: Sandjorda by Tussvasselva (EIS 130, N67.32665832° E14.66303869°) 1 ♂ 5 June 2011, photo, G. Ørsnes leg.

Remarks: First record is from 1971. A widespread European species whose larvae develop in the dead wood of both deciduous and coniferous trees.

Lonchaea tarsata Fallén, 1820

Total: 4♀♀9♂♂, 1 not sexed. **Records:** **Ø** Moss: Jeløya, Alby (EIS 19, N59.4229° E10.6071°) 1♀ 12 July 2020, collected on light (mercury lamp), J.R. Gustad leg. (NMS). **TEY** Skien: Børsesjø (EIS 18, N59.22069° E9.61451°) 1♂ 16 June 2021, netted, M. Amundsen leg. (NMS). Drangedal: Drangedalsveien 1637 (EIS 11, N58.99565° E9.19907°) 1♀ 21 June 2021, netted, M. Amundsen leg. (NMS). **RY** Sokndal: Skittmyr (EIS 3, N58.35048° E6.30549°) 1♂ 21 May–11 June 2020, Malaise trap, J.S. Birkeland leg. (NMS). Skittmyr (EIS 3, N58.3494953°

E6.3053846°) 1♂ 12–30 May 2021, Malaise trap, J.S. Birkeland leg. (NMS). Kvam (EIS 3, N58.342078° E6.2727141°) 1♀2♂♂ 13 May–13 June 2021, Malaise trap, J.S. Birkeland leg. (NMS). Birkeland (EIS 3, N58.3568° E6.1540°) 2♂♂ 30 May–19 June 2021, Malaise trap, J.S. Birkeland leg. (NMS). **HOY** Kvinnherad: Rosendal (EIS 31, N59.985° E6.012°) 1 imago 16 June 1943, H. Tambs-Lyche leg. (UMB). **MRY** Averøy: Rokset, Kvernesveien 1283 (EIS 84, N62.9829° E7.6684°) 1♀ 15 June 2019, indoor, J.R. Gustad leg. (NMS). Rokset, Kvernesveien 1283 (EIS 84, N62.9838° E7.6693°) 2♂♂ 10 June 2020, netted, J.R. Gustad leg. (NMS).

Remarks: First record is from 1943. A widespread species throughout Europe, the exact larval habitat is unknown but it is probably saproxylic.

* ***Lonchaea xylophila*** Kovalev, 1978

Total: 2♀♀. **Records:** **TRI** Nordreisa: Naustneset, Lorriholmen (EIS 156, N69.336° E21.939°) 2♀♀ 19 July–20 September 2016, Malaise trap, J. Kjærandsen leg. (NHMO).

Remarks: A little known species with only a few known records from northern Europe. Kovalev (1978) states that puparia were found in a decaying birch log.

* ***Lonchaea zetterstedti*** Becker, 1902

Total: 9♀♀, 1 not sexed. **Records:** **HES** Våler: Nordre Bolsjøen, Kaskonbekken (EIS 56, N60.856° E12.089°) 1♀ 7 June–6 August 2009, Malaise trap, E. Rindal & G.E.E. Søli leg. (NHMO). **OS** Aurdal (EIS 44) 1♀ date unknown, but about 1850#, J.H.S. Siebke leg. (NHMO), previously published as *L. laticornis* by Siebke (1877). **HEN** Rendalen: Åkre (EIS 64) 1♀ date unknown, but about 1850#, J.H.S. Siebke leg. (NHMO), previously published as *L. laticornis* by Siebke (1877). **MRY** Averøy: Rokset, Kvernesveien 1283 (EIS 84, N62.9829° E7.6684°) 1♀ 17 June 2020, 1♀ 9 July 2021, indoor, J.R. Gustad leg. (NMS). Roksetskaret (EIS 84, N62.9792° E7.6404°) 1♀ 25 June 2020, 1♀, 1 not sexed 28 June 2020, netted, J.R. Gustad leg. (NMS). **MRI** Molde: Rauma, Verma, Ormem (EIS 77?) 1♀ 22 August 1864#, J.H.S. Siebke

leg. (NHMO, labelled “Romsdal”), previously published as *L. tarsata* by Siebke (1877). **STI**: Oppdal: Kongsvoll (EIS 79) 1♀ 29 July 1873#, J.H.S. Siebke leg. (NHMO), previously published as *Lonchaea palposa* 1♂ (Siebke 1877).

Remarks: First (dated) record is from 1873. A widespread species whose larvae are associated with the dead wood of various conifer species.

Silba Macquart, 1851

Silba fumosa (Egger, 1862)

Total: 7♀♀1♂. **Records:** Ø Moss: Ekeby (EIS 19) 1♀ 21 July–24 August 1992, Malaise trap, L.O. Hansen & G. Walberg leg. (UMB). Råde: Tasken (EIS 20) 1♀ 2–24 June 1995, Malaise trap, J.I.I. Båtvik & O. Hanssen leg. (UMB). **BØ** Drammen: Underlia (EIS 28) 1♀ July 1992, Malaise trap, L.O. Hansen leg. (UMB). **VE** Larvik: Bisjord-Heggdal (EIS 19, N59.0562° E10.0772°) 1♀ 17 June 1994, netted, B. Borgersen leg. (NMS). Mølen (EIS 11) 1♀ 19 July 1994, G.E.E. Søli leg. (UMB). **TEY** Bamble: Ormvika (EIS 11, N58.998604° E9.707364°) 1♀ 27 September 2020, netted, M.A. Mjelde leg. (NMS). **AAV** Arendal: Tromøya, Hove leirsted (EIS 6) 1♀ 27 June 2003, L.G. Jensen leg. (UMB). **OS** Østre Toten: Balke kirke (EIS 45, N60.668322° E10.951030°) 1♂ 25 July 2021, M.A. Mjelde leg. (NMS).

Remarks: First record from 1992. A very widespread species in the western Palearctic, most common in southern and central Europe and reaching its northern limit in Scandinavia.

Comparison with the faunas of other Scandinavian countries and the British Isles.

Diptera checklists which include Lonchaeidae, are already available for the British Isles, Denmark, Sweden and Finland and reference to these allows the Norwegian fauna to be placed in context with these neighbouring countries. Kahanpää & Winqvist (2014) lists a total of 41 species, with an additional three unconfirmed species, as occurring in Finland. Since that time one of the unconfirmed species *Lonchaea difficilis* Hackman, 1956 has

been confirmed by MacGowan (2016). In addition, *Proteromyia jonesi* MacGowan & Reimann, 2021 was added by MacGowan & Reimann (2021) and *Silba fumosa* was added from photographs identified on iNaturalist (<https://www.inaturalist.org/observations/89757748>). A further nine species; *Dasiops hennigi*, *L. bruggeri*, *L. contigua*, *L. contraria*, *L. gordodkovi*, *L. hyalipennis*, *L. obscuritarsis*, *L. postica* and *P. withersi* are listed in the Finnish biodiversity database (Suomen Lajitietokeskus, 2022) bringing the Finnish total to 53 species.

For the British Isles the Diptera checklist is regularly updated and is available online (MacGowan 2022). As of October 2022, this includes 51 species of Lonchaeidae. The Swedish Lonchaeidae checklist was updated in 2015 and 2020. The Swedish fauna has been intensively studied as a result of the Swedish Malaise trap project and other initiatives and a result the number of recorded species at 66 is the highest of the countries considered here. In Denmark 33 confirmed species were included in the Diptera checklist of 2001 (MacGowan 2001) with *Dasiops spatiosus* (Becker, 1895) added by MacGowan (2005) and *Earomyia argenta* MacGowan, 2020 by MacGowan (2020) giving a total of 35 species.

Discussion

This checklist confirms the presence of 40 species of Lonchaeidae in Norway, one of which is new to science and a further 32 species which are new national records. Of the previous nine published Norwegian lonchaeid records there are seven species which we include in this present checklist. Of the other two published records *Lonchaea laticornis* Meigen, 1826 is now considered to represent a complex of species and the original record of *Lonchaea palposa* Zetterstedt, 1847 was based on an incorrect identification and as no further specimen has been recorded it is not included.

Table 1 would illustrate that there are still many other species which could be potentially found in Norway. In particular the discovery of a species new to science indicates that there is

TABLE 1. The Lonchaeid fauna of Scandinavia, Finland and the British Isles. Present known distribution. A total of 76 species are recorded.

Species	British Isles	Denmark	Norway	Sweden	Finland
<i>Dasiops appendiculus</i> Morge, 1959	-	-	-	+	+
<i>Dasiops calvus</i> Morge, 1959	+	-	-	-	-
<i>Dasiops facialis</i> Collin, 1953	+	-	+	+	+
<i>Dasiops hennigi</i> Morge, 1959	+	-	-	+	+
<i>Dasiops laticeps</i> (Czerny, 1934)	-	-	+	+	-
<i>Dasiops mucronatus</i> Morge, 1959	+	-	+	+	+
<i>Dasiops noctuinus</i> Morge, 1959	-	-	-	+	-
<i>Dasiops occultus</i> Collin, 1953	+	+	+	+	+
<i>Dasiops perpropinquus</i> Morge, 1959	+	-	+	+	+
<i>Dasiops solivagus</i> Morge, 1959	+	-	-	+	-
<i>Dasiops spatiosus</i> (Becker, 1895)	+	+	+	+	+
<i>Dasiops trichosternalis</i> Morge, 1959	+	+	+	-	+
<i>Chaetolonchaea brevopilosa</i> Czerny, 1934	-	-	-	+	-
<i>Chaetolonchaea dasyops</i> (Meigen, 1826)	-	+	+	+	-
<i>Chaetolonchaea pallipennis</i> (Zetterstedt, 1855)	-	+	+	+	+
<i>Earomyia argenta</i> MacGowan, 2020	-	+	-	+	-
<i>Earomyia lonchaeoides</i> Zetterstedt, 1848	-	+	+	+	+
<i>Earomyia netherlandica</i> MacGowan, 2004	+	-	-	+	-
<i>Earomyia schistopyga</i> Collin, 1953	+	-	-	+	+
<i>Earomyia viridana</i> (Meigen, 1826)	+	-	-	+	+
<i>Earomyia virilis</i> Collin, 1953	+	-	-	+	-
<i>Lonchaea affinis</i> Malloch, 1920	+	+	+	+	+
<i>Lonchaea albigena</i> Collin, 1953	-	-	-	+	+
<i>Lonchaea albitarsis</i> Zetterstedt, 1837	+	-	+	+	+
<i>Lonchaea angelina</i> MacGowan, 2014	+	-	+	+	-
<i>Lonchaea bruggeri</i> Morge, 1967	-	-	-	+	+
<i>Lonchaea bukowskii</i> Czerny, 1934	+	-	+	+	+
<i>Lonchaea caledonica</i> MacGowan & Rotheray, 2000	+	+	-	+	+
<i>Lonchaea carpathica</i> Kovalev, 1974	+	+	+	+	+
<i>Lonchaea caucasica</i> Kovalev, 1974	+	-	-	+	-
<i>Lonchaea chorea</i> (Fabricius, 1781)	+	+	+	+	+
<i>Lonchaea collini</i> Hackman, 1956	+	+	+	+	+
<i>Lonchaea contigua</i> Collin, 1953	+	+	+	+	+
<i>Lonchaea contraria</i> Czerny, 1934	+	+	-	-	+
<i>Lonchaea corusca</i> Czerny, 1934	+	+	+	+	+
<i>Lonchaea defecta</i> McAlpine, 1964	-	-	-	+	+
<i>Lonchaea deutschii</i> Zetterstedt, 1837	+	-	+	+	+
<i>Lonchaea difficilis</i> Hackman, 1956	-	-	-	-	+

TABLE 1. continued

Species	British Isles	Denmark	Norway	Sweden	Finland
<i>Lonchaea fraxina</i> MacGowan & Rotheray, 2000	+	+	+	+	+
<i>Lonchaea freyi</i> Czerny, 1934	-	-	-	-	+
<i>Lonchaea fugax</i> Becker, 1895	+	+	+	+	+
<i>Lonchaea gorodkovi</i> Kovalev, 1974	-	-	-	+	+
<i>Lonchaea hackmani</i> Kovalev, 1981	+	+	+	+	+
<i>Lonchaea helvetica</i> MacGowan, 2001	-	-	-	+	-
<i>Lonchaea hirticeps</i> Zetterstedt, 1837	-	-	-	+	-
<i>Lonchaea hyalipennis</i> Zetterstedt, 1847	-	+	-	+	+
<i>Lonchaea iona</i> MacGowan, 2001	+	-	+	+	-
<i>Lonchaea ipsiphaga</i> McAlpine, 1964	-	-	-	-	+
<i>Lonchaea limatula</i> Collin, 1953	+	-	-	+	+
<i>Lonchaea mallochi</i> MacGowan & Rotheray, 2000	+	+	+	+	-
<i>Lonchaea nitens</i> (Bigot, 1885)	+	-	+	+	+
<i>Lonchaea nitidissima</i> Kovalev, 1978	-	-	-	+	-
<i>Lonchaea norvegica</i> sp. n.	-	-	+	-	-
<i>Lonchaea obscuritarsis</i> Collin, 1953	+	+	+	+	+
<i>Lonchaea palposa</i> Zetterstedt, 1847	+	+	-	+	+
<i>Lonchaea patens</i> Collin, 1953	+	+	+	+	+
<i>Lonchaea peregrina</i> Becker, 1895	+	+	-	+	-
<i>Lonchaea postica</i> Collin, 1953	+	+	+	+	+
<i>Lonchaea ragnari</i> Hackman, 1956	+	+	+	+	+
<i>Lonchaea scutellaris</i> Rondani, 1874	+	+	+	+	+
<i>Lonchaea serrata</i> MacGowan & Rotheray, 2000	+	+	-	-	-
<i>Lonchaea sororcula</i> Hackman, 1956	-	-	-	-	+
<i>Lonchaea spicata</i> MacGowan, 2008	-	-	+	+	-
<i>Lonchaea stackelbergi</i> Czerny, 1934	-	+	-	+	+
<i>Lonchaea subneatosia</i> Kovalev, 1974	+	-	+	+	+
<i>Lonchaea sylvatica</i> Beling, 1873	+	+	+	+	+
<i>Lonchaea tarsata</i> Fallén, 1820	+	+	+	+	+
<i>Lonchaea tenuicornis</i> Kovalev, 1978	+	-	-	+	-
<i>Lonchaea ultima</i> Collin, 1953	+	+	-	+	+
<i>Lonchaea xylophila</i> Kovalev, 1978	-	-	+	+	-
<i>Lonchaea zetterstedti</i> Becker, 1902	+	+	+	+	+
<i>Protearomyia jonesi</i> MacGowan & Reimann, 2021	+	-	-	-	+
<i>Protearomyia nigra</i> (Meigen, 1826)	+	+	+	+	+
<i>Protearomyia rameli</i> MacGowan, 2014	-	-	-	+	-
<i>Protearomyia withersi</i> MacGowan, 2014	+	-	-	+	+
<i>Silba fumosa</i> (Egger, 1862)	+	+	+	+	+
Totals	51	35	40	66	53

still much to be discovered about the Norwegian lonchaeid fauna.

The lonchaeid fauna of Norway is in general similar to that of the other four countries with which it is compared in Table 1. For example, all of the Norwegian species apart from *Dasiops trichosternalis* and the newly described *Lonchaea norvegica* are also found in Sweden. Differences in the number of species recorded in each country are most likely a result of collecting intensity.

The most obvious comparison is that with Norway's closest neighbour Sweden which, with a fauna of 66 species, is one of the best studied in Europe. This is due in part to the large amount of material collected by initiatives such as the Swedish Malaise Trap Project (SMTP). Southern Sweden hosts some species at the northern edge of their European range such as *Chaetolonchaea brevopilosa* and *Protearomyia rameli* which have not been recorded from Norway at present. In terms of species abundance MacGowan (2015) reported *Lonchaea affinis* as being the most common species in SMTP samples and this corresponds with our findings for Norway where it is only second in terms of records to *Lonchaea chorea*. The latter species favours anthropogenic habitats and is consequently often well represented in collections. Woodland species such as *Lonchaea deuschii* and *L. sylvatica* are also important elements of the fauna in both countries. *Lonchaea fugax*, which was the most common species obtained in rearing surveys in Sweden (MacGowan, 2015) is also an important constituent of the fauna in both countries.

Our experience from the present study has shown that combining the resources of amateur entomologists and nature photographers with those of museum collections and taxonomic specialists can be very effective when undertaking a project such as this. As a result, over a period of only a few years, we have increased the known lonchaeid fauna of Norway from seven to 40 species.

Further studies on the family could potentially focus on biology, habitat preferences, catching methods and flight period. At present little work has been undertaken combining classic identification with DNA barcoding. This has been

used with success for other groups, revealing both discoveries and options for further research.

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